



Bundesnetzagentur

# Annual Report 2020

## Markets and the effects of digital transformation



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## **Bundesnetzagentur Strategic Plan 2021**

The Bundesnetzagentur is required under section 122(2) of the Telecommunications Act (TKG) to include a strategic plan in its Annual Report, listing matters of legal and economic policy in telecommunications to be addressed by the Bundesnetzagentur in the current year. In addition, the Bundesnetzagentur includes all its main projects in all its fields of activity in which issues of fundamental importance are expected in 2021.

The strategic plan can be found at  
[www.bundesnetzagentur.de/vorhabenplan](http://www.bundesnetzagentur.de/vorhabenplan)

The year 2020 was defined by one issue: the coronavirus. The first lockdown, which was imposed in mid-March, caught the Bundesnetzagentur unawares, too, and unprepared. But the regulatory authority responded quickly, flexibly and with a minimum of bureaucracy. It was possible to provide a large number of staff with equipment to enable mobile working.

This meant the authority's work could continue with no real problems. Checking, monitoring, authorising, instructing, implementing – everything carried on as before. Many processes within this higher federal authority require coordination and agreement between a lot of different sections and departments, service providers and superiors. From the start of the pandemic this practically only became possible by telephone or videoconference. But it worked. Many important projects were realised, for instance the coal phase-out tendering process, which marked the start of putting the Act to Reduce and End Coal-Fired Power Generation into practice. This will have a significant impact on the energy transition. From 1 January 2021 the first 11 power stations will no longer sell coal-generated electricity. This is only one example of the many projects that have turned out extremely well in this Covid year – thanks to the efforts of all the staff at every level. There is enormous hope that 2021 will bring with it a return to normality and freedom. But no matter what happens, the Bundesnetzagentur has shown that it can deliver first-rate work even in an unprecedented crisis situation. This spurs us on.



The president and vice-presidents of the Bundesnetzagentur  
Dr. Wilhelm Eschweiler, Jochen Homann and Peter Franke (from left to right)

#### Dear Reader,

In 2020 the whole world had to adapt to the Covid-19 pandemic, including the German network sectors and the Bundesnetzagentur. All the networks were and remain stable. The telecommunications providers managed the increase in data traffic very well. Nevertheless, as a precaution in the unlikely event of network congestion, the Bundesnetzagentur published guidelines offering solutions and measures for reliable traffic management.

Going beyond Covid-19, however, we again took a number of decisions in 2020 whether on access and price regulation or relating to our infrastructure tasks. In the following I would like to illustrate a few examples, albeit in the knowledge that this can only ever represent a very small sample of our range of activities.

In frequency management, the Bundesnetzagentur issued a decision on the provision of spectrum in the 450 MHz band primarily for critical infrastructure in the energy and water industries. This essentially paves the way for the digitisation of the energy and transport sectors and contributes towards achieving the climate targets. The spectrum will now be awarded in tendering proceedings. In doing so, the interests of the authorities and organisations concerned with public safety, of the armed services and of the energy and water industries can be taken better into consideration in the selection of the assignment holder.

The Bundesnetzagentur has made numerous frequency assignments for the industrial deployment of 5G for campus networks. The spectrum auction in 2015 laid



down certain coverage requirements but, unfortunately, the mobile network operators were not able to fulfil these requirements by the deadline of the end of 2019. Consequently, we set them a new deadline with interim targets for the end of 2020, which the network operators successfully met.

The amendment to the Telecommunications Act (TKG) has been discussed at great length. The intention of it is to prepare the sector for a gigabit future. For the Bundesnetzagentur, however, the TKG will contain various new developments, for instance in market regulation, with an even stricter focus on open access agreements and cooperation.

In the field of digitalisation and networking we are currently giving enterprises an opportunity to report on their digital platform experience so far.

Initial findings show that the majority of enterprises consider both marketing and distribution channels via digital platforms to be significant. Therefore we are proposing the introduction of a new European regulatory framework for digital platforms that will have substantial intermediation power. This framework should prevent harmful practices, such as discrimination, before any harm occurs. Timely remedial measures are crucial, especially for smaller companies.

The postal sector saw an increase in parcel post during the pandemic. This shows the importance of having logistics appropriate for consumers and for industry. In January 2020 the Bundesnetzagentur followed up on claims that Deutsche Post had, without any justification, increased the parcel rates to the detriment of private customers. After the initiation of proceedings, Deutsche Post reversed this price increase.

With respect to letter stamp prices, for the 2016 to 2018 approval period the Federal Administrative Court found the relevant basis of the ordinance to be illegal. As this judgement could also be applied to the ordinance presently valid, we have requested Deutsche Post AG to provide us with its current costs data.

The rail sector is currently facing enormous challenges due to climate protection efforts and to the Covid-19 pandemic, leading to increased funding. In this connection the Bundesnetzagentur makes sure that competition remains a factor in leading to more efficient and effective offers. The relevant track access charges for 2021 had to be approved.

There is also good news to report on the expansion of the electricity grid. Taking into account the challenges and the complexity of the proceedings, good progress has been made in the past months. The Bundesnetzagentur was able to respond quickly to the sudden need to switch for the most part to digital formats and work processes. In fact we can also report some satisfactory interim success. In the large direct current power lines, the SuedOstLink project is the most advanced; all the sections relating to this project are in the planning approval, which marks the final phase in the multi-stage approval processes.

In establishing requirements for the expansion of the electricity grid, the scenario framework for 2021 to 2035 provided the start signal for the next network development plan. We are focusing in particular on the phase-out of coal. A further issue is sector coupling, for instance using electricity as a heat carrier. The transmission system operators are now being called upon to work to identify and propose concrete plans for network expansion on the basis of these new assumptions.

In addition we are heavily involved in issues concerning the future development of the gas network. The market area conversion from L-gas to H-gas is moving forward. At the same time, representatives from politics and industry are discussing the importance and future of the hydrogen industry extensively. We are providing constructive support to the discussion on the correct market design and an appropriate regulatory framework for a hydrogen network.

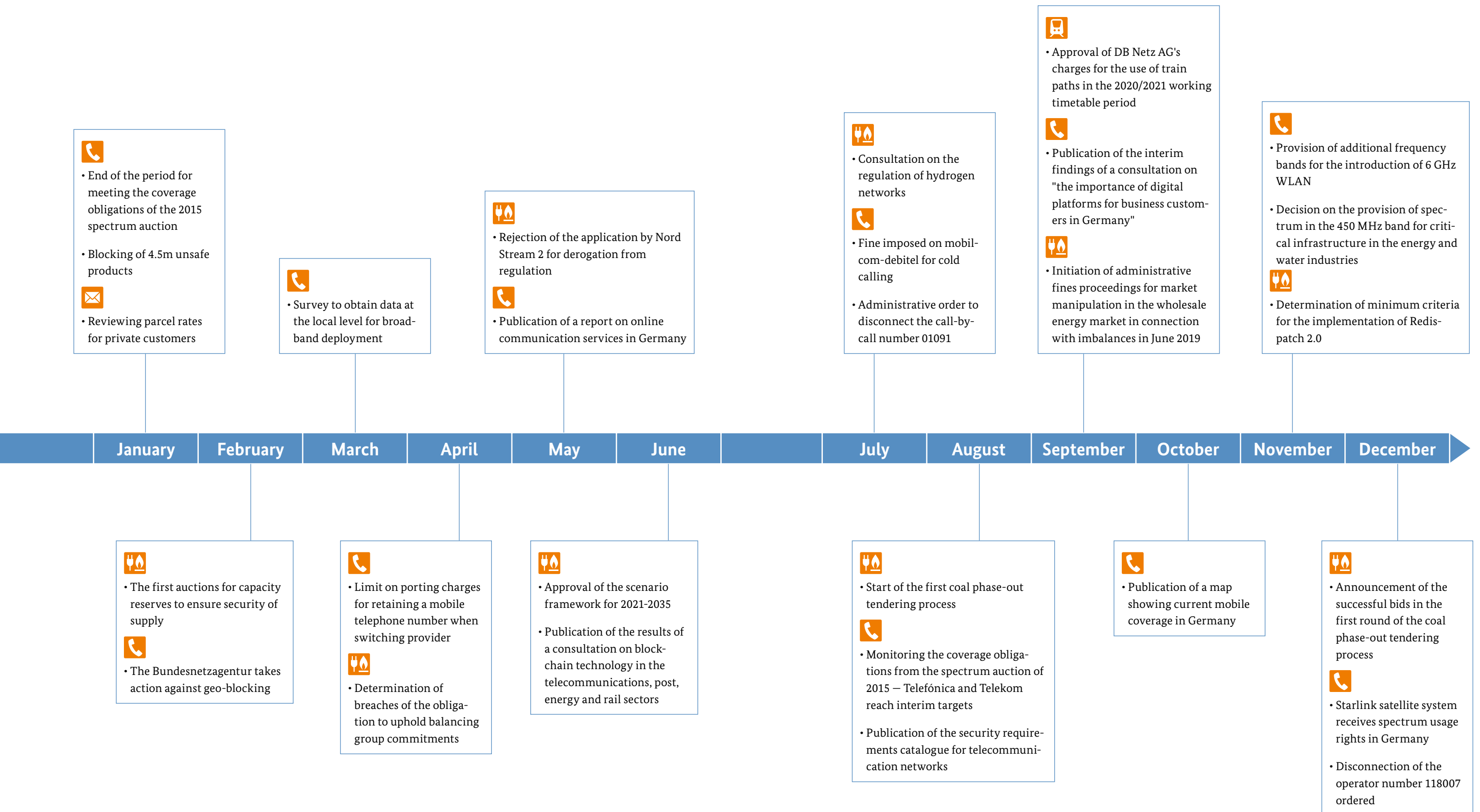
Finally, in the energy field, we successfully completed the first round of a call for tenders under the Act to Reduce and End Coal-Fired Power Generation. The tendering received a good response from operators. The bid round was significantly oversubscribed and the average price of the bids awarded a tender was considerably lower than the maximum price permitted by law.

In 2021 the Bundesnetzagentur will continue to build on its successes to date. Effective competition and modern, efficient infrastructure that bolster the economy and meet the needs of consumers will continue to be our objectives in future.



Jochen Homann  
President of the Bundesnetzagentur

## 2020 annual overview



## Panorama 2020

### TELECOMMUNICATIONS

#### The traditional telephone line dies out

Whereas in 2015 there were still 16.2m analogue and ISDN landline telephone connections, by 2020 only 400,000 remained.



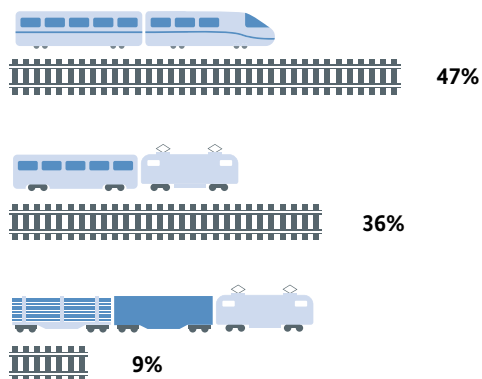
#### Online communication services gain in importance

Around 83% of the population use OTT (over the top) communication services. Of these, WhatsApp (96%), Facebook Messenger (42%), Instagram (30%), Skype (18%) and Snapchat (12%) are the most widely used.

### RAIL

#### Less rail traffic during the Covid-19 crisis

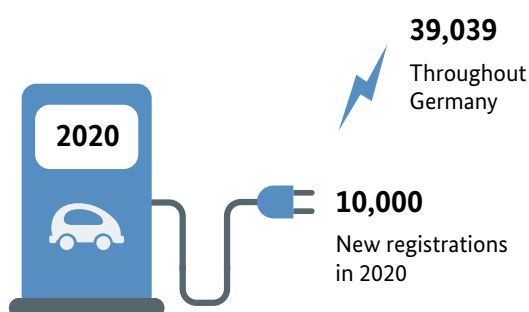
As a consequence of the Covid-19 crisis, rail passenger travel has fallen sharply. The number of long-distance and regional services has therefore been reduced. In the first half of 2020 passenger kilometres in regional transport fell by 36% and in long-distance transport by 47%. The decline in rail freight transport in the first half of 2020 was around 9%.



#### A growing number of people employed in rail transport

Logistics and transport enterprises in the rail segment are increasing their work force. The number of people actually employed in the railway market rose by 16% in the period from 2015 to 2019.

## ENERGY

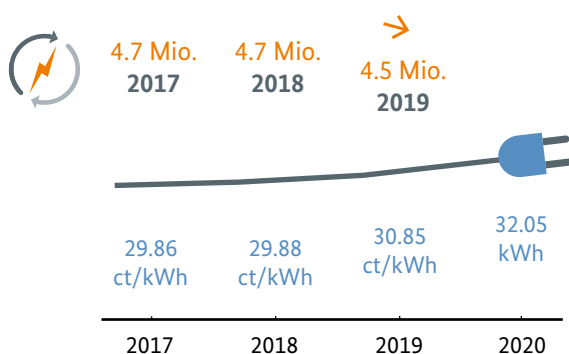
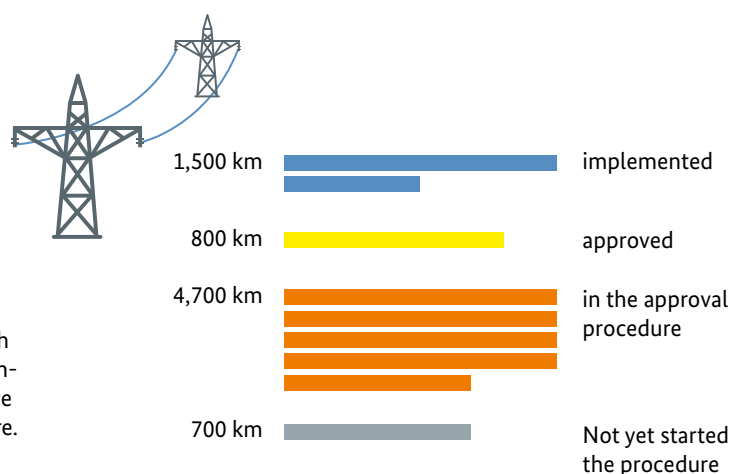


## Charging vehicles will become easier

In the past three years the number of publicly accessible charging points notified to the Bundesnetzagentur has practically quadrupled. In 2020 alone more than 10,000 new charging points were installed, the equivalent of an approximate 35% increase on the previous year. By the end of 2020, a total of 39,069 publicly accessible charging points throughout Germany were being operated for electric vehicles and had been notified to the Bundesnetzagentur.

## Electricity grid expansion — progress is being made

Some 65 power line projects totalling approximately 7,700 km will be transporting green electricity across Germany in future. Around one third of the distance transported in the extra high voltage network has already been approved or implemented. More than half the kilometre distance is currently going through the approval procedure.



## Fewer supplier switches alongside slightly rising electricity prices

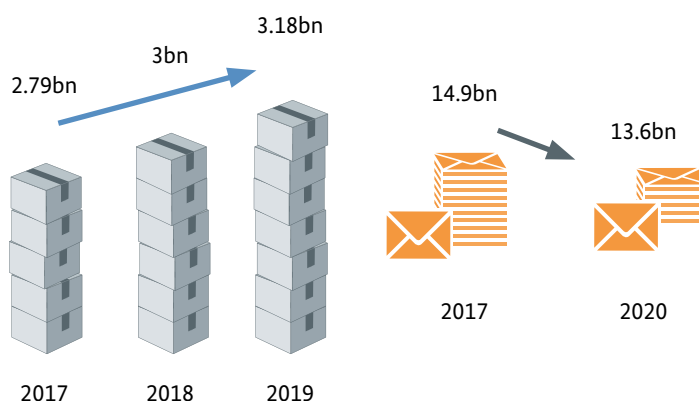
The number of supplier switches fell last year: whereas 4.7m consumers switched electricity supplier in the years 2017 to 2018, this number dropped by around 200,000 in 2019.

At the same time the electricity price went up.

## POST

## More parcels, fewer letters

From 2017 to 2019 the number of letters delivered fell by just under 9% (from 14.9bn to 13.6bn). This trend was expected to continue in 2020, falling from 13.6bn to an estimated 12.4bn. During the same period the number of items for parcel and express delivery rose considerably.





## Press comments 2020

3 January 2020

**c't 2/2020 page 144**

**A VOID WITH POTENTIAL**

Author: Dušan Živadinović

*Excerpt from an article on the award of spectrum for campus networks*

"In autumn 2019 the Bundesnetzagentur gave the long-awaited go-ahead for mobile-based campus networks. Interested institutes, companies and agricultural users should be prepared to wait, however, as the choice of suitable terminal equipment is poor. The situation is somewhat complicated but there is some cause for optimism."

6 February 2020

**SÜDDEUTSCHE ZEITUNG**

**THE POST BACKS DOWN**

Author: Benedikt Müller-Arnold

*Excerpt from an article on Deutsche Post's parcel rates*

"Sending small packets and parcels via Deutsche Post will become cheaper again from 1 May as the Bonn-based group will reverse the price increases that it implemented at the start of the year. By doing so, Deutsche Post wanted to avoid years of legal action with the Bundesnetzagentur, where the outcome was uncertain, according to the group. It is the first time that the group has had to reverse an increase in parcel charges under pressure from the regulatory authority."

20 March 2020

**ALLGEMEINE ZEITUNG MAINZ**

**ENOUGH INTERNET FOR EVERYONE**

Author: V. Voss

*Excerpt from an article on the effects of the Covid-19 pandemic on working from home and video streaming*

"In a case of emergency, network operators would actually be permitted to ignore the net neutrality principle and to make more capacity available for hospitals, for example, than for entertainment. Yet the Bundesnetzagentur announces that 'The providers are well-prepared for an increase in data traffic. The networks are currently stable...'"

15 April 2020

**SÜDDEUTSCHE ZEITUNG**

**DETENTION FOR TELEFÓNICA**

Author: Helmut Martin-Jung

*On meeting the coverage obligations of the 2015 spectrum auction*

"The largest German provider by number of mobile services customers has not managed to meet the requirements of the Bundesnetzagentur on the provision of nationwide mobile broadband within the set time limit. Although its competitors, Telekom and Vodafone, have also not met the requirements, they only miss the coverage target of at least 50 Megabits per second for 98% of households nationwide and 97% of households per federal state in just a few cases and only by a few percent."

17 May 2020

**WELT AM SONNTAG**

**POPCORN IN THE DRIVER'S SEAT**

Author: S. Fründt

*On the revival of drive-in cinemas due to the Covid-19 pandemic*

"Today, 60 years later, drive-in cinemas in Germany are experiencing an unexpected comeback. To get around the Covid-19 restrictions, cinema operators are setting up improvised drive-in cinemas in car parks and on any other spare ground throughout Germany. According to information obtained from the Bundesnetzagentur, since the beginning of March no fewer than 245 VHF frequencies have been assigned for drive-in cinema operations..."

25 May 2020

**FRANKFURTER ALLGEMEINE ZEITUNG**

**BUNDESNETZAGENTUR PUTS A SPANNER IN THE WORKS FOR GAZPROM**

Authors: Katharina Wagner and Christian Geinitz

*Excerpt from an article on regulating the Nord Stream 2 gas pipeline*

"The prospect of the Nord Stream 2 pipeline that runs under the Baltic Sea from Russia to Germany ever being operated as planned is dwindling more and more. On Friday the Bundesnetzagentur rejected a motion filed in December by Gazprom's subsidiary Nord Stream 2 AG to have the project located in German territorial waters exempted from EU regulation. ... The Bundesnetzagentur gave the grounds for its decision as being that the pipeline had not been completed by the reference date of 23 May 2019."

25 May 2020

**FRANKFURTER ALLGEMEINE ZEITUNG.NET**  
**WHATSAPP LEAVES EVERYONE BEHIND**

Author: Thiemo Heeg

*Excerpt from an article on a consumer survey of online services*

"Overall the majority of Germans rely on at least two communication services. Yet one of them leaves the competition far behind: Whatsapp has a user rate of 96% ... The Bundesnetzagentur holds back, though, from assessments of market dominance. Yet the authority's president, Jochen Homann, states matter-of-factly: 'Our survey shows that the three most popular services – WhatsApp, Facebook Messenger and Instagram – all belong to the Facebook company.'"

1 July 2020

**SÜDDEUTSCHE ZEITUNG C**  
**KIDREN UNDER SURVEILLANCE**

Author: Marisa Gierlinger

*Excerpt from an article on smart toys and monitoring apps*

"As a matter of fact several interception services have been stopped from operating in the past, including intelligent toys with hidden recording functions. Although children's welfare and privacy played a subordinate role at the time of doing so. Rather it was because there are strict policies in Germany against any type of concealed audio monitoring. The Bundesnetzagentur therefore points out that certain types of smart watch and children's toys are in violation of the Telecommunications Act."

29 September 2020

**FRANKFURTER ALLGEMEINE ZEITUNG**  
**ENDGAME IN THE LETTERS MARKET**

Author: Helmut Bänder

*Excerpt from an article on competition and Deutsche Post's privileges*

"Elsewhere the Bundesnetzagentur also has to be allowed to keep a closer watch on Deutsche Post. Telecommunications could serve as an example. The monopoly was broken up by the Netzagentur requiring Deutsche Telekom to open up its lines to final customers, the famous last mile, for its competitors..."

30 November 2020

**SÜDDEUTSCHE ZEITUNG**  
**EXTRA-LONG LINE**

Author: Michael Bauchmüller

*Excerpt from an article on the SuedLink direct current line*

"The Suedlink is making progress. This Monday the Bundesnetzagentur presented a new corridor for the direct current line, this time the part that passes Göttingen. Suedlink is thus working its way across the country. At some point it is supposed to transport four gigawatts of electricity from north to south. Or perhaps even six? ... The planning of this power line route is a science in itself. The network operators make suggestions for the route, which are then checked by the Bundesnetzagentur."

2 December 2020

**SÜDDEUTSCHE ZEITUNG**  
**SUDDENLY EVERYONE WANTS OUT**

Author: Michael Bauchmüller

*On the result of the first auction for the coal phase-out*

"On Tuesday the Bundesnetzagentur announced the auction results for the closure of power plants, which are remarkable in every respect. Who has received the award and for what bid price is not being revealed by the Netzagentur."

14 November 2020

**WIRTSCHAFTSWOCHE**  
**WHAT MAKES THE SHARED USE OF THIRD PARTY NETWORKS SO HIGHLY CHARGED**

Author: Thomas Kuhn

*Excerpt from an article on expanding the 5G network*

"The situation is rather muddled. And so now the industry educator Homann is in demand as, according to the 5G licence conditions, his governmental agency takes on the role of arbitrator if the network operators and newcomers cannot agree. At the end of September, 1&1 Drillisch called on the Bundesnetzagentur as mediator and since then the Bonn-based authority has been fathoming out the details of the conflict. (...) 'The Bundesnetzagentur would intervene if discrimination against a new entrant were determined. At the same time, a new entrant cannot expect to have unduly favourable terms and conditions,' said President Homann setting out the framework."



## Restructuring the energy supply

The energy transition is making progress. As in previous years, the proportion of conventionally generated electricity is shrinking, while the share of electricity generated from renewable sources is growing. The Bundesnetzagentur has focused its activities on the expansion and upgrade of the necessary infrastructure and the required adjustment of the regulatory framework.

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The expansion of the transmission system is one of the key components of the energy transition. The amendment of the Federal Requirements Plan Act (BBPlG) contains 80 network expansion projects that require urgent implementation. The related measures cover 10,300 kilometres (km) of lines.

The Bundesnetzagentur was able to involve the public in its planning and approval procedures properly and according to schedule despite the challenges posed by the coronavirus pandemic.

The agency works on a two-year cycle to determine the need for expansion, optimisation and reinforcement measures in the transmission system. The approved scenario framework for 2021-2035 takes particular account of the increase in the proportion of electricity generated from renewable sources to 70.4-74.1% of gross electricity consumption and compliance with the carbon dioxide (CO<sub>2</sub>) emissions cap for the target year 2035.



## Market watch

Germany's net electricity generation in 2019 was lower than the 2018 level. At the same time, 42% of domestic gross electricity consumption was generated from renewable energy – a record high.

Around 5m household customers switched electricity supplier and about 1.4m switched gas supplier in 2019. Households were able to choose from an average of 156 electricity suppliers and 109 gas suppliers per network area.

## Development of conventional and renewable energy

At 561.3 TWh, Germany's net electricity generation in 2019 was lower than the 2018 level (592.3 TWh). This represents a decline of 31 TWh (5.2%) compared with the previous year. Electricity generation from coal recorded a particularly large decrease of 58.6 TWh. Renewable generation showed slightly better growth again, with a year-on-year increase of 18.2 TWh (8.6%) compared to the previous year's increase of 6 TWh.

Total electricity generation from renewables in 2019 amounted to 228.4 TWh. Of this, electricity generation from offshore wind turbines rose by 5.2 TWh (27.1%) from the previous year, while onshore wind generation rose by 10.5 TWh from 2018 (11.8%).

Electricity generation from renewable energy sources accounted for 42% of gross electricity consumption, another record high.

Installed generating capacity was characterised by a further increase in renewable capacity in 2019. The growth in renewable energy capacity of 6.2 GW (sum of renewable energy installations with and without payments under the Renewable Energy Sources Act, EEG) is due in particular to the larger increase in solar capacity (3.9%) compared to the previous years. Onshore and offshore wind power capacity also continued to grow. However, at 0.9 GW the net expansion of onshore wind power capacity more than halved again compared to 2.1 GW a year earlier.

Non-renewable generating capacity decreased by a total of 1.1 GW in 2019. Total (net) installed generating capacity increased to 226.4 GW at the end of 2019, with 102.0 GW of non-renewable and 124.4 GW of renewable capacity.

## Evaluation of minimum generation

The third evaluation of minimum generation has been in preparation since the start of 2020. The report has been expanded to include an analysis of reactive power, among other things. The transmission system operators (TSOs) provided the Bundesnetzagentur with feed-in and reactive power data for selected days with negative prices in 2019 and plan to do so for 2020 as well. At the end of 2020, the Bundesnetzagentur asked power plant operators why electricity was fed in when electricity prices were negative. Their answers are being evaluated alongside the data provided by TSOs. The Bundesnetzagentur will publish the third report on minimum generation by the end of June 2021.

## Developments in the gas markets (supplier diversity, supplier switching, gas prices)

In 2019, final consumers were able to choose from an average of 109 gas suppliers in their network area. Just over 1.4m household customers switched gas supplier during the year. In addition, 600,000 household customers changed the energy supply contract they had with their supplier. The majority of household customers are supplied under contracts with default suppliers on non-default terms. Just under 25% of household customers use default supply.

The percentage of household customers who have a contract with a supplier other than the local default supplier is about 32%. The average network charge (including metering and meter operation charges) for household customers independent of the type of supply contract is currently around 1.56 ct/kWh, stable from the previous year. The weighted average price across all contract categories in the consumption band between 5,556 kWh and 55,556 kWh fell by 0.03 ct/kWh compared with 2018 to 6.31 ct/kWh.

## Developments in the electricity markets (supplier diversity, supplier switching, electricity prices)

In the year 2019, final consumers were able to choose from an average of 156 electricity suppliers in their network area. About 5m consumers switched supplier during that year. In addition, around 1.8m household customers switched energy supply contracts with the same supplier.

In 2019, a relative majority of 40% of household customers were on non-default contracts with their regional default supplier. The percentage of household customers on default contracts stood at 26%, while 34% of all household customers were served by a supplier other than their local default supplier.

## Electricity prices for household customers

Electricity prices for household customers were higher in 2020. In the consumption band between 2,500 kWh and 5,000 kWh, the average volume-weighted price for household customers increased by 1.20 ct/kWh or 3.9% compared with 2019 and was 32.05 ct/kWh on 1 April 2020.

## Security of supply

According to current information, the total costs for network and system security measures were still high at €1.28bn in 2019.

By the end of the third quarter of 2020, there were about 1,710 km of lines from the BBPlG in the spatial planning or federal sectoral planning procedures, about 2,724 km about to be or in the planning approval or notification procedures and 511 km completed. Of the projects from the Power Grid Expansion Act (EnLAG), 994 km of lines had been completed, 558 km had been approved or were under construction and 271 km were in the planning approval or notification procedure.

## Network and system stability: redispatching and feed-in management

There has been a large increase in the number of measures to ensure the security and reliability of the electricity supply system in recent years due to the changing generation landscape, delays in grid expansion and the effects of weather. Redispatching involves measures intervening in the market-based operating schedules of conventional generating units to shift feed-in geographically in order to take pressure off those elements of the grid which are under strain. In addition, feed-in management is used to temporarily curtail the priority feed-in of electricity from renewable energy installations and combined heat and power (CHP) installations if network capacity is insufficient.

According to current information, the total costs for network and system security measures were still high at €1.28bn in 2019.

Redispatch measures (operational plants) comprised a total volume of 13,323 GWh. The TSOs estimated the costs for these measures at about €227m. The costs of reserving and using grid reserve power plants were about €279m for the year with an activated volume of 430 GWh. The total curtailed energy due to feed-in management was 6,482 GWh in 2019.

The estimated compensation payments claimed by installation operators for this period amounted to approximately €710m.

The volume of measures in 2020, based on the first three quarters of the year, is set to be slightly above the previous year's level (up 5%). The reason for this development is a shift in feed-in management measures from onshore to offshore wind. A final assessment of the year's development will be made following an analysis of the fourth quarter. The information obtained from reports on these measures is published every quarter at [www.bundesnetzagentur.de/systemstudie](http://www.bundesnetzagentur.de/systemstudie).

**Electricity: network and system security measures**

		2017	2018	2019	Q1 - Q3 2020
<b>Redispatching</b>					
Total volume <sup>[1]</sup> operational plants	(GWh)	18,456	14,875	13,323	10,851
Cost estimate <sup>[2]</sup> for redispatching	(€m)	392	388	227	143
Cost estimate for countertrading	(€m)	29	37	64	85
<b>Grid reserve power plants</b>					
Volume <sup>[3]</sup>	(GWh)	2,129	904	430	385
Cost estimate for activation	(€m)	184	137	82	66
Capacity <sup>[4]</sup>	(MW)	11,430	6,598	6,598	6,596
Annual costs of holding in reserve <sup>[5]</sup>	(€m)	296	279	197	148
<b>Feed-in management</b>					
Volume of curtailed energy <sup>[6]</sup>	(GWh)	5,518	5,403	6,482	4,776
Estimated compensation	(€m)	610	635	710	579
<b>Feed-in adjustments</b>					
Volume	(GWh)	35	8	9	14

[1] Amounts (reductions and increases) including countertrading and remedial action measures according to monthly report to the Bundesnetzagentur.

[2] TSOs' cost estimate based on actual measures including costs for remedial actions.

[3] Activations of grid reserve power plants including test starts and test runs. The feed-in of grid reserve power plants is only increased.

[4] Total capacity of German and foreign grid reserve power plants in MW. As at 31 December of the respective year.

[5] Plus other costs not dependent on deployment.

[6] Reduction of installations remunerated in accordance with the EEG and KWKG Acts.

**Network expansion**

The expansion of the transmission system is one of the key components of the energy transition, which is supported by a broad consensus. The new version of the Federal Requirements Plan Act (BBPlG) of 25 February 2021 contains 80 projects that have been confirmed as necessary to meet energy supply requirements and that require urgent implementation in order to guarantee secure and reliable network operation. These projects make up a total of about 10,300 km of lines.

**Federal sectoral planning**

The projects in the Federal Requirements Plan designated as crossing federal state or national borders within the meaning of the Grid Expansion Acceleration Act (NABEG) fall under the responsibility of the Bundesnetzagentur. The Bundesnetzagentur carries out the federal sectoral planning for these projects and, in the next step, the planning approval procedure.

The federal sectoral planning replaces regional planning at the level of the federal states and serves as the first step in concrete spatial planning.

A corridor up to 1,000 metres wide is made binding as part of this procedure. The exact route the line will take is determined in the following stage of the planning process.

Significant progress was made in the field of grid expansion in 2020. To give an example, the Bundesnetzagentur concluded the federal sectoral planning for seven more projects or project sections with their decisions in accordance with section 12 NABEG, in addition to the 12 route corridors it had determined in 2018 and 2019. Sixteen other projects or project sections are currently in the federal sectoral planning procedure, including all sections of the A-Nord direct current project (project 1 BBPlG). Scoping conferences and hearings were carried out for all sections of that project in 2020. The federal sectoral planning procedure is expected to be completed in 2021. The alternating current projects 19 (south), 25 and 44 (south and north sections) are also in different stages of the federal sectoral planning procedure.

The Bundesnetzagentur has granted the project promoter's request not to undergo the federal sectoral planning procedure in accordance with section 5a NABEG for the following projects: project 10 BBPlG (sections A and B), project 12 BBPlG (section B), project 20 BBPlG (sections 1 and 2).



## Progress in electricity network expansion

By the end of 2020, the Bundesnetzagentur had approved a route corridor for nearly 2,000 km of power lines. That means a route corridor has been decided for just over half of all the kilometre total.

Rapid progress was made despite the restrictions caused by the coronavirus pandemic. President Jochen Homann is confident that it will be possible to keep up the pace in 2021.

The public has the opportunity to get involved at various stages of the process. This principle was upheld despite the unusual circumstances last year. The Bundesnetzagentur did everything it could to balance competing interests, although clearly, it is not possible to satisfy every wish.

The planning of the grid expansion progressed well in 2020, with the Bundesnetzagentur making numerous decisions in the approval procedures for the major Ultranet, Suedlink and SuedOstLink projects. The Bundesnetzagentur has decided on the federal sectoral planning for about half of the sections of the direct current lines. The other half is expected to be decided on this year. The Bundesnetzagentur has already completed its work for the first section of an alternating current project.

Of the almost 7,700 km of expansion projects, at the end of the third quarter 1,700 km were in the spatial planning or federal sectoral planning procedure, 3,000 km about to be or in the planning approval procedure and about 1,500 km completed.



## Planning approval

The planning approval procedure is based on the route corridor made binding in the federal sectoral planning. In the course of this procedure, the exact route of the line and the technical design it will take have to be decided.

Planning approval procedures were opened for 25 projects or project sections in 2020, bringing the number of projects or project sections in the planning approval procedure to 32, including nine sections of project 5 BBPlG (SuedOstLink). Scoping conferences have already been carried out and the scope of assessment defined for the following: sections A1 and B1 of project 2 BBPlG (Ultrahet), sections A1, A2, A3 and A4 of SuedLink (projects 3 and 4 BBPlG), sections D1 and D2 of SuedOstLink, section B of project 10 BBPlG, project 13 BBPlG (central and west sections), project 14 BBPlG (west and east), project 19 BBPlG (north section) and all sections of project 20 BBPlG. The documentation in accordance with section 21 NABEG is expected for these. The procedures for the involvement of public authorities and the general public under section 22 NABEG have been carried out for project 11 BBPlG.

The federal sectoral planning and planning approval procedures both enable the public to be closely involved in a variety of ways. The Bundesnetzagentur's goal is to determine a route that has as little impact as possible on people and the environment. The formal procedures therefore give the public, too, the opportunity to play an active role in the planning and implementation processes.

Further information on individual projects, including the current status of proceedings, the relevant application documents and the federal sectoral planning decision can be accessed at [www.netzausbau.de/vorhaben](http://www.netzausbau.de/vorhaben).

## Act to safeguard planning procedures

The grid expansion and the approval procedures have been affected by the Covid-19 pandemic.

In the early stages of the pandemic, the Bundesnetzagentur was unable to hold public scoping conferences or hearings, or to display application documents and decisions at its offices, as prescribed by law. This was due primarily to the ban on public events and the closure of administrative buildings to visitors.

Lawmakers passed the Act to safeguard planning procedures (PlanSiG), which came into force on 29 May 2020, to make a temporary change creating adequate legal certainty for approval procedures in the field of constructional and environmental planning. The aim was to ensure that planning and approval procedures could continue in an orderly, timely fashion with public participation, despite the difficult conditions caused by the pandemic. The PlanSiG permitted the public and authorities to participate online, for example. Instead of events where stakeholders would otherwise have had to gather in person and sometimes in large numbers, equivalent alternatives were found.

In approval procedures, for example, the Act permits online consultations or, provided all parties entitled to participate agree, telephone or video conferences to be held where hearings and oral proceedings are legally required. The PlanSiG allows scoping conferences to be held in writing or electronically, rather than in person. Documents and decisions can be published online rather than being displayed at particular locations.

The Bundesnetzagentur has made use of the options provided by the law. It decided for each individual case whether a physical meeting or event should be held, bearing in mind the current situation, the local conditions, the ability to maintain social distancing and hygiene measures to ensure the safety of all concerned.

## Monitoring the status of projects under the Power Grid Expansion Act (EnLAG) and the Federal Requirements Plan Act (BBPlG)

As part of its monitoring role, the Bundesnetzagentur provides quarterly updates on the progress in planning and construction that has occurred for individual projects in the transmission system during the previous three months. To do so, it requests data from the four German electricity TSOs. This covers the projects from the BBPlG and the EnLAG as well as transmission links to offshore wind farms. The Bundesnetzagentur evaluates the data it receives, compares it with its own schedules and coordinates with the relevant federal states.

It also measures the status of the planned and implemented measures to optimise the network. The past and planned activities of network operators designed to increase the utilisation of the existing transmission system are presented.

### Current status of EnLAG projects

The current version of the law contains 22 projects that require urgent implementation in order to meet energy requirements. Project nos 22 and 24 were deleted after a review was carried out during the process of drafting the Electricity Network Development Plans (NDPs) 2022 and 2024.

Six of the 22 projects have been designated as pilot projects for underground cabling. These projects have been earmarked as feasible for partial undergrounding under certain conditions.

The individual federal state authorities are responsible for conducting the spatial planning and planning approval procedures for the EnLAG projects.

The projects currently listed in the EnLAG as at the end of the third quarter of 2020 comprise lines with a total length of about 1,831 km. Of these, 994 km of lines had been completed by the end of the third quarter of 2020.

A further 558 km have been approved and are under construction or about to be so. Around 8 km are currently in the spatial planning procedure and around 271 km are in or about to start the planning approval procedure.

### Current status of BBPlG projects

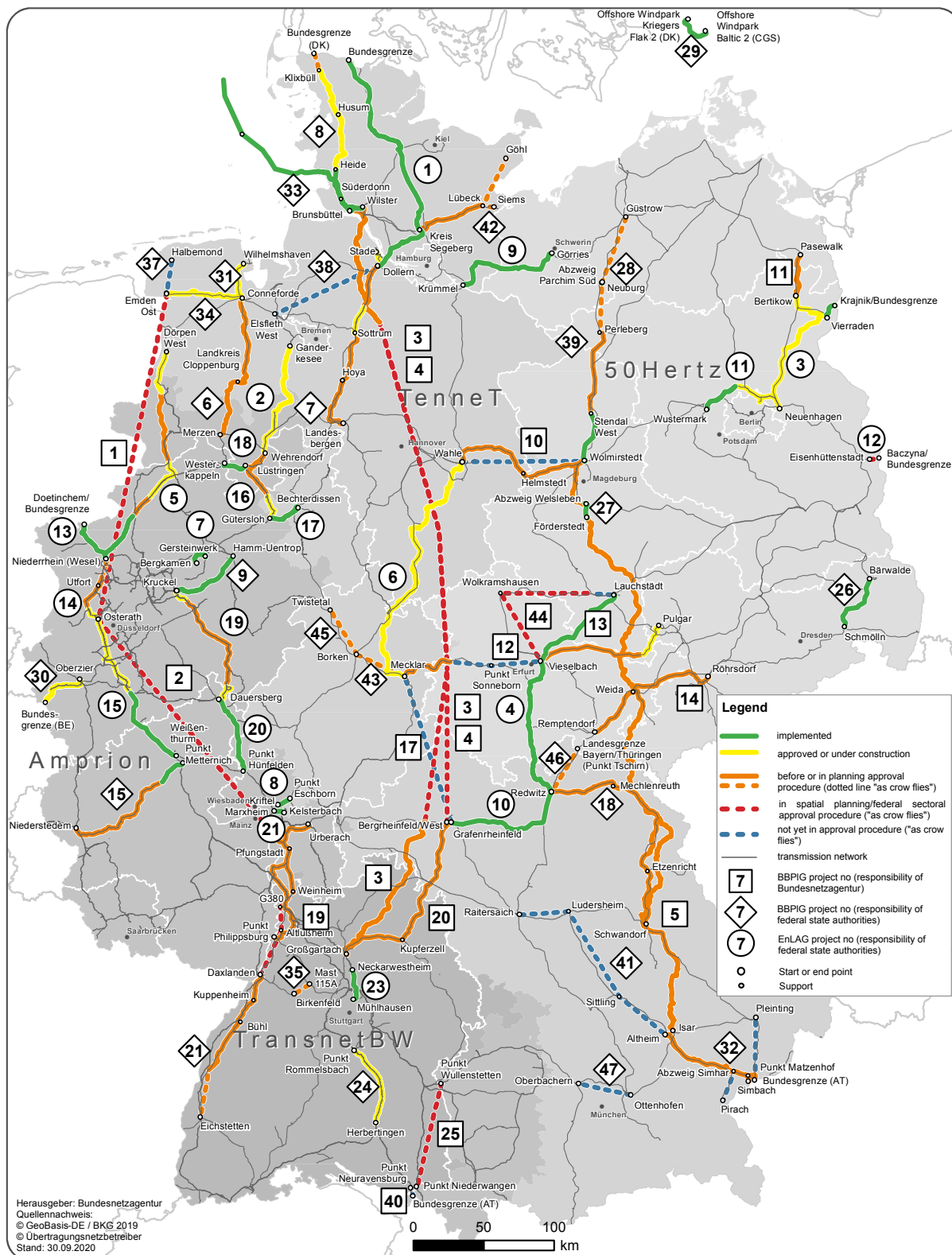
Of a total of 43 projects nationwide, 16 are designated as crossing federal state or national borders within the meaning of the NABEG as at the third quarter of 2020. The Bundesnetzagentur is responsible for the federal sectoral planning and the subsequent planning approval procedure for these projects. The projects currently listed in the BBPlG as at the end of the third quarter of 2020 comprise lines with a total length of about 5,856 km. About 3,542 km of these come under the Bundesnetzagentur's responsibility. The total length of the lines will largely depend on the route of the north-south corridors and will become apparent in the course of the procedure.

As of the third quarter of 2020, 511 km of lines had been completed. A further 254 km have been approved and are under construction or about to be so. Around 1,710 km are in the spatial planning or federal sectoral planning procedure, while about 2,724 km are in or about to start the planning approval or notification procedure. About 669 km are ready to start the planning approval procedure. Additionally, around 100 km have already been approved in the procedures carried out by the Federal Maritime and Hydrographic Agency (BSH).

The status of projects under the EnLAG and the BBPlG can be found at [www.netzausbau.de/vorhaben](http://www.netzausbau.de/vorhaben).

The following map shows the expansion status of EnLAG and BBPlG projects as at the third quarter of 2020:

### Status of BBPIG and EnLAG projects at the end of Q3 2020





## Participation and dialogue

The Bundesnetzagentur believes it is important to inform the public as fully and early as possible about the necessary expansion of the electricity network, the expansion process and the opportunities to get involved in it. It therefore deliberately goes beyond the statutory requirements. Among other things, the Bundesnetzagentur hosts open information and dialogue events as well as method conferences in order to make the process transparent, clear and comprehensible for members of the public.

Issues relating to the scenario framework, for example, were discussed in Berlin and Nuremberg on 5 and 6 February 2020.

The science dialogue on 24 September 2020 was held as a virtual conference for the first time due to the coronavirus pandemic. People researching, working and teaching on issues related to grid expansion were invited to take part. Four parallel workshops tackled the topics of the Aarhus Convention, the protection of cultural heritage, approval-related issues of the TEN-E Regulation and how treatment of the surface of conductors can reduce noise.

The technology dialogue, which was also held virtually on 24 November 2020, was centred on the issue of underground cables. The presentations and subsequent discussion looked at findings from the installation of underground cables and the impact of these on future projects. In addition to physical events, the Bundesnetzagentur provides a broad range of information on grid expansion issues through several channels, including its website [www.netzausbau.de](http://www.netzausbau.de), its newsletter and brochures/flyers. It is also present on other platforms such as Twitter and YouTube. People can also contact the energy grid expansion public liaison service if they have any questions or suggestions.

## Electricity scenario framework 2021-2035

The agency works on a two-year cycle to determine the need for expansion, optimisation and reinforcement measures in the transmission network. A new round of network development planning started on 10 January 2020 with the presentation of the scenario framework for the target year 2035 by the TSOs. The Bundesnetzagentur conducted a consultation on the scenario framework 2021-2035 and approved the framework on 26 June 2020. The public had the opportunity to give their responses to the consultation from 17 January to 14 February 2020 and the

Bundesnetzagentur also held two dialogue events, one on 5 February in Berlin and the other on 6 February in Nuremberg. The authority evaluated all the responses received and took them into account in its approval of the scenario framework.

The approved scenario framework 2021-2035 has significant differences to the previous framework for 2019-2030, reflecting developments in energy policy and the economy.

One major change is the raising of the proportion of renewables to 70.4-74.1% of gross electricity consumption by 2035. All scenarios also assume compliance with the carbon emissions cap in the target year. This cap is determined on the basis of the Federal Climate Change Act (KSG) of 12 December 2019. The scenario framework continues to reflect fully the will of the federal government as recently expressed in the National Hydrogen Strategy, according to which up to 5 GW of electrolysis capacity will be established in Germany by 2030 and another 5 GW no later than 2040.

All the scenarios in the scenario framework 2021-2035 have the same rate of expansion but they differ in the generation mix and the degree of innovation (eg sector coupling, storage and flexibility options) as well as, for the first time, in the degree of network alignment. Network alignment helps to reduce or avoid restrictions in the distribution or transmission network, among other things. At the same time, there are significant differences in the development of the regenerative generation landscape, with scenario A 2035 showing a much lower increase in the expansion of onshore and offshore wind power and in photovoltaic capacity than scenario B 2035 and C 2035.

Rising electricity consumption is caused in particular by the coupling of the heat and transport sectors with the electricity sector but also by the fact that major electricity consumers are included more fully for the first time. However, the rising electricity demand is partly cancelled out by the greater energy efficiency. Scenario C 2035 is the scenario with the largest degree of sector coupling, leading to a rise of about 25% in net electricity consumption over 2019 levels.

# Results of first tendering process to reduce the production of electricity from coal

The Bundesnetzagentur announced the successful bids in the first tendering phase in accordance with the Act to Reduce and End Coal-Fired Power Generation (KVBG) on 1 December 2020. The deadline for bids was 1 September 2020.

The average price of the bids awarded a tender was well below the maximum price set by law, with the volume put out to tender of 4 GW significantly oversubscribed. Eleven bids with a total volume of 4,788 MW were awarded a tender. The largest volume granted a tender was 875 MW and the smallest 3.6 MW.

The prices of the bids awarded a tender ranged from €6,047 per MW to €150,000 per MW, with each successful bidder being paid the individual price that they bid. The volume-weighted average price of the bids granted a tender was €66,259 per MW. The strong competition pushed the prices of the successful bids well below the maximum price set of €165,000 per MW. The sum total of the awards was about €317m.

Whether or not a bid is granted a tender depends not only on the price bid, but on the ratio of the price to the expected reduction in CO<sub>2</sub> emissions.

The eleven power plants granted a tender stopped marketing coal-fired electricity on 1 January 2021 as planned. Only if the TSOs and the Bundesnetzagentur consider a plant essential for the system will it be kept in reserve for critical situations on the network. The decision on whether this is necessary for individual power plants will be made in the first half of 2021. Meanwhile, the next rounds of the tendering process are continuing. Ahead of each round, the Bundesnetzagentur determines the capacity of each power plant, whether coal is its main energy source and how old the installations are in order to decide how much power plant capacity will leave the market and when.



The approval of the scenario framework 2021-2035 continues to require TSOs to present innovative technical approaches for network equipment and its operation when drawing up the network development plan. The TSOs must also assess its suitability for transportation capacity and the best possible use of the existing network.

## Phase-out of coal

The Act to Reduce and End Coal-Fired Power Generation (KVBG) entered into force on 14 August 2020, giving the Bundesnetzagentur significant new responsibilities in the implementation of the coal phase-out.

### Tendering process

The Bundesnetzagentur organises tendering processes for hard coal power plants and small lignite power plants to reduce their coal-fired electricity generation voluntarily. Operators can submit bids for installations for which they are prepared not to burn any more coal.

The Bundesnetzagentur announced the successful bids in the first tendering phase on 1 December 2020. The volume put out to tender of 4 GW was significantly oversubscribed. Eleven bids for a total capacity of 4,787,676 MW were awarded a tender.

The average price of the bids granted a tender was €66,259 per MW. The competition pushed the average price of the successful bids well below the maximum price set of €165,000 per MW. The sum total of the awards was about €317m.

### Statutory reduction

The KVBG also requires the amount of power generated from coal to be reduced from 2024 onwards without the plant operators receiving financial compensation. This will initially only happen if the tender is undersubscribed, but later it will occur exclusively. The Bundesnetzagentur will undertake the implementation for this statutory reduction, with its tasks initially including compiling a list of all hard coal power plants in order of age and taking account of retrofit investments.

In preparation for this work, the agency collected data on hard coal and lignite power plants as part of its monitoring survey in 2020 and published lists of these on 30 September and 30 December 2020. Plant operators had until 1 February 2021 to respond, after which the Bundesnetzagentur will draw up the age list.

## Lignite

The KVBG sets out dates for individual power plants to be shut down to reduce the electricity generated from lignite. In return, the operators of the major lignite-fired power plants and lignite mines will receive compensation. The details of this are to be clarified in a public-law contract between the Federal Republic of Germany and the operators. The Bundesnetzagentur will undertake enforcement tasks relating to these provisions.

### Issues of network and supply security

The Bundesnetzagentur will continually examine the effect of the reduction of coal-fired generation on the security and reliability of the electricity supply system. In addition, in the course of the statutory reduction, it will ascertain whether individual hard coal-fired power plants or small lignite-fired power plants are necessary for secure network operation.

The Bundesnetzagentur further has the task of checking and approving the applications from TSOs for coal power plants due to be shut down to be classed as essential for the system.

## Grid reserve and power plant closures

A common problem is the transport of electrical energy from northern Germany, where it is generated, to the south of the country where it is most needed. Redispatching is required to prevent lines from becoming overloaded. If there is not enough power plant capacity available from power plants on the market for redispatching measures to rectify congestion in the system, the TSOs have to make up the deficit of redispatch capacity from reserve power plants.

The system analysis performed by the TSOs annually determined the measures needed to guarantee the secure and reliable operation of the transmission system. They established the demand for reserve capacity during the periods under review, taking account of requirements defined by the Bundesnetzagentur. On 30 April 2020, the Bundesnetzagentur published its assessment of reserve power plant requirements for the winter of 2020/2021 and the year 2024/2025. The assessment confirmed the results of the system analyses. The report for 2020/2021 identified 6,596 MW of required reserve capacity. It was not necessary to contract grid reserve from neighbouring countries. According to preliminary findings, grid reserve power plants with a total capacity of 8,042 MW will be required for 2024/2025.

Following the notification of planned closures received by the Bundesnetzagentur by 30 October 2020, approval has so far been given for 16 power generation units with a total capacity of 4,424.1 MW to be categorised as essential for the system.

This enables the Bundesnetzagentur to ensure system stability by prohibiting the closure of such essential power plants. These plants become part of the grid reserve.

Seven more power plants with a total capacity of 2,951.6 MW, for which the operators had applied for temporary closure, have been identified as essential for grid operations by the TSOs. These are now part of the grid reserve as well and are reserved for the exclusive use of TSOs.

The Irsching 4 and 5 power plants have now ended their period of shutdown and have returned to the electricity market, stepping up competition and bringing down costs for network users for the provision of grid reserve.

Their return to the market proves that the current market design is working and shows that the temporary shutdown is a suitable tool.

## Report on the status and expansion of the distribution systems

The Bundesnetzagentur requests information from the distribution system operators (DSOs) about the status of their networks and their expansion plans for the next ten years on an annual basis pursuant to section 14(1a) and (1b) of the Energy Industry Act (EnWG) in order to be able to assess the DSOs' future grid expansion requirements. An overall report on the status and expansion of the distribution systems was published for the first time in 2019, having been compiled from the reports submitted by the high-voltage network operators (base year 2017).

The second report, based on 2018 data, followed in 2020. It provides a closer examination of the effects of the energy transition on the distribution network. The focus is on the expansion of the network caused by the increased feed-in from renewable sources and the growing load caused by the integration of electromobility into the distribution system. The report also addresses issues relating to digitisation in the distribution system, system restoration, supply interruptions and network planning. It provides an insight into the challenges of the energy transition and how DSOs are seeking to meet them. The existing

and forecast congestion clearly shows that it is becoming more and more important to expand the distribution system rapidly.

For the next report on the status of the network and the (planned) network expansion, which will be the third and have a reporting date of 31 December 2019, the survey was sent to 59 high-voltage network operators (110 kV) in 2020. One additional DSO particularly affected by feed-in management measures was also asked for information pursuant to section 14(1a) EnWG.

The Bundesnetzagentur's publication of the report on the status and expansion of the distribution systems is a move towards greater transparency in this area as required by the legal reorganisation of the expansion plans for DSOs.

## Current status of the capacity reserve

The TSOs were able to contract 1,056 MW of capacity in the first round of tendering, which ended in February 2020. Prior to the tendering, in 2019, the Bundesnetzagentur approved the TSOs' standard terms and conditions.

The first two-year delivery period for the capacity reserve started on 1 October 2020.

The Bundesnetzagentur issued a determination on 16 December 2020 (Official Gazette No 24/2020, pages 1,894 et seq), postponing the tender deadline from 1 April 2021 to 1 December 2021 (ref no 4.12.05.03/001).

The aim of the postponement was to ensure greater competition between tenderers so that the full 2 GW of reserve capacity aimed at by law could be contracted by the TSOs.

Postponing the bidding deadline does not affect security of supply since it has no impact on the second delivery period set, which will still run from 1 October 2022 to 30 September 2024, following on directly from the end of the first delivery period.

## Catalogue of IT security requirements as referred to in section 11(1a) to (1c) EnWG

In the interests of energy supply security, it is increasingly important that IT systems used are operated securely. The Bundesnetzagentur previously published an IT security requirements catalogue detailing minimum IT standards for secure network operation and aimed at electricity and gas network operators.

Operators had to finish implementing these requirements by 31 January 2018 and obtain certification to prove it. As the certification of IT security requirements is valid for three years, many network operators had to have their original certification renewed in 2020.

There are minimum IT standards for energy installations classed as critical infrastructure as well. Despite a delay caused by the pandemic, the conformity assessment programme providing accreditation for certification bodies for the catalogue of IT security requirements was published in August 2020. This ensured that the certification bodies can be accredited by the German national accreditation body, DAkkS, and the auditors, who carry out an onsite audit of the companies as part of the certification process, can be trained.

The Bundesnetzagentur also receives reports of IT faults describing incidents at operators of energy supply networks and energy installations. As of October 2020, the Bundesnetzagentur had not received reports of any IT incidents leading to interruptions in supply.

### **Developments in network charges, standing charges, etc (electricity)**

Based on model calculations for a large industrial customer connected to the extra-high voltage level, the TSO network charges for 2021 will fall by 19% at TenneT, rise by 8% at 50Hertz and TransnetBW, and rise by 1% at Amprion. This development is largely due to the third stage of the nationwide harmonisation of TSO network charges in Germany, which is now benefiting customers in the 50Hertz control area as well as those in TenneT's network. This harmonisation is the main reason for the lower charges at TenneT, whereas at TransnetBW and Amprion it is leading to higher charges. The aggregate revenue cap for the four TSOs will actually fall from €5.2bn to €4.9bn and is somewhat below the level from 2019 again.

The charges of the distribution networks under the Bundesnetzagentur's responsibility will rise by 0.7% for a typical household customer on average across the country. For commercial customers, charges will remain stable. The network charge for an industrial customer at the medium-voltage level will rise by 0.8%. However, there are a lot of differences between individual control areas and DSOs. To summarise, it may be said that network charges for 2021 will on average be almost unchanged. Together with the capping of the EEG surcharge, this will mean that electricity costs will fall for many households for the first time in some years.

The standing charges, as a fixed component of the network charges for consumers at the low-voltage level without interval metering and under the responsibility of the Bundesnetzagentur, will rise by an average of nearly 2.6% and the average will be €59 a year. However, most DSOs have not further increased their standing charges. The highest price of the network areas surveyed continues to be €105 a year. As in 2020, one network operator imposes no standing charges at all.

### **Monitoring of electricity supply security**

As part of the phase-out of coal, the Bundesnetzagentur took over the task of monitoring the security of supply from the Federal Ministry for Economic Affairs and Energy (BMWi) at the beginning of 2021. In a new development, the security of supply is now monitored with regards to both the market and the grid.

The Bundesnetzagentur has been conducting extensive preparatory work for its new role for some time to enable it to obtain meaningful findings on supply security in its monitoring. This preparation includes developing and implementing its own electricity market and investment models, acquiring and processing the data necessary for the calculations and drawing up relevant scenarios. An external consultant was commissioned to assist the Bundesnetzagentur with the calculations in view of the tight time frame set out by law and the complexity of the new task. The first report will be published on 30 October 2021. The security of supply monitoring will be ongoing and a report will be published every other year.

In the first stage of the security of supply assessment, a forecast of the future power plant fleet will be made using an investment model. Then the forecast fleet will be used as a basis to examine the next ten years with a detailed electricity market model to find out whether, and to what extent, there are likely to be shortfalls in electricity supply. Finally, it will be considered whether the grid can cope with the electricity flows shown in the results of the electricity market model or whether, and to what extent, redispatching might be needed to transmit the capacity.

The findings uncovered in this process about any potential shortfalls or challenges in network transmission and any necessary countermeasures will make an important contribution to ensuring that Germany maintains its very high level of supply security in the future.

As well as these evaluations, the Bundesnetzagentur produced a report for the BMWi on the security, reliability and performance of the German electricity supply networks in accordance with section 51(4b) EnWG on 31 October 2020. It summarises the recent results and findings from the demand assessment, the long-term analysis and the network development planning.

## Avoided network charges

Most of the changes brought in by the Network Charges Modernisation Act (NEMoG) to reduce avoided network charges have entered into force.

In the years prior to the introduction of the NEMoG, the amount of avoided network charges paid rose continually and reached its peak in 2017 at around €2.5bn.

The NEMoG had the effect of reducing the amount of avoided network charges paid out to €1.2bn by 2019. The DSOs have planned avoided network charges of €1bn for 2020.

Regionally, those network users in the federal states of north-eastern Germany where loads are light were disproportionately burdened by avoided network charges. Accordingly, the network users in these regions also benefit the most from the changes to the NEMoG. This is exemplified by household customers of two DSOs covering large areas of eastern German federal states as shown in the table below.

Eastern German network operators (large areas)	Share 2017 (%)	Share 2020 (%)	Reduction of share (%)
WEMAG Netz GmbH	16.90	12.10	-28.40
Mitteldeutsche Netzgesellschaft Strom mbH	14.30	4.50	-68.50

**Table 1:** Percentage of avoided network charges as a proportion of the network charges for households (low voltage non-metered 3,500 kWh/a) for 2017 compared with 2020, taking cascading into account.

However, the planned costs for 2020 show that customers in the 50Hertz control area (ie in the eastern German states plus Hamburg) still have the highest burden of avoided network charges.

Customers in the more densely populated and heavily industrialised Amprion control area have the smallest share of avoided network charges in their network charges.

Percentage of avoided network charges in network charges of sample customers, 2020			
Control area	Commercial customers - LV, no IM (%)	Household customers - LV, no IM (%)	Industrial customers - MV >CP (%)
Bundesweit	4	4	5
50Hertz	6	7	11
Amprion	2	2	3
TenneT	3	3	4

**Table 2:** Percentage of avoided network charges in network charges of sample customers.

Avoided network charges still made up a significant proportion of network charges nationwide in 2020 (4-5%).



## Voluntary commitment on redispatching

The Bundesnetzagentur has faced several proceedings at the Higher Regional Court (OLG) in Düsseldorf that were opposed to the determination of effective procedures regulation of costs and revenues from the procurement and remuneration of redispatching measures in accordance with section 12(1) para 2 EnWG of 10 October 2018 (BK8-18/0007-A). The appeals had the file numbers VI3 Kart 894/18 to 897/18.

The court confirmed many aspects of the Bundesnetzagentur's perspective. The OLG found that the Bundesnetzagentur was correct to base the determination at issue on section 29(1) in conjunction with section 32(1) para 4 EnWG and section 11(2) and (4) of the Incentive Regulation Ordinance (ARegV). The court ruled that redispatching measures were a permissible subject of procedures regulation under section 11(2) sentence 2 ARegV. The voluntary commitment met the requirements for comprehensive procedures regulation under section 11(2) sentence 4 ARegV, according to the ruling; in particular, these voluntary commitments were not classed as "third-party commitments". Moreover, the power to issue determinations under section 13j(1) sentence 2 EnWG did not take priority as *lex specialis*. Finally, the court decided that discretion had been exercised correctly in the determination with regard to the choice of enabling provision and the choice of the means of procedures regulation.

It did not find any grounds to object to the fact that provision costs were not to be reimbursed or that the reimbursement rules of the TSOs in the voluntary commitments in conjunction with the BDEW guidelines envisage that merely making installations ready for use does not lead to chargeable operating hours within the meaning of section 13a(3) EnWG. The court did not object to the means of determining the "operating hours that were part of the business plan at the time of the investment decision", either. The requirement to take all unscheduled write-downs into account in the determining of residual values under commercial law for the calculation of the depreciation pursuant to section 13a(3) EnWG did not contravene section 13a EnWG, nor did the fact that power plant operators had to transfer positive trading profits arising from the sale of fuel not needed because of redispatching measures to the TSOs. Finally, the requirement in the guidelines that only decisions in a court of last instance may lead to an amendment of the voluntary commitments was also lawful, according to the ruling.

The appealed determination and the voluntary commitments did not breach the complainants' rights arising from Article 3(1) of the Basic Law (GG), Article 12(1) GG and Article 14 GG, nor did they contravene the prohibition of retrospectivity set out in the Basic Law.

Nevertheless, the determination was ultimately revoked. Section 13a EnWG required the pro rata depreciation to be reimbursed when a power plant is used for negative redispatching too, according to the ruling. The voluntary commitments breached this provision by not providing for a reimbursement of the depreciation in the event of negative redispatching, with reference to the BDEW guidelines. The court also found that the reduction set out in the guidelines of the quotients of chargeable operating hours and residual values under commercial law specified in section 13a(3) EnWG by the quotients of required redispatch capacity and net rated capacity of the power plant breached the statutory remuneration rules laid down in section 13a(2) to (4) EnWG and was thus also unlawful.

The Bundesnetzagentur has appealed against the rulings of the OLG Düsseldorf.

## Reporting on the effects of the Covid-19 pandemic on energy supply

On 16 March 2020, the BMWi tasked the Bundesnetzagentur with providing regular status reports evaluating the general electricity and gas supply situation during the SARS-CoV-2 pandemic. These "Covid reports" basically include information about the personnel-related, organisational and technical precautions taken by companies in the energy sector, the specific occurrence of infections and an assessment of the supply situation.

The Bundesnetzagentur quickly set up an information and reporting process in coordination with the industry associations and the BMWi. The energy sector was regularly asked for the information needed to build up a full picture of the effects of the Covid pandemic on energy supply. On the electricity side, the Bundesnetzagentur called on the TSOs, the ten largest DSOs, the five largest power plant operators and the electricity exchanges to supply status reports on a regular basis and ad hoc in the event of circumstantial changes. These were brought together to form the Covid reports. For gas, the natural gas exchange, the market area managers, the biggest importers, DSOs, producers, natural gas storage facility operators and TSOs with dispatching functions were involved. The good working relationship with the companies ensured that the reports always contained the latest information.

The data provided were systematically evaluated and passed on to the BMWi. At the personnel level, information was collected and evaluated about suspected and confirmed Covid cases, designated key workers and staffing requirements to maintain proper system operations. Thanks to its successful protective measures, the energy sector has so far got through the crisis without an impact on security of supply.

Another aspect of the status report involved monitoring the energy market against the backdrop of the SARS-CoV2 pandemic. Average short-term wholesale electricity prices, for example, were down considerably year-on-year (more than 50% in April and May 2020), reached nearly the level of the previous year around the beginning of June and had recovered almost completely by the end of July. Total electricity generation fell by an average of around 9% from the previous year's level in March and 13% in April. It rose slightly again, to -9% in May and -5% in June, following the first relaxations of Covid-related restrictions. The year-on-year drop in total electricity consumption was about 3% in March 2020 as the lockdown came into force, 6% in April, 10% in May and then a slightly smaller 9% in June.

Since the summer, the reports have been focussing on the monitoring and assessment of ad hoc incidents.

## Implementation of risk-preparedness Regulation

On 8 August 2020, the legislature passed section 54b EnWG, which sets out the responsibilities pursuant to the European Regulation on risk-preparedness in the electricity sector (risk-preparedness Regulation). The Bundesnetzagentur was assigned the task of identifying national crisis scenarios for the electricity supply system. The crisis scenarios describe assumptions that have the potential to jeopardise the security and reliability of the electricity supply system. They are based on the regional crisis scenarios drawn up by the European Network of Transmission System Operators for Electricity (ENTSO-E), which have the potential to cause cross-border disruptions to the electricity supply system. These were presented to the Electricity Coordination Group on 7 September 2020 and transmitted to the Member States. In line with the risk-preparedness Regulation, the 31 crisis scenarios cover rare and extreme natural hazards, accidental hazards going beyond the N-1 security criterion and exceptional contingencies, and consequential hazards including the consequences of malicious attacks and of fuel shortages.

To determine the national crisis scenarios, the Bundesnetzagentur looked at the scenarios in terms of their likelihood and their effects on the secure and reliable operation of the electricity supply system. This evaluation will be sent to the European Commission in early January 2021.

The Bundesnetzagentur has drawn on the expertise of other specialist agencies to ensure a firm basis for the likelihood of the crisis scenarios. Weather-related scenarios were discussed with the German meteorological service (DWD), for example. Water-related scenarios were coordinated with the Federal Institute of Hydrology (BfG). Other authorities, including the Federal Office for Information Security (BSI) and the Federal Office of Civil Protection and Disaster Assistance (BBK), were involved too.

In identifying the national crisis scenarios, the relevant actors from the electricity supply system in Germany were consulted in accordance with Article 7 of the risk-preparedness Regulation. Relevant actors within the meaning of the Regulation are TSOs, major DSOs, major producers and the national trade body of the energy industry, the BDEW. Relevant information from the undertakings consulted was used to identify the national crisis scenarios.

Following the identification of the national crisis scenarios, the BMWi will establish risk-preparedness plans by the beginning of 2022. These will stipulate national, regional and bilateral measures to combat electricity crises.

## Gas Network Development Plan 2020-2030

On 5 December 2019 the Bundesnetzagentur confirmed the scenario framework containing the capacity needs to be used for network planning for the following ten years. On that basis, the gas TSOs produced the Gas Network Development Plan (NDP) 2020-2030, conducted a public consultation and submitted the revised draft for examination to the Bundesnetzagentur on 1 July 2020. Following the submission of the draft Gas NDP 2020-2030, the Bundesnetzagentur consulted all actual and potential network users again from 10 July to 28 August 2020.

The calculations in the draft Gas NDP 2020-2030 largely confirmed the results of the previous Gas NDP. The measures that have been added since the last Gas NDP are largely related to the planned liquefied natural gas (LNG) terminals in Brunsbüttel, Stade and Wilhelmshaven; the supply in Baden-Württemberg; security of supply in the Netherlands,

Switzerland and Italy; and the planned expansion measures for green gases.

The TSOs plan to merge the two German market areas, NCG and GASPOOL, into one on 1 October 2021. The draft NDP published uses a "NewCap" modelling system for the first time to estimate the possible costs of market-based instruments (MBIs) for securing the single market area and compare them with the costs of alternative network expansion. As the costs of MBIs are comparatively low as opposed to those of network expansion, the TSOs have not proposed expansion measures that could reduce the need for MBIs.

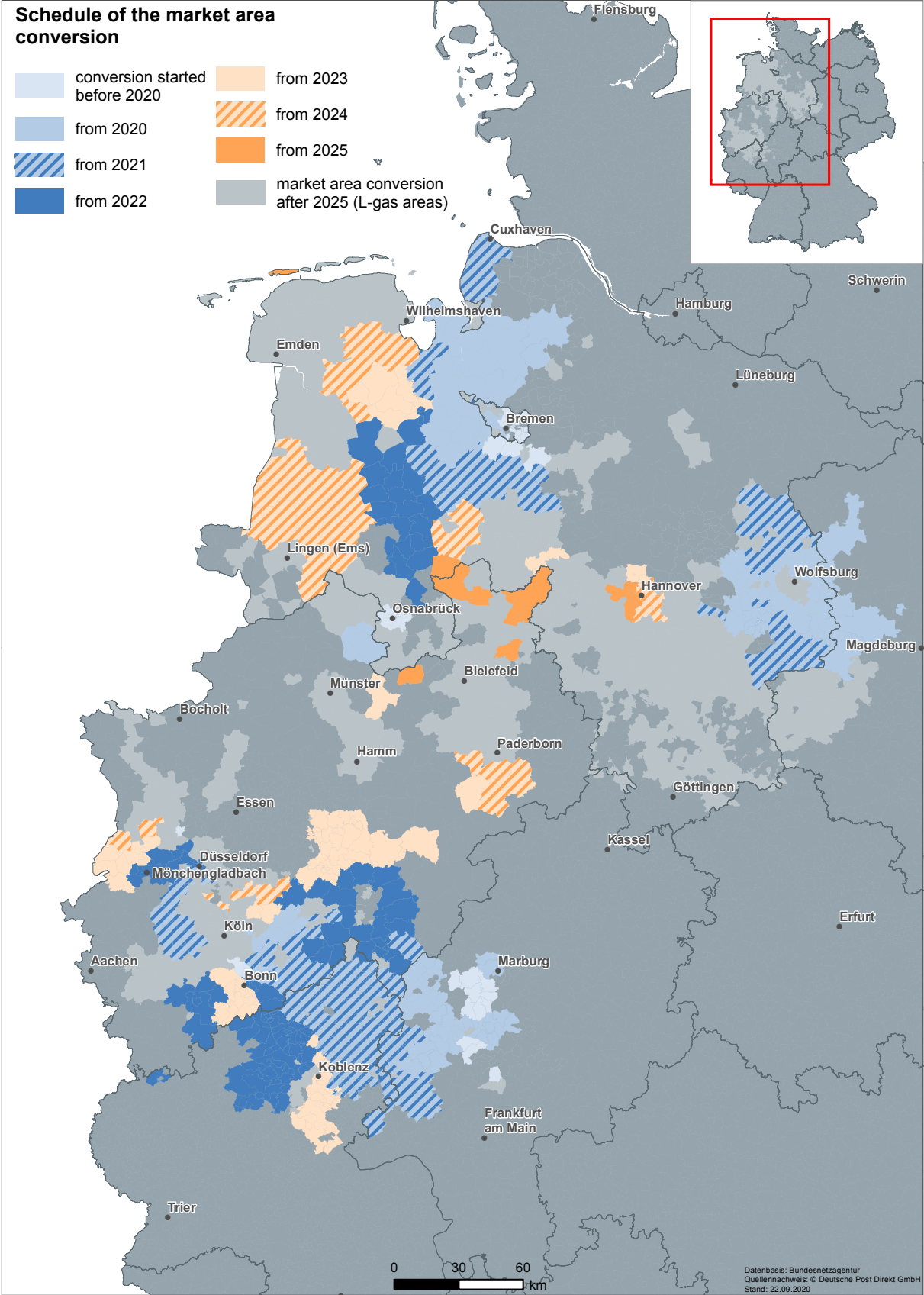
Of the total proposed investment volume of €8.5bn, €0.7bn is for measures in the green gas variant, including for the conversion of about 1,100 km of natural gas pipelines to be used for hydrogen.

The process of the Gas NDP 2020-2030 will be completed by the request for amendment from the Bundesnetzagentur. The TSOs have three months to implement the requested modifications.

## Market area conversion

The market area conversion did not escape the effects of the 2020 coronavirus pandemic either. The annual Market Area Conversion Forum, which was supposed to have been held for the fifth time, had to be postponed. The Bundesnetzagentur was able to hold the event on 24 March 2021.

The pandemic also directly affected the individual stages of the market area conversion. At first, employees of the network operators or companies contracted by them had difficulty gaining access to some households. Some network operators decided for reasons of civic and operational responsibility to suspend conversion activities completely for a time. However, neither this break nor the refusal of entry by some residents led to noticeable delays in the overall process. In fact, once the initial difficulties were over, the fact that more people were working from home actually made it easier to contact them. With support from the industry associations DVGW and BDEW, as well as all the network operators involved, the Bundesnetzagentur established a coordinated process that ultimately enabled over 99% of the conversions planned for 2020 to actually take place that year. This close cooperation shows the willingness of the whole sector to make the project, which is the most important one currently facing the gas industry, a success.



## Consumer protection and advice

In 2020, the Bundesnetzagentur's energy consumer advice service received around 18,500 queries and complaints. As in previous years, key consumer concerns were billing, price increases, delays in switching supplier and contractual disputes.

The number of charging points shown on the Bundesnetzagentur map rose from 19,844 at the end of September 2019 to 30,231 at the end of September 2020.

## Energy consumer advice service

The Bundesnetzagentur's energy consumer advice service provides information for consumers about their rights, help available to them and possible action they can take. It focuses on general energy issues and explains how energy suppliers, network operators and meter operators can affect customers. It received about 18,500 enquiries in 2020, a small decrease of 5% compared with the previous year. Around 10,600 queries were received by telephone, 6,800 by email, 630 via the online form and 440 by post.

Enquiries largely concerned billing, price increases, delays in supplier switching and contractual disputes.

The coronavirus pandemic gave rise to questions about practical issues such as replacing meters and technical inspections. Consumers also asked about special arrangements due to the coronavirus crisis (including the right to refuse to provide a service, reduced VAT rates, and extending calibration periods).

There was a rise in enquiries about the digitisation of metering systems and the necessary replacement of meters after the BSI certified the third smart meter gateway at the end of 2019 and gave the green light for the mandatory rollout of smart metering systems by default meter operators in early 2020 by publishing the market analysis and formally announcing technical feasibility. Since then, certain groups of consumers have been having smart meters installed. At the same time, many households with a low power consumption, for which the law does not envisage the installation of smart meters, are being converted to modern metering equipment without gateways. Two new flyers available at [www.bnetza.de/smartmeter](http://www.bnetza.de/smartmeter) explain the difference between the different digital meters.

Questions also arose about transferring or continuing contracts because of companies merging or taking over customers. New guidance was published online about energy supplier insolvencies and electricity/gas supply disconnections.

## Electric mobility and charging stations

The Bundesnetzagentur's map of publicly accessible charging points for electric vehicles in Germany was given another routine update in 2020. The number of published charging points rose to 30,231 at the end of September 2020 from 19,844 a year earlier. The current overview map of charging points in Germany may be found at [www.bnetza.de/ladesaeulenkarte](http://www.bnetza.de/ladesaeulenkarte). Its data are used for other applications and analyses, such as the location tool of NOW GmbH. A project was initiated to improve the display portal for public charging infrastructure so that the forecast number of results can be processed effectively in future.

The Bundesnetzagentur helped to launch some of the measures decided by the federal government in its master plan for charging station infrastructure at the end of 2019. To show how DSOs can expand their networks in a way that is fit for future developments despite uncertainties surrounding the distribution and speed of rollout of electromobility, the BMWi, the Federal Ministry of Transport and Digital Infrastructure (BMVI), the Bundesnetzagentur, the BDEW and the Verband kommunaler Unternehmen e.V. (VKU) produced a paper explaining what information DSOs require to be able to include electromobility in their network planning and how they can get it. The Bundesnetzagentur also supported the BMWi in its drafting of the amended Charging Station Ordinance, putting another measure from the charging station master plan into practice.



## Rulings, activities and proceedings

In May 2020, the application for derogation from regulation under the EnWG was approved for the Nord Stream 1 gas pipeline, while the application for the Nord Stream 2 pipeline was rejected.

The Bundesnetzagentur's "Redispatch 2.0" determinations are intended to implement priority dispatch and balancing of feed-in management measures for electricity from renewable sources and combined heat and power as of autumn 2021. The aim is to reduce redispatch volumes and overall costs and ensure a secure, cost-effective electricity supply.

## Supervisory proceedings on metering

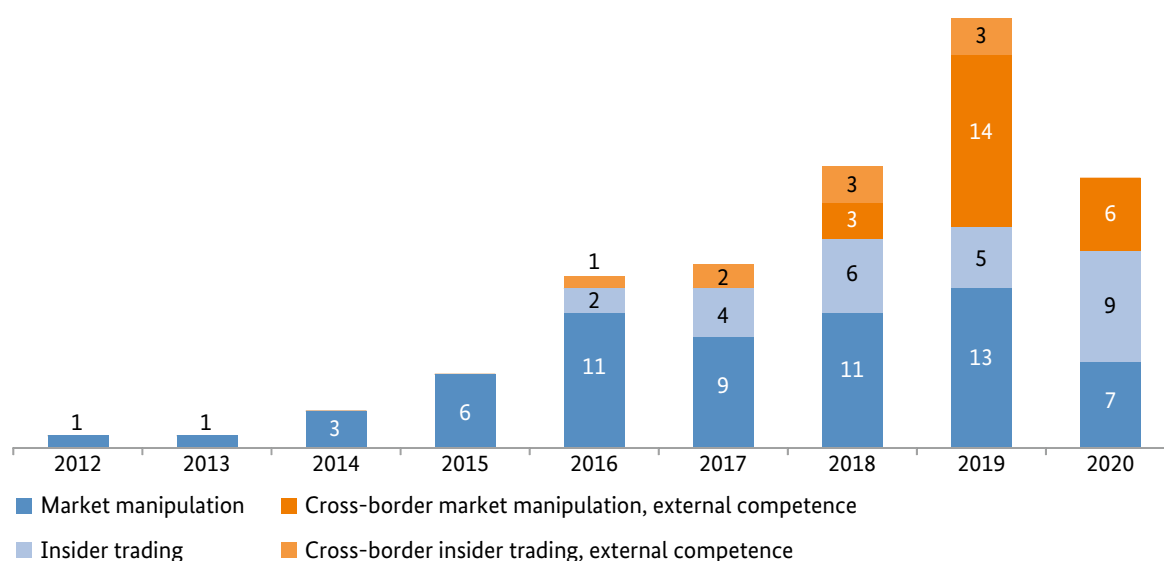
In 2019, the Bundesnetzagentur ordered all default meter operators to provide a separate activity report for the operation of modern metering equipment and smart meters for the year 2018. However, some default meter operators considered that they were not legally obliged to do this. The Bundesnetzagentur then opened some test cases in accordance with section 76(2) of the Metering Act (MsbG) in the form of a supervisory measure for the generation, confirmation and transmission of these activity reports. Two default meter operators went to court over this.

The Higher Regional Court (OLG) in Düsseldorf backed the legal stance of the Bundesnetzagentur on the MsbG in October 2020.

In the parallel proceedings on default network operators under the responsibility of the federal state authorities, the supervisory measure was revoked on the grounds that the Bundesnetzagentur was not the competent authority. The national competence for enforcement of the MsbG does not cover section 3(4) MsbG, according to the ruling. These decisions are now final.

## Suspected breaches in wholesale energy trading

The Bundesnetzagentur monitors compliance with Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT). It is mostly market monitoring bodies of the energy exchanges that provide indications of breaches of REMIT. These reports are categorised internally as suspected breaches.

Suspected breaches 2012 - 2020<sup>1</sup>

Suspected breaches are broken down into the categories of market manipulation and insider trading. Insider trading often refers to transactions concluded prior to the publication of power plant failures. Market manipulation may include cross-transactions or the placing of orders with no intention of executing them.

Some cases involve more than one country, for example if the trading of a market participant on the energy exchange involves a product from a Member State in which the headquarters of the market participant are not registered. In that case, the energy regulators of other Member States are involved and sometimes take the lead.

Of the total 120 reports of suspected breaches that have been received since 2012, other authorities are responsible for 33 of them, while 26 are being dealt with internally. A total of 60 cases were closed. A fine has been imposed in one case so far.

The Bundesnetzagentur launched administrative fines proceedings against three market participants in 2020 connected to the events surrounding the unusual imbalances in the transmission system that occurred on three days in June 2019. At that time, full use had to be made of the balancing energy for longer periods and the exchange price was at times considerably higher than the imbalance price. The proceedings are examining whether the trading behaviour of the market participants exploited the unusual situation.

The three market participants are suspected of deliberately selling electricity on the intraday market at very high prices without actually intending to procure or generate the electricity. This could have sent false or misleading signals as to the supply of electricity on the market, which would be classed as market manipulation under REMIT.

### Guidance on metering and estimating for renewable energy surcharge payments

Exemptions from the surcharge payable under the Renewable Energy Sources Act (EEG), eg for self-suppliers and electricity-intensive companies, can only be claimed by those meeting the legal requirements. If electricity is transmitted to third parties, it must be measured separately. The provisions of the EEG permit certain deviations from the obligation to measure electricity using calibrated meters. The law has defined minor cases, simplified the rules for separate measurements and introduced the ability to estimate measurements.

The Bundesnetzagentur was asked to produce a guide on interpreting these provisions. Following a thorough consultation process, it published the "Guidance on metering and estimating" in October 2020. The guidance provides specific information on the law in about 20 simplifications and illustrates their application using nearly 30 examples. In particular, it shows simplified procedures that allow the installation of possibly complex and expensive metering infrastructure to be avoided or, at least, minimised.

<sup>1</sup>As at: 17 December 2020

## Measures to improve the upholding of balancing group commitments and supervisory proceedings against balance responsible parties

On three days in June 2019, the TSOs had to make full use of their reserves and call on the support of their European partners to keep the electricity system stable. The serious imbalances in the German system could not be attributed to an insufficient amount of electricity being generated or to the usual fluctuations in generation from renewable energy sources. Rather, a strong reaction of market participants to high intraday prices on the exchange compared to an "expected" low imbalance price was observed.

The Bundesnetzagentur took prompt action to avoid further imbalances. In July 2019, Ruling Chamber 6 proposed a package of measures designed to improve the upholding of balancing group commitments where the imbalance price system had been found to lead to the wrong structural incentives. These measures entered into force in the first quarter of 2020. The Determination reinforced the provisions on the early economic balancing of energy volumes in balancing groups every 15 minutes. The early reporting of certain measurements was introduced to permit system imbalances to be cleared up and explained more quickly in future. A penalty and the method for calculating the imbalance price were adjusted with the aim of creating a greater economic incentive to balance energy volumes in balancing groups and impede arbitrage between prices on the power exchange and imbalance prices.

As well as bringing in these structural measures, Ruling Chamber 6 opened six supervisory proceedings to investigate whether certain balance responsible parties had contributed to the major imbalances through individual irregular behaviour. In five cases, the ruling chamber identified a breach of the balancing responsibilities by the parties that had caused significant imbalances. The other case was discontinued as the suspicion that was the subject of the proceedings could not be substantiated.

Balancing is of central importance for security of supply. Balance responsible parties are legally obliged to balance the volumes of electricity for feed-in or offtake in their balancing groups as fully as possible because the system must be balanced for network operation to be reliable. The costs of the balancing energy used to physically balance system imbalances are charged to balance responsible parties according to their imbalances. If the imbalance price is lower

than the price payable for electricity in trading, there is no effective economic incentive for balance responsible parties to carry out their balancing duties by trading on the electricity market and to meet their balancing commitments.

## Refining the imbalance price system

Ruling Chamber 6 first issued rules for the market-price coupling of the uniform imbalance price applicable to all control areas (reBAP) in its decision BK6-12-024 of 25 October 2012. The aim of the market-price coupling is to impede arbitrage between the prices on the power exchange and imbalance prices and to ensure that balance responsible parties are incentivised to take action in the form of electricity trading to deal with imbalances occurring in their balancing groups, rather than using imbalance settlement. As the imbalance settlement used is valued using the reBAP, its level provides a decisive economic incentive for balance responsible parties to make serious efforts to uphold their balancing group commitments.

The events of June 2019, when the imbalances in the German transmission system were so severe that they put the system at risk, showed that coupling the reBAP to the hourly price in intraday electricity exchange trading can no longer provide sufficient incentive. As a consequence, therefore, the ruling chamber told the German TSOs responsible for the control areas to draw up a proposal for changing the market-price coupling of the reBAP as soon as possible and in line with European legislation, and to present it to the Bundesnetzagentur for approval.

The concept for the amended market-price coupling of the reBAP submitted by the TSOs includes the following main points:

- The market-price coupling now tracks a price index (the ID-AEP) specially calculated by the TSOs for this purpose, which is then marked up or down.
- The price index for each 15-minute period generally corresponds to the volume-weighted average price of the last transactions concluded before close of trading of the relevant 15-minute product in intraday electricity exchange trading in Germany.
- A minimum trading volume is aimed for to impede manipulation of the price index. If the minimum trading volume is not reached for the 15-minute product, the difference is made up using the last concluded transactions of the hourly product that includes the relevant 15-minute period.

The amendment of the market-price coupling of the reBAP was approved in decision BK6-19-552 of 11 May 2020, which replaced decision BK6-12-024. It completes the ruling chamber's measures to improve the upholding of balancing group commitments and has been in use by the TSOs since July 2020 as part of the reBAP calculation.

## Approval of settlement rules for balancing service providers

In its decision BK6-18-004-Abrechnung of 1 October 2020, Ruling Chamber 6 approved the TSOs' concept for settlement with balancing service providers and penalisation in the event of non-fulfilment or inadequate performance. The introduction of new settlement rules is intended to provide an incentive to prevent the double marketing of energy on the wholesale market that had already been marketed as balancing services.

While holding capacity will be remunerated as before, there have been some changes to the remuneration of balancing energy compared to the previous provisions. These will result in a financial improvement, in particular for providers of frequency restoration reserve with automatic activation (aFFR), which is important for system security. The settlement will in future be made by the second, ie each activated bid will be remunerated with the relevant bid price for the exact second.

If balancing capacity or balancing energy is not held or provided as contractually agreed, the TSO will be entitled to charge an incentive component based on the ID-AEP index developed for market-price coupling in the determination of the imbalance price. As the ID-AEP tracks exchange trades in near real-time, a contractual penalty based on the index is appropriate to impede any double marketing of energy on the wholesale market that has already been marketed as balancing services.

Most of the new rules for balancing service providers will come into force on 1 October 2021 owing to the effort required to implement them. The incentive component for the proper holding and provision of balancing energy was needed at the start of the balancing energy market, so it entered into force on 3 November 2020.

## Determination on economic balancing<sup>2</sup> for redispatching with renewable energy installations

Network operators regularly have to intervene in the generation of electricity to prevent the network from becoming overloaded at certain points. They instruct specific generating units to produce more electricity than planned and others to reduce their generation. This process, which is known as redispatching, allows the flows in the networks to be diverted. However, redispatching has undesired effects on balancing groups, which are energy volume accounts used to balance and market feed-in. While too much electricity flows into some balancing groups, others do not have enough. TSOs have been resolving this imbalance in the case of redispatching with larger, conventional power stations for a long time already, but they have not so far done so with the curtailment from renewable energy installations (feed-in management).

This is set to change from 1 October 2021. The economic balancing of redispatching measures, called "Redispatch 2.0", will be prescribed by law, including for feed-in management. This represents a positive development as regards system security, as the economic balancing can be carried out in a coordinated manner, as well as for direct sellers, who can sell the electricity as planned.

However, balancing all generating installations also represents a major challenge as the number of installations affected is many times higher than before. What is more, many renewable installations are volatile, making it harder to plan and forecast their feed-in.

Ruling Chamber 6 has set up the necessary framework to achieve the intended economic balancing. The determination on the economic balancing of redispatch measures of 6 November 2020 (BK6-20-059) covers two main issues. First, it sets out how the economic balancing is calculated and carried out based on two balancing models, depending on whether there are "binding schedules" for the feed-in or not. Schedules specify the planned feed-in of an installation on a 15-minute basis. Second, the determination provides the basis for seamless digital communications between the companies involved, beginning with the transmission of the necessary data and schedules and going on to include the actual

<sup>2</sup>Economic balancing refers to correcting the balance of a balancing group. It is achieved by electricity trading on the part of the balancing group manager or by the network operator and aims to balance out deviations between actual feed-in/offtake and the planned feed-in/offtake of the balancing group.

redispatching requests and the carrying out of the economic balancing itself. Thanks are due here to the BDEW, upon whose drafts the necessary process descriptions are largely based, for its valuable input.

It is now up to the sector to implement the rules so that economic balancing can start as planned on 1 October 2021.

There are two more determination proceedings pending at Ruling Chamber 6 that affect the Redispatch 2.0 provisions. The first deals with cooperation between network operators and will lay the groundwork for this cooperation as regards the planning and coordination of redispatching. The other will improve the legal basis for the provision of the necessary information for DSOs.

## **Second determination on night lighting systems for wind turbines**

The Omnibus Energy Act (EnSaG) made it mandatory for wind turbines to be fitted with night-time lights that only flash when necessary. The measure aims to put an end to lights flashing all through the night and to increase acceptance of wind turbines among local communities. The requirement applies to wind turbines that are required by aviation regulations to be lit at night, which generally means all turbines higher than 100 metres. Operators not complying with the requirement will not be eligible for financial support under the EEG. In light of this severe sanction, the Bundesnetzagentur was tasked by law to look into extending the compliance deadline should the required technical systems not be sufficiently available in the market.

In 2019, Ruling Chamber 6 had already extended the deadline for fitting all new and existing turbines with these systems by a year to 30 June 2021 (determination BK6-19-142 of 22 October 2020). In 2021, it looked at the deadline again. Once the aviation regulations had been adjusted and the systems had been approved, the ruling chamber opened proceedings for a second determination on the deadline in July 2020.

This determination (BK6-20-207) was issued on 5 November 2020 and extended the deadline again. Operators of onshore wind turbines now have another one and a half years, up to and including 31 December 2022, to install the systems, while the deadline for offshore wind turbines has been pushed back by two and a half years to 31 December 2023.

## **Capex mark-ups (section 10a ARegV) in the gas sector**

The Bundesnetzagentur implemented the new instrument of capex mark-ups for gas distribution systems (section 10a of the Incentive Regulation Ordinance, ARegV) at the start of the third regulatory period on 1 January 2018. This enables DSOs to apply for a mark-up on the revenue cap approved by the Bundesnetzagentur for new investments that have not previously been included. They can take account of planned investments and those that have already been made.

The capex mark-up includes the annual imputed capital expenditure in the form of write-downs, rate of return on equity and trade tax and is factored into the network operator's revenue cap.

In the second half of 2019, Ruling Chamber 9 decided on 128 applications for the 2020 capex mark-up for gas network operators under its responsibility. It approved capex mark-ups totalling nearly €311m.

For 2021, 128 applications for approval of a capex mark-up have already been received, with network operators applying for about €403m of mark-ups. The individual applications are processed promptly in line with the aim of the ARegV to adjust the revenue cap to current changes.

# Rejection of application by Nord Stream 2 for derogation from regulation

The Bundesnetzagentur rejected the application of Nord Stream 2 AG for derogation from regulation for the section of the Nord Stream 2 pipeline located in German territory.

The section running through German territory of a gas interconnector involving a third country can be granted a derogation from regulatory requirements upon application and under certain conditions. A prerequisite for such a derogation is that the interconnector was completed before 23 May 2019.

Since the Nord Stream 2 pipeline had not been fully laid by 23 May 2019, the Bundesnetzagentur rejected

the application made by Nord Stream 2 AG. When it is put into operation, therefore, Nord Stream 2 will be subject to German regulatory requirements and European rules on unbundling, network access for third parties and cost regulation.

The responsible ruling chamber of the Bundesnetzagentur understands the term "completion" in a constructional/technical sense. The applicant, by contrast, believes it to mean completion in an economically functional sense and refers to the investment decision, which was made well before 23 May 2019. The company has appealed the Bundesnetzagentur's decision at the Higher Regional Court (OLG) in Düsseldorf.





## **Cost examination and determination of revenue cap for the fourth regulatory period for gas (2023-2027)**

Ruling Chamber 9 is preparing the data survey of DSOs and TSOs that has to be carried out to set the revenue cap for the fourth regulatory period.

TSOs have until 31 May 2021, DSOs using the standard procedure 30 June 2021 and operators participating in the simplified procedure 30 September 2021 to submit their data to the Bundesnetzagentur for the cost examination to identify the base level for determining the revenue caps. TSOs and DSOs using the standard procedure must also provide the Bundesnetzagentur with the structural data for the relevant efficiency benchmarking by 30 April 2021. The base year is 2020.

Ahead of the consultations on the data survey due to be held in autumn, the Bundesnetzagentur organised a "pre-test" process for both the cost examination and the efficiency benchmarking (for DSOs and TSOs separately). The pre-test was not a pre-consultation and did not imply that any particular decision had been made in advance. Rather, it was focused on checking technical functions and, particularly in the pre-test of the structural data survey, tightening up data definitions. The consultations following the pre-test are currently planned to be completed by January/February 2021 at the latest.

## **Implementation of the network code on transmission tariff structures for gas (Regulation (EU) 2017/460, NC TAR)**

Ahead of the launch of the single German market area Trading Hub Europe (THE), planned for 1 October 2021, the Bundesnetzagentur issued new determinations on the implementation of the network code on transmission tariff structures on 11 September 2020. The determinations cover various aspects of the tariff structures in the market area, from the basic principles of tariff setting using the uniform postage stamp (REGENT 2021, BK9-19/610) and discount and mark-up arrangements (MARGIT 2021, BK9-19/612) to the resulting compensation payments between TSOs (AMELIE 2021, BK9-19/607).

They follow on from the previous determinations from 2019, which apply until 30 September 2021 for the two separate market areas in Germany. There are no significant changes in content from the previous versions. MARGIT 2021 brings a change for the period as of 1 October 2021, as the contingency mark-up for

the discount for interruptible capacity products has been increased from 10 to 20 percentage points. This rule was also harmonised with respect to points within Germany in an amendment to the BEATE 2.0 determination (decision of 16 October 2020, BK9-20/608).

The preceding determinations were fully confirmed by the Higher Regional Court (OLG) in Düsseldorf on 16 September 2020. As this decision had already been appealed in part, the determinations will still be the subject of proceedings before the Federal Court of Justice (BGH).

## **Decisions on the applications for derogation for Nord Stream 1 and Nord Stream 2**

Directive (EU) 2019/692 of the European Parliament and of the Council of 17 April 2019 extended the scope of the Gas Directive 2009/73/EC to include interconnectors between a Member State and a third country. These gas transmission lines are now in principle subject to regulation as regards the parts of them in the territory and territorial sea of the respective Member State. However, Article 49a of the Gas Directive provides for a possible derogation from regulation for already completed transmission lines. As well as the existence of "objective reasons", it is necessary that the gas interconnector was completed before 23 May 2019.

The application for derogation for Nord Stream 2 was rejected on 15 May 2020, whereas the derogation in accordance with section 28b EnWG was granted for Nord Stream 1 on 20 May 2020.

On 15 June 2020, the applicant filed an appeal with the OLG in Düsseldorf against the rejection of the derogation for Nord Stream 2.

## **Ongoing proceedings for exemption from regulation for planned LNG terminals**

In accordance with section 28a(1) and (3) EnWG in conjunction with the third subparagraph of Article 36(6) of Directive 2009/73/EC, the Bundesnetzagentur can, upon request, grant LNG facilities a temporary exemption from the application of sections 8 to 10e EnWG (application of unbundling provisions) and sections 20 to 28 EnWG (provisions for access to and charges for such facilities). The legal provisions only allow this if the investment enhances competition in gas supply and security of supply, among other things.

Several companies have expressed interest in an exemption from regulation for LNG terminals pursuant to section 28a EnWG. Two applications have been submitted to Ruling Chamber 7. A decision on exemption for German LNG Terminal GmbH was issued on 30 November 2020 with some secondary provisions, including for the access for third parties. German LNG plans to set up and operate an LNG terminal in Brunsbüttel with an annual throughput capacity of 8bn m3 of natural gas with a connection to the transmission system of Gasunie.

### **Investments in distribution networks, capex mark-up (electricity)**

The Bundesnetzagentur introduced the capex mark-up for electricity distribution systems for the first time as from 1 January 2019. DSOs are able to apply for mark-ups on the revenue cap approved by the Bundesnetzagentur to directly take account of network infrastructure investments.

The revenue caps cover all network costs plus a return on equity, which companies may pass on to consumers through the network charges. The capex mark-up already includes a pre-financing element as the companies can factor in planned investments.

By the deadline of 30 June 2020, 169 applications for capex mark-up approvals for 2021 had been received (102 under the Bundesnetzagentur's own responsibility and 67 delegated responsibility). The comparison between expected and actual investments for 2017 to 2019 was included for the first time in 2020.

By 31 December 2019, the Bundesnetzagentur had approved capex mark-ups for distribution network expansion amounting to around €1bn. This corresponds to past or planned investments totalling some €13bn. Through the capex mark-up, only the annual capital costs of investments, including a return on equity, feed into the revenue caps for a given calendar year.

The approved capex mark-ups relate to past or planned investments in 2017, 2018, 2019, 2020 and 2021. The capex mark-ups approved by the Bundesnetzagentur are supplemented by further investments of the 700 smaller companies under the regulatory responsibility of the federal states.

### **Abuse proceedings on avoided network charges**

The refusal of a network operator (the respondent) to remunerate the operators of battery-storage systems (the applicants) for distributed feed-in was the subject of two special abuse proceedings in accordance with section 31(1) EnWG (BK8-20-10465-M1).

Under section 18(1) of the Electricity Network Charges Ordinance (StromNEV), operators of distributed generation plants are entitled to payment from the operator of the distribution network into which they feed electricity. On 18 December 2020, Ruling Chamber 8 issued a decision setting out that a battery-storage system connected to the medium-high voltage network level is to be classed as a distributed generator.

A particular feature of these cases was that the generators primarily provided balancing energy and similar safeguarding capacity for the transmission system.

However, the electrical energy in a battery-storage system is first converted into chemical energy and then converted back before being fed into the electricity system, so the offtake and feed-in never happen at the same time. In this respect, a battery-storage system is not fundamentally different from other generating installations such as pumped storage power stations, for which the BGH specifically recognised the different market roles of purchasing and generating electricity (margin no 9 of EnVR 56/08).

The battery-storage systems operated by the applicants are generating installations within the meaning of section 3 para 18c EnWG, which continue to have a right to avoided network charges provided the formal requirements of section 18 StromNEV are met.

## Decisions on standby lignite-fired power plants

The lignite-fired power plants listed in section 13g of the Energy Industry Act 2016 (EnWG) were shut down temporarily on the dates specified in the law. Even before the Act to Reduce and End Coal-Fired Power Generation (KVBG), there was an intention to reduce carbon dioxide emissions from the generation of electricity. The plants to be shut down were transferred to security standby status and may only be operated by TSOs as a last resort to guarantee system stability. After four years, the plants must be permanently closed.

The plant operators are remunerated for use of the plants for security standby purposes, for the decommissioning of the plants, and to repay the costs of putting the plants on security standby. Remuneration is a flat rate based on the revenues that the operators would have generated with their plants during the four-year security standby period, minus short-term variable costs.

Ruling Chamber 8 determined the annual remuneration for the power plants and power blocks shown in the decisions listed below:

Decision	Power plant	Block	Operator	TSO
BK8-17/3006-R	Buschhaus	-	Helmstedter Revier GmbH	TenneT TSO GmbH
BK8-17/2006-R	Frimmersdorf	P&Q	RWE Power AG	Amprion GmbH
BK8-18/2002-R	Niederaußem	E&F	RWE Power AG	Amprion GmbH
BK8-19/2002-R	Neurath	C	RWE Power AG	Amprion GmbH

The ruling chamber also issued a determination for the additional plant equipment of the Buschhaus power plant to Helmstedter Revier GmbH and TenneT TSO GmbH (BK8-17/3009-R).

An overview of the estimated costs for standby power plants over time up to 1 November 2020 is shown in the table below:

### Estimated costs for standby power plants (€)

Power plant	Oct 16	Oct 17	Oct 18	Oct 19	Oct 20
Buschhaus	55,844,107	54,832,130	55,757,713	57,267,091	
Frimmersdorf P					
Frimmersdorf Q					
Niederaußem E					
Niederaußem F					
Jänschwalde F					
Jänschwalde E*					
Neurath C					
Buschhaus manufacturing and fixed costs (plant equipment) in the first year of standby status	25,521,380				

As there are so few power plants on security standby, it may be possible to draw conclusions about, for example, the value of one power plant using information about a different one. For this reason, the

companies class such information as business and trade secrets and the Bundesnetzagentur is unable to specify certain figures.

## Setting the quality element for 2021

Incentive regulation harbours the risk that operators will make the required cuts in revenue by saving costs through not investing in their networks or not carrying out other necessary measures to maintain or improve quality of supply. This could lead to a poorer quality of supply. The Energy Industry Act (EnWG) and Incentive Regulation Ordinance (ARegV) therefore provide for regulation of supply quality in energy supply networks.

The fifth calculation of the quality element for a total of 202 electricity DSOs in the standard procedure took place in 2020. The System Average Interruption Duration Index (SAIDI) and Average System Interruption Duration Index (ASIDI) are used for the network operators' low and medium voltage levels. A total of 141 network operators were above average in terms of reliability and thus received mark-ups (bonuses) for their revenue caps in the calendar year 2020. By contrast, 61 network operators with a relatively poor level of quality were given a deduction. The highest mark-up was about €3.65m and the greatest deduction was about €4.7m. The system of quality regulation has a neutral effect on revenues, ie the total mark-ups and deductions cancel each other out across all network operators. The findings of an expert report on the further development of the quality element were used in this year's calculation.

## Auctions under the Renewable Energy Sources Act (EEG)

The level of payments for renewable energy installations was determined in 2020 for solar, onshore wind and biomass power and in joint auctions for onshore wind and solar power. The first "innovation auction", which accepted bids for combinations or groupings of different renewable energy sources, was held.

### Solar installations

A total of seven solar auctions, including the special auctions introduced in 2019, were carried out for solar power in the space of a year for the first time. All auction rounds carried out in 2020 were clearly oversubscribed. The award prices were around 5.2 ct/kWh.

### Onshore wind plants

The special auctions also took the number of auctions for onshore wind energy to seven in 2020, but the competitive situation was different to that of solar power. The auctions were significantly undersubscribed. The auction volume was almost met at only two bidding dates (September and October). The undersubscription, which bidders had anticipated, was reflected in the award prices, which were based on the maximum price. The Bundesnetzagentur had set the maximum bid for 2020 in December 2019.

### Biomass plants

The Bundesnetzagentur held two auction rounds for biomass plants in 2020 (April and November). The trend of increasing participation only continued in the first of these. The second round was very heavily undersubscribed. The average volume-weighted price for winning bids was higher than in the previous year.

### Joint auctions for wind and solar plants

As in the two preceding years, joint auctions for onshore wind plants and solar installations were held in April and November. These auctions featured the distribution network component, which takes account of network and system integration costs incurred by the building of new solar installations and onshore wind plants.

### Innovation auctions

The Bundesnetzagentur held the first innovation auction in September 2020. In this type of auction, bids are submitted for a fixed market premium that is paid regardless of the profit generated by the electricity. Bids for onshore wind turbines, solar installations, biomass plants and combinations of two different renewable energy sources are eligible. There were many bids, with solar installations with storage facilities being the most common planned combination.

### **Auctions for combined heat and power (CHP) installations**

Since December 2017, the Bundesnetzagentur has been holding two auctions a year to determine the level of financial support for CHP electricity that is fed into the public grid. While the first auction round in 2020 was open only for CHP installations, auctions in the second and subsequent rounds have also been for innovative CHP systems.

The bid volume for innovative CHP systems was much higher than the auction volume in June 2020. The average volume-weighted award price was 10.22 ct/kWh. The following auction, in December, was also oversubscribed and the average volume-weighted award price reached 10.80 ct/kWh.

By contrast, there was a clear easing of competition for CHP installations in June. The auction was undersubscribed and all eligible bids were successful. The average volume-weighted award price was 6.22 ct/kWh. The December auction was undersubscribed too, with the volume-weighted award price at 6.75 ct/kWh.

### **Developments at the core energy market data register**

The majority of generating installations in Germany were entered into the core energy market data register (MaStR) in 2019 and 2020.

The Bundesnetzagentur launched the register on 31 January 2019. By December 2020, a total of 1.9m electricity generators had been registered. The register can be accessed at [www.marktstammdaten-register.de](http://www.marktstammdaten-register.de).

A variety of tasks are associated with the MaStR, including software development for the online portal, quality management of the registered data, monitoring based on the Core Market Data Register Ordinance, the service area and administrative tasks.

Important new functions of the online register were developed and launched in the course of 2020. In particular, in addition to the Bundesnetzagentur's quality management, a large number (870,000) of compulsory network operator checks were carried out by the operators to whose networks the installations are connected. Improving the quality of core energy market data is an important goal of the MaStR. All its users from the energy sector, politics, the public sector and research thus have access to better data.

The register has so far led to around 500,000 enquiries from installations operators, network operators, authorities, industry associations and politicians.

### **Decisions on reimbursement of costs for the grid reserve**

The Bundesnetzagentur first decides whether to approve the designation of installations as important for the system. Systematically important installations become part of the grid reserve for the duration of the designation period.

Installation operators and TSOs conclude a grid reserve contract governing the provision and use of the installation. One of the components of these grid reserve contracts is the remuneration, which is determined in coordination with the Bundesnetzagentur and depends on the cost structure of the installation in question.

Ruling Chamber 8 at the Bundesnetzagentur then decides on the recognition of costs for the TSOs. These costs are classed as regulated, permanently non-controllable costs that the TSOs are allowed to pass on to their network customers.

The following determinations on the recognition of costs for the provision and use of domestic power plants in the grid reserve were made in 2020 in accordance with section 13c(5) EnWG:

Ref no	Date of decision	Period of system importance	TSO	Plant
BK8-18/1002-R	23.06.20	2	50Hertz Transmission GmbH	Thyrow, blocks: GT A to GT E
BK8-19/2002-R	28.02.20	4	Amprion GmbH	GTKW Darmstadt
BK8-19/2001-R	06.05.20	3	Amprion GmbH	UPM Schongau, steam power plant
BK8-19/2003-R	05.05.20	4	Amprion GmbH	UPM Schongau, steam power plant
BK8-17/3003-R	14.09.20	1	TenneT TSO GmbH	Gemeinschaftskraftwerk Irsching, block 5
BK8-17/3011-R	14.09.20	2	TenneT TSO GmbH	Gemeinschaftskraftwerk Irsching, block 5
BK8-17/3004-R	10.06.20	1	TenneT TSO GmbH	Ingolstadt, blocks 3 and 4
BK8-17/3005-R	10.06.20	2	TenneT TSO GmbH	Ingolstadt, blocks 3 and 4
BK8-17/3001-R	17.02.20	1	TenneT TSO GmbH	Staudinger, block 4
BK8-17/3008-R	17.02.20	2	TenneT TSO GmbH	Staudinger, block 4
BK8-17/3002-R	16.09.20	1	TenneT TSO GmbH	Ulrich Hartmann (Irsching), block 4
BK8-17/3010-R	16.09.20	2	TenneT TSO GmbH	Ulrich Hartmann (Irsching), block 4
BK8-17/3012-R	27.10.20	1	TenneT TSO GmbH	Irsching 3
BK8-17/3007-R	27.10.20	2	TenneT TSO GmbH	Irsching 3
BK8-17/4007-R	06.08.20	1	TransnetBW GmbH	Rheinhafen steam power plant, block RDK 4S
BK8-17/4008-R	03.09.20	1	TransnetBW GmbH	Walheim, blocks WAL 1 and WAL 2
BK8-17/4006-R	03.09.20	2	TransnetBW GmbH	Walheim, blocks WAL 1 and WAL 2

More information on the costs resulting from the grid reserve may be found in the Bundesnetzagentur's quarterly report on supply security at [www.bundesnetzagentur.de/netzsystem-quartalsbericht](http://www.bundesnetzagentur.de/netzsystem-quartalsbericht).

The power plants Irsching Block 4 and Block 5, which had been marked for temporary closure, have left the grid reserve and have been back in the market since 1 October 2020, which reduces the strain on network customers.

The grid reserve power plant GTKW Thyrow has been contracted as capacity reserve for the first delivery period from 1 October 2020 to 30 September 2022.

## Hydrogen-related activities

Hydrogen was an important issue for the Bundesnetzagentur, as elsewhere, in 2020. The TSOs included green gas projects (injection and offtake of hydrogen, synthetic methane and biogas) for the first time in the Gas Network Development Plan 2020-2030 and modelled them in a separate green gas variant. After the German government published its National Hydrogen Strategy on 10 June 2020, the Bundesnetzagentur started to address the issues of infrastructure and regulation, which are only dealt with briefly in the strategy. A situation analysis report on the regulation of hydrogen networks was made available to the public and for market consultation on 13 July 2020.

The consultation was accompanied by a list of 43 questions to help structure responses. The consultation, which ran until 4 September 2020, garnered 64 responses from stakeholders, some of which were very detailed. These contributions were evaluated, summarised, and made available to the public on the Bundesnetzagentur website on 11 November 2020. Just over half the participating stakeholders agreed to their responses being published. The aim of the evaluation was to provide policymakers and the BMWi with an overview of the sector's stances.

While the evaluation was still ongoing, the Bundesnetzagentur started to discuss its findings with the BMWi and they were included in the drafting of a key elements paper and a legal framework for the establishment of a hydrogen market.



## International cooperation

The new European Regulation on the internal market for electricity entered into force on 1 January 2020. It requires Member States to make at least 70% of their transmission capacity available for cross-zonal trading. To this end, a national action plan was developed to introduce the new rules in stages up to 31 December 2025.

In March 2020, the Bundesnetzagentur published the first annual report on the amount and use of congestion income of national TSOs from congestion management. It also informed the Agency for the Cooperation of Energy Regulators (ACER) of the report in line with the Regulation.

## Implementation of the Clean Energy Package

The Clean Energy for all Europeans Package, a wide-ranging package of European legislation aimed at further integrating the internal market in electricity, was approved in June 2019. It included the new European Regulation on the internal market for electricity, which entered into force on 1 January 2020.

### Minimum trading capacity and national action plan

The internal electricity market Regulation requires Member States to make at least 70% of their transmission capacity available for cross-zonal trading. The federal government timed its presentation of the national action plan to coincide with the implementation of the new provisions. The action plan will permit the minimum amount to be introduced in stages up to 31 December 2025. The Bundesnetzagentur's role was to develop principles for the calculation and classification of the starting values for the linear increase in minimum capacity together with the TSOs by the end of 2019 and to publish them on the authority's website. The TSOs then calculated the starting values and published them so the relevant capacity could be made available for cross-zonal trading as of 1 January 2020. The Bundesnetzagentur has been monitoring compliance with the minimum amounts since then.

## Security of supply in the European internal market

The European Network of Transmission System Operators for Electricity (ENTSO-E) developed security of supply methodologies in line with the provisions of the internal electricity market Regulation. These methodologies set out rules for an EU-wide examination of security of supply and the calculation of various relevant key figures on willingness to pay, avoidance of blackouts, calculation of costs for creation of new generating capacity or loads in the electricity market and a reliability standard, which may be regarded as a sort of limit in the measurement of supply security. ACER made numerous adjustments to the methodologies and discussed the changes with ENTSO-E and the regulatory authorities.

The Bundesnetzagentur was part of a working group focused on establishing clear, uniform rules that are to be upheld in the monitoring of national security of supply (see "Monitoring of security of electricity supply"). This is the only way to obtain results that are comparable in the European context.

ACER approved the amended methodologies in consultation with ENTSO-E, the European Commission, the regulatory authorities and the responsible ministries of the Member States in October 2020. The result is a comprehensive package of regulation guaranteeing a standardised approach to examining security of supply in the electricity market.

## Cross-border participation in capacity mechanisms

ENTSO-E has drawn up another methodology in accordance with the internal electricity market Regulation. It will lead to an approach to the cross-border opening up of capacity mechanisms that is standardised across the EU.

In the ideal scenario, the cheapest available capacity will be accessed within the internal market to meet demand for electricity, regardless of whether it is domestic or foreign, provided that the transmission capacity is available. Making the best possible use of all available capacity is a key principle of capacity mechanisms. ENTSO-E's methodology sets out rules governing the calculation of cross-border network capacity and the responsibilities of TSOs and regulatory authorities of the Member States involved.

ACER approved the methodology in December 2020 following input from a working group made up of regulatory bodies including the Bundesnetzagentur.

The methodology directly affects Germany. The capacity reserve introduced in 2020 is limited to installations in Germany, if only because the nature of a reserve is different to that of a full capacity mechanism. However, if the capacity reserve is used to balance the system (which we do not expect), the functioning of the European electricity market means that the border capacity would have to be made full use of anyway.

## 4MMC: interim market coupling project

The "4M market coupling" (4MMC) countries – Czechia, Hungary, Slovakia and Romania – are planned to be included, along with Poland, in an interim project in the existing multi-regional coupling (MRC), which already connects the majority of European countries. The regulatory authorities in these four countries, the Austrian regulatory authority E-Control and the Bundesnetzagentur agreed on this at the end of 2018. The aim was to strengthen the integration of the region's day-ahead market until the core flow-based project, which is being worked on at the same time, comes into force. When it became clear that the latter would be delayed, decisions had to be made weighing up the market-coupling projects. In the working groups and in dialogue with the European Commission, the Bundesnetzagentur played an active role in ensuring that the 4MMC interim project was prioritised and driven forward.

## Bidding zone review

The adjustment of the bidding zones is an ongoing topic in European discussions about electricity market design. Regulation (EU) 2015/1222 provides for a review every three years of the efficient configuration of the existing bidding zones by the participating TSOs, national regulatory authorities and ACER.

Regulation (EU) 2019/943 on the internal market for electricity has now added provisions to those of Regulation (EU) 2015/1222, tightening deadlines and clarifying responsibilities. The internal electricity market Regulation required TSOs to submit a methodology with bidding zone configurations by 5 October 2019. In the Central Europe region that includes Germany, the German TSOs withdrew their proposals after no other configurations were submitted from other countries. This meant that ultimately, no bidding zone configurations were submitted. The review of the bidding zones was transferred to ACER on 20 May 2020, which now has the role of determining the methodology and configurations in two separate decisions.

Once the methodology has been decided, the TSOs will have a year to model data for each node. These will then serve as the template for the determination of the bidding zone configurations being examined. The methodology was confirmed by all 27 members on 18 November 2020. The Bundesnetzagentur continues to advocate for the preservation of the German bidding zone and the zonal market model.

## Two years of CEER presidency – successes and objectives

In January 2019, Dr Annegret Groebel, head of the department for international relations/postal regulation at the Bundesnetzagentur, was elected President of the Council of European Energy Regulators (CEER). Since then, the Bundesnetzagentur has played a central role in developing objectives at CEER and has intensified its involvement at the working level, too. CEER's 3D strategy (digitalisation, decarbonisation, dynamic regulation) was published and further developed. More than 20 related, high-profile papers were produced and publicised up to the end of 2020,<sup>3</sup> reinforcing CEER's position as the strong voice of independent European regulators. Recently, the focus has been increasingly on consumer issues, including the continuation of the cooperation with the European Consumer Organisation BEUC.<sup>4</sup>

As well as working with CEER, the Bundesnetzagentur also fosters dialogue with European and international regulators at both the working and presidential level to address current issues and to tackle problems quickly and efficiently. A very successful example of this kind of cooperation was the rapid exchange of information and experiences surrounding national measures introduced during the Covid-19 pandemic. The coronavirus-related restrictions that were put in place did not impede the efficiency of international cooperation thanks to IT solutions.

## Methodology developed by ACER on the use of congestion income

Cross-border interconnectors permit electrical energy to be transported to neighbouring bidding zones. Congestion income represents the revenue collected by TSOs, which operate the interconnectors, when allocating cross-zonal interconnection capacity. European law restricts the purpose for which this income can be used.

The internal electricity market Regulation sets out that congestion income should be used primarily to guarantee the actual availability of the allocated capacity and to maintain or increase cross-zonal capacities through optimisation and remedial actions for existing interconnectors or investments in interconnectors. Only when these primary objectives have been achieved may any remaining congestion income be used for measures that will reduce network charges.

The details of this approach are to be regulated in a European methodology, issued by ACER, from 2020. ENTSO-E submitted a proposed methodology on the use of congestion income to ACER for approval on 5 July 2020 as planned. It had previously held a workshop, in which the Bundesnetzagentur participated, during the consultation period.

The draft methodology that was the subject of the consultation is now in the approval process at ACER. ACER has six months from the time of submission to make its decision, so the result is expected by the end of 2020. However, ACER also has the right to ask the TSOs to amend or update the methodology and resubmit it.

In March 2020, the Bundesnetzagentur published the first annual report on the amount and use of congestion income of national TSOs from congestion management on the basis of the new legal provision, Article 19(5) sentence 2 of Regulation (EU) 2019/943. It informed ACER of this in line with the Regulation ([www.bundesnetzagentur.de/engpassmanagement](http://www.bundesnetzagentur.de/engpassmanagement)).

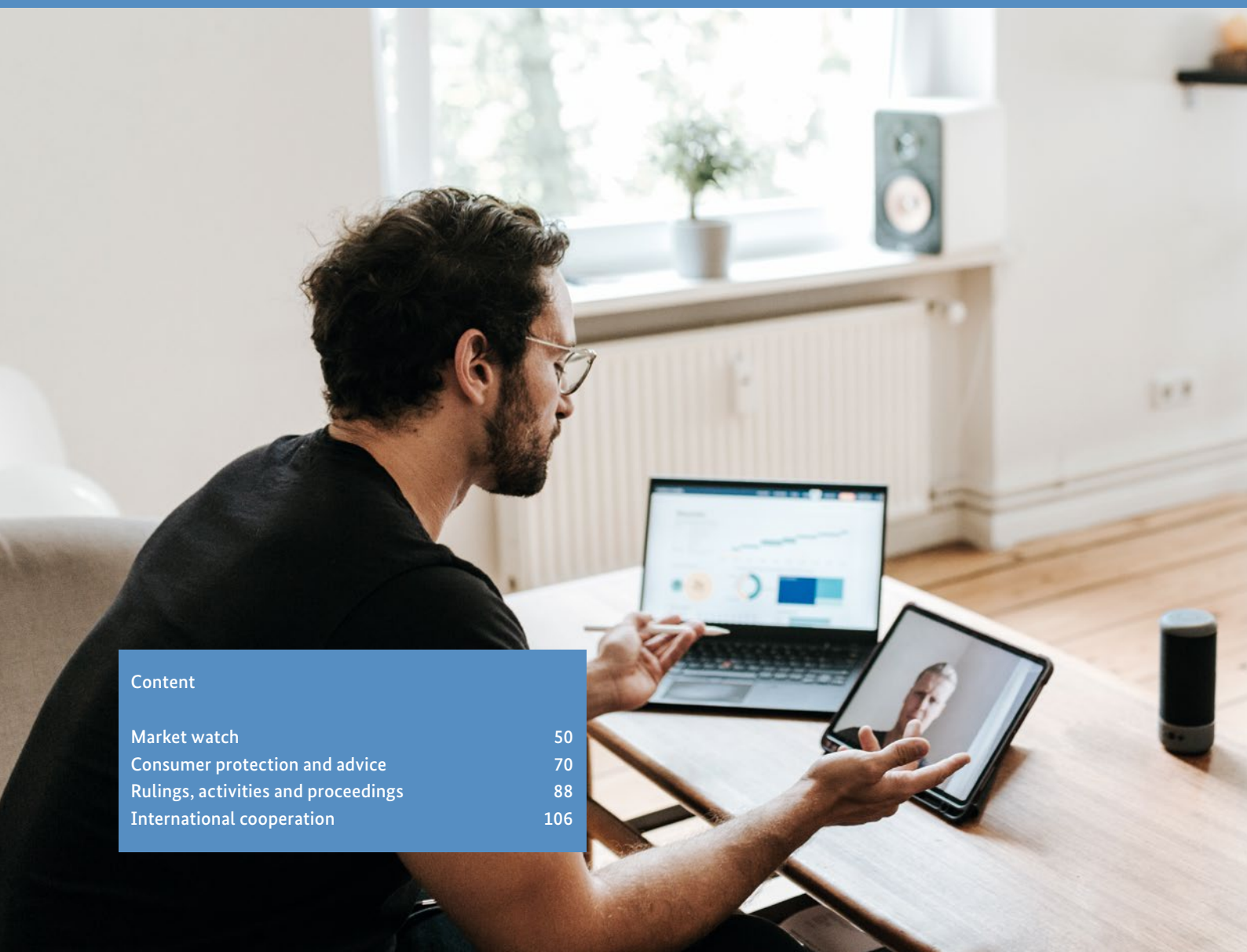
<sup>3</sup>eg Conclusions Paper on Dynamic Regulation to Enable Digitalisation of the Energy System; Report on Regulatory Aspects of Self-Consumption and Energy Communities; Recommendations on Dynamic Price Implementation

<sup>4</sup>CEER-BEUC 2030 Vision for Energy Consumers: LET'S ASPIRE!



## Shaping digital change

Powerful networks are vital to the people of Germany and cement the country's future as an attractive location for business and industry. As the independent regulatory authority, the Bundesnetzagentur creates an investment-friendly environment for businesses investing in the future of telecommunications networks – and thus lays the foundations for digitalisation in Germany.



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In October 2020 the Bundesnetzagentur launched an interactive map displaying the current extent of mobile network coverage in Germany. This marked the start of supplier-specific, nationwide monitoring of network coverage.

In the area of digitalisation, the Bundesnetzagentur devoted much of 2020 to investigating the importance of digital platforms for business customers in Germany and exploring suitable approaches to regulating these platforms.

The Bundesnetzagentur opened up an application procedure for local broadband networks. The available spectrum can be used in particular for industry 4.0, but also in the agricultural and forestry sector. With almost 100 frequency assignments made in the year since applications began, the procedure is off to an excellent start.



## Market watch

According to the Bundesnetzagentur's preliminary calculations, investments in fixed assets in the telecommunications market increased once again in 2020 to reach €10.5bn, thereby surpassing the 2019 level by 7%.

Following declining volumes of call minutes in fixed networks up to 2019, the Bundesnetzagentur estimates that the total volume of call minutes in fixed networks increased to approximately 104bn minutes in 2020, a year that was dominated by the coronavirus pandemic.

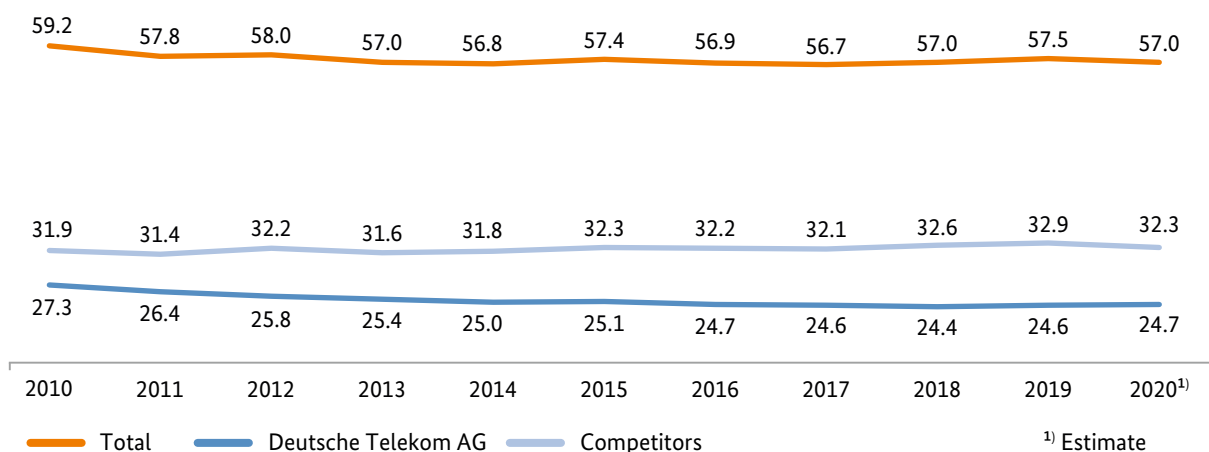
## Telecommunications markets as a whole

### External revenue

According to the Bundesnetzagentur's preliminary calculations, external revenue in the telecommunications market was €57.0bn in 2020. Year on year, the decline was just under 1% (€0.5bn). With only minor variations reported in the rates of change over recent years, external revenue has remained largely stable. The external revenue of the competitors to Deutsche Telekom AG amounted to around €32.3bn in 2020 and of Deutsche Telekom AG to €24.7bn.

A breakdown of revenue by market segment shows that the largest share is still attributable to mobile services. Accounting for €25.61bn (45%), the market share of mobile services in 2020 was more than that of xDSL/FTTx networks at €24.47bn (43%) and of HFC networks at €5.96bn (10%).

External revenue in the telecommunications market  
€bn



**External revenue by segment**

	2018		2019		2020 <sup>1)2)</sup>	
	€bn	%	€bn	%	€bn	%
<b>External revenue in the telecommunications market</b>	<b>57.0</b>		<b>57.5</b>		<b>57.0</b>	
<b>External revenue in xDSL/FTTx networks</b>	<b>21.60</b>	100	<b>21.79</b>	100	<b>24.47</b>	100 <sup>3)</sup>
Via retail	17.19	80	17.42	80	20.03	82
Via wholesale	4.12	19	4.13	19	4.07	17
Other external revenue	0.29	1	0.24	1	0.37	2
<b>External revenue in HFC networks</b>	<b>5.85</b>	100 <sup>3)</sup>	<b>5.77</b>	100 <sup>3)</sup>	<b>5.96</b>	100
Via retail	5.37	92	5.45	94	5.62	94
Via wholesale	0.09	2	0.08	1	0.09	2
Other external revenue	0.39	7	0.24	4	0.25	4
<b>External revenue from mobile services</b>	<b>26.55</b>	100	<b>26.60</b>	100	<b>25.61</b>	100 <sup>3)</sup>
Via retail (excluding terminal equipment)	18.66	70	18.29	69	17.63	69
Via wholesale	2.91	11	2.65	10	2.44	10
Via terminal equipment	4.16	16	4.85	18	4.78	19
Other external revenue	0.82	3	0.81	3	0.76	3
<b>Other external revenue</b>	<b>2.99</b>	100	<b>3.33</b>	100	<b>0.98</b>	100

1) Estimate.

2) The structural shift between individual segments is due to the restructuring of business areas at one company.

3) Totals may deviate from rounded cumulative figures.

**xDSL/FTTx networks**

In the xDSL/FTTx networks segment, external revenue grew in 2020 according to currently available data, amounting to €24.47bn.

External revenue consists of revenue from retail and wholesale services and other external revenue. Revenue via retail is generated from services for private, commercial and public sector customers. According to the Bundesnetzagentur's estimates, it accounted for 82% in 2020. Wholesale services for fixed-network and mobile operators and service providers outside of the DTAG group accounted for 17% of external revenue. These services include wholesale products for voice traffic and telephony, broadband and internet, and infrastructure services.

**HFC networks**

The revenue of HFC (hybrid fibre-coax) network operators rose in 2020 by more than 3% year on year to approximately €5.96bn.

The lion's share of external revenue in HFC networks (94%) was attributable to retail. Wholesale business accounted for around 2%. The limited significance of wholesale business compared with the xDSL/FTTx segment is largely due to the fact that HFC network operators to date offer virtually no wholesale products that can be used by third parties to provide

broadband connections. Vodafone and Tele Columbus have now granted Telefónica access to their HFC networks; Vodafone on the basis of a commitment in the Vodafone/Certain Liberty Global Assets (Unitymedia) merger control proceedings, and Tele Columbus on a voluntary basis.

**Mobile services**

External revenue from mobile services amounted to €25.61bn in 2020 or just under 4% below the prior-year figure. According to the Bundesnetzagentur's estimates, 69% of this external revenue was attributable to retail business (excluding terminal equipment) and 10% to wholesale business. Revenue from terminal equipment accounted for 19%, up one percentage point on 2019.

Mobile services were affected by contrasting revenue effects induced by the Covid-19 pandemic. On the one hand, revenue was buoyed by rising voice and data traffic in the domestic mobile networks driven by the rules on home working and contact restrictions. Whereas, on the other hand, the use of mobile data services and international telephone services dwindled as a consequence of travel restrictions, causing a decline in international roaming revenues.

The distribution of revenue between mobile network operators and mobile service providers shows that the

lion's share of this revenue (over 80%) was attributable to network operators. The share accounted for by service providers has remained virtually constant in the period 2018 to 2020.

#### External revenue from mobile services

	2018		2019		2020 <sup>1)</sup>	
	€bn	%	€bn	%	€bn	%
<b>Total</b>	<b>26.55</b>	<b>100</b>	<b>26.60</b>	<b>100</b>	<b>25.61</b>	<b>100</b>
Network operators	21.67	82	21.58	81	20.91	82
Service providers	4.88	18	5.02	19	4.70	18

#### Investments in fixed assets

According to the Bundesnetzagentur's preliminary calculations, investments in fixed assets in the telecommunications market increased once again in 2020 to reach €10.5bn, thereby surpassing the 2019 level by €0.7bn (an increase of 7%).

Competitors invested €5.9bn in 2020 compared with €5.4bn in 2019. At over 9%, the growth rate continued the unbroken trend for rising investments by competitors seen since 2017.

DTAG's investments also increased in 2020 to €4.6bn, up by almost 5% against 2019. The share of total investments in the telecommunications market attributable to DTAG fell in 2020 by one percentage point to 44% due to the stronger growth dynamic of competitors.

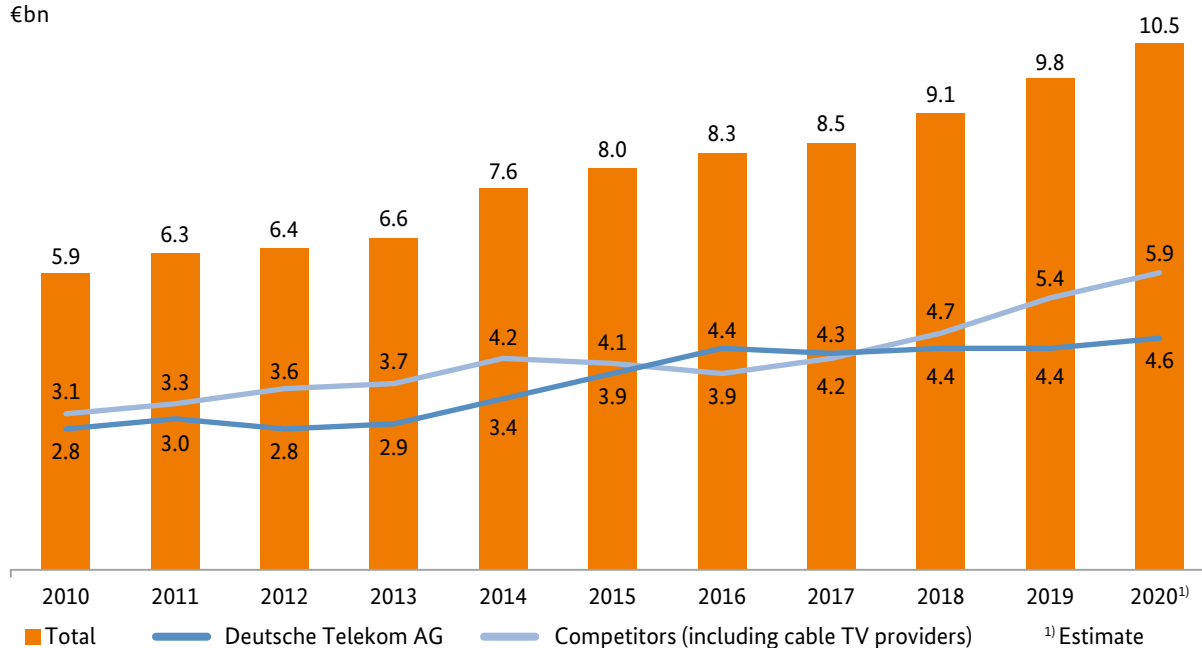
According to currently available data, companies invested primarily in new broadband network infrastructure. This includes investments to expand coverage and/or upgrade connection performance, which together accounted for around 68% of all investments in 2020. Approximately 12% went towards the maintenance of existing broadband network infrastructure and around 20% was used for other investments. These encompass investments in subscriber terminal equipment, the expansion of data centres and investments in customer support.<sup>1</sup>

In the fixed-network segment, investments were devoted primarily to rolling out optical fibre networks. In mobile networks, the focus was on building out LTE and 5G infrastructure.

Since the market opened up in 1998 through to the end of 2020, companies have invested a total of €174.4bn in fixed assets in the telecommunications market. Of this amount, 52% (€91.5bn) is attributable to competitors and 48% (€82.9bn) to DTAG..

<sup>1</sup>When interpreting the data, it should be noted that the assignment of investments to the categories "existing broadband network infrastructure", "new broadband network infrastructure" and "other" may have been subject to different interpretation by the companies surveyed in order to collect information for this report. In addition, not all companies were able to provide a breakdown of their data. These companies are not included in the calculation of shares.

### Investments in fixed assets in the telecommunications market €bn

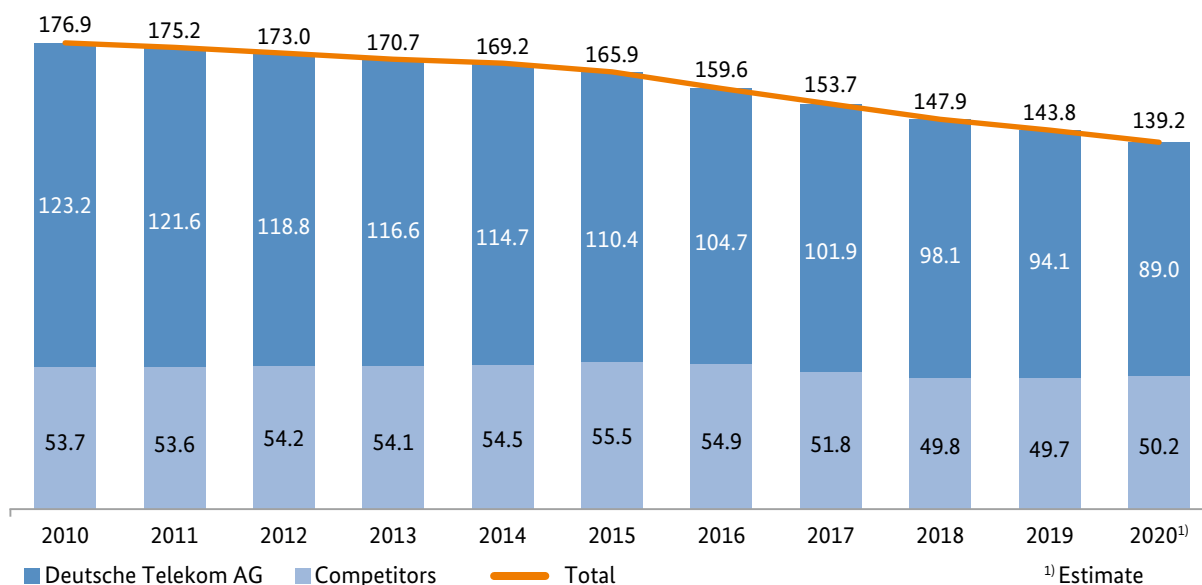


### Employees

Approximately 139,200 people were employed by companies in the telecommunications market at the end of 2020. This is some 4,600 (around 3%) fewer than at the end of 2019. The decline is a result of ongoing workforce reduction activities at DTAG,

where the headcount fell by 5,100 to 89,000. At competitors, the trend remained largely stable in 2020 with the number of employees climbing marginally year on year by 500 (1%) to reach 50,200. Over the past three years the level has remained stable at around 50,000.

### Employees in the telecommunications market Thousand



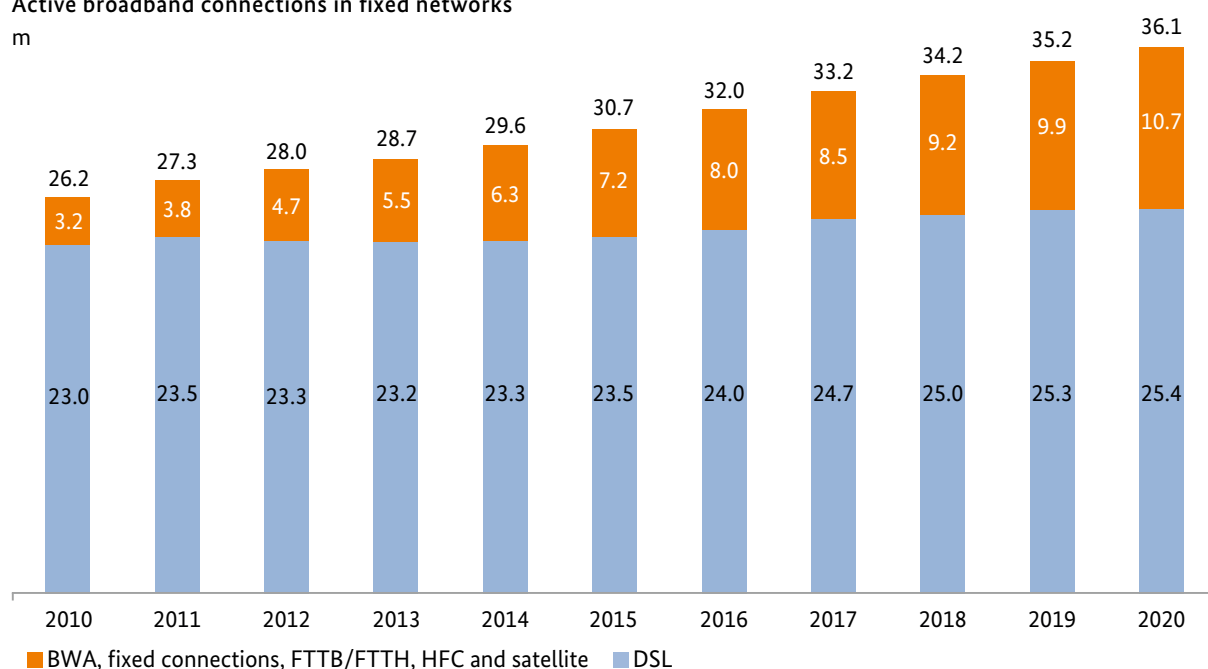
These developments are influenced by two key factors. First, companies are being forced to realise efficiency potential due to increasing competition. Second, recent years have been characterised by technological advances, the innovative potential of which is best realised in a competitive environment. The investments made have enabled the provision of more telecommunications services of a better quality by fewer employees. This increase in productivity is particularly marked in the telecommunications sector.

## Fixed network

### Broadband connections

The number of contract-based broadband connections<sup>2</sup> increased overall to around 36.1m at the end of 2020, a year-on-year increase of almost 3%.

Active broadband connections in fixed networks  
m



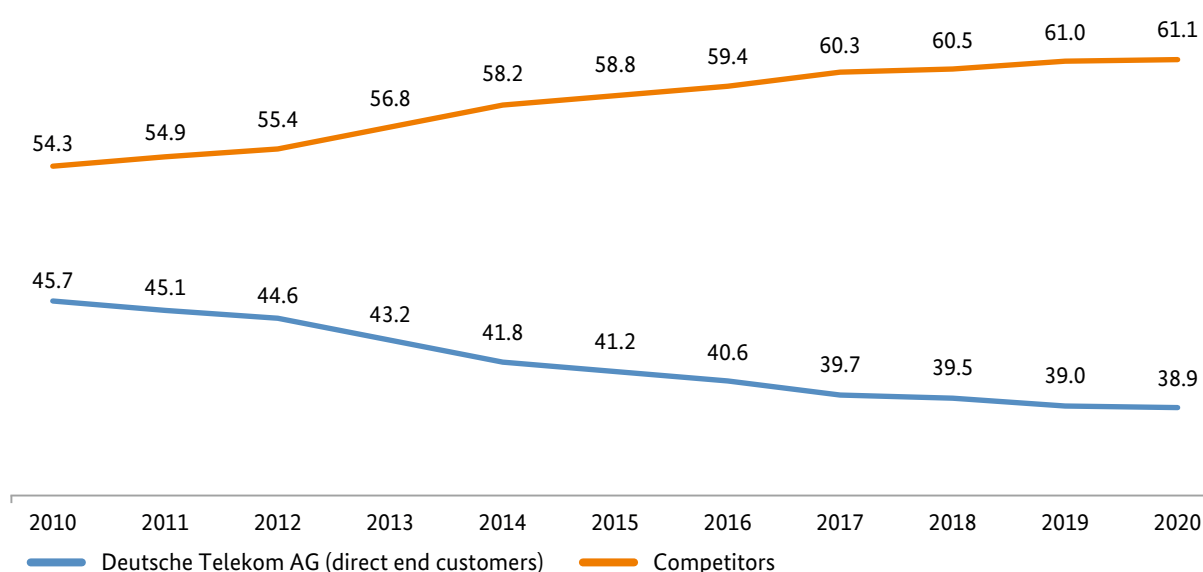
With a share of 70% (25.4m), the majority of broadband connections continue to be based on various DSL technologies. Together, all other technologies accounted for approximately 10.7m connections. Most of these were based on HFC networks (around 8.7m).

Approximately 1.9m were based on fibre-to-the-building (FTTB) or fibre-to-the-home (FTTH). Fewer than 0.1m connections were broadband wireless access (BWA), fixed connections or satellite connections.

<sup>2</sup>Broadband connections include all connections with a bandwidth of at least 144 kbps. The Bundesnetzagentur bases this threshold on the requirements defined by the European Commission in its latest broadband report (COCOM).

## Share of fixed broadband

%



DTAG's competitors maintained their market share of all retail broadband connections at around 61% at the end of 2020.

## Transmission rates

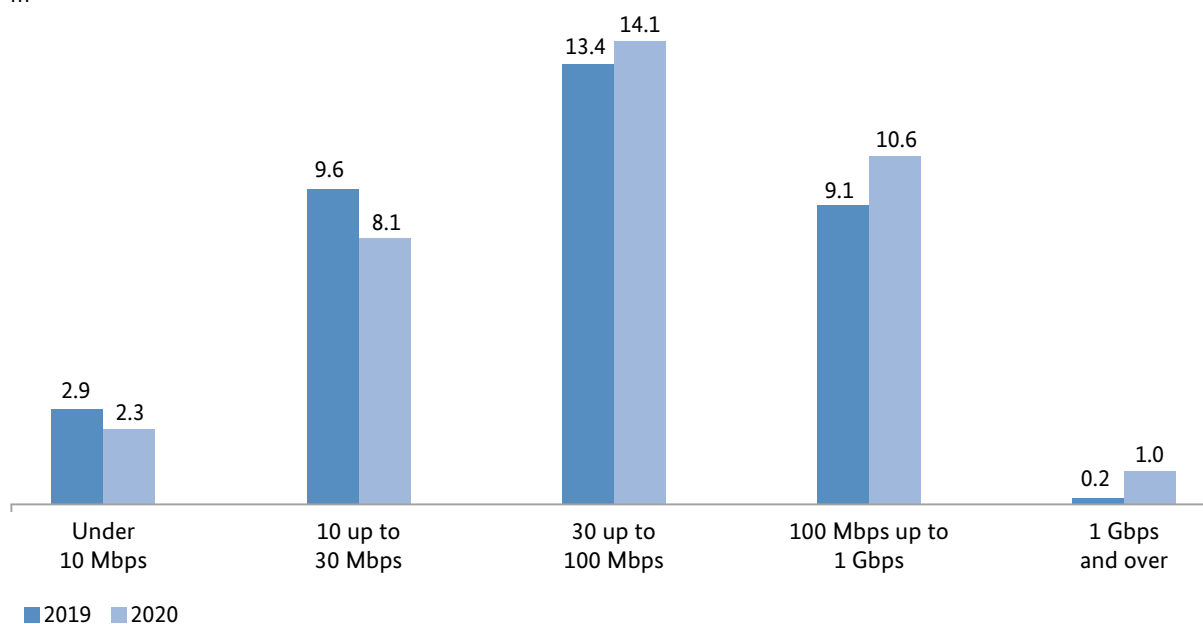
In the broadband market, demand for connections with high nominal bandwidths remained strong throughout 2020. Some 11.6m broadband connections were available with a nominal bandwidth of at least 100 Mbps at the end of 2020. In relation to the

total number of broadband connections sold in fixed networks (36.1m), the number of connections with a minimum bandwidth of 100 Mbps rose to around 32% at the end of 2020. Roughly 1m connections were available with a nominal bandwidth of at least 1 Gbps.

Some 2.3m broadband customers were still using connections with a nominal data rate of under 10 Mbps at the end of 2020. This number was down approximately 0.6m year on year.

## Advertised speed of contract-based fixed broadband connections

m





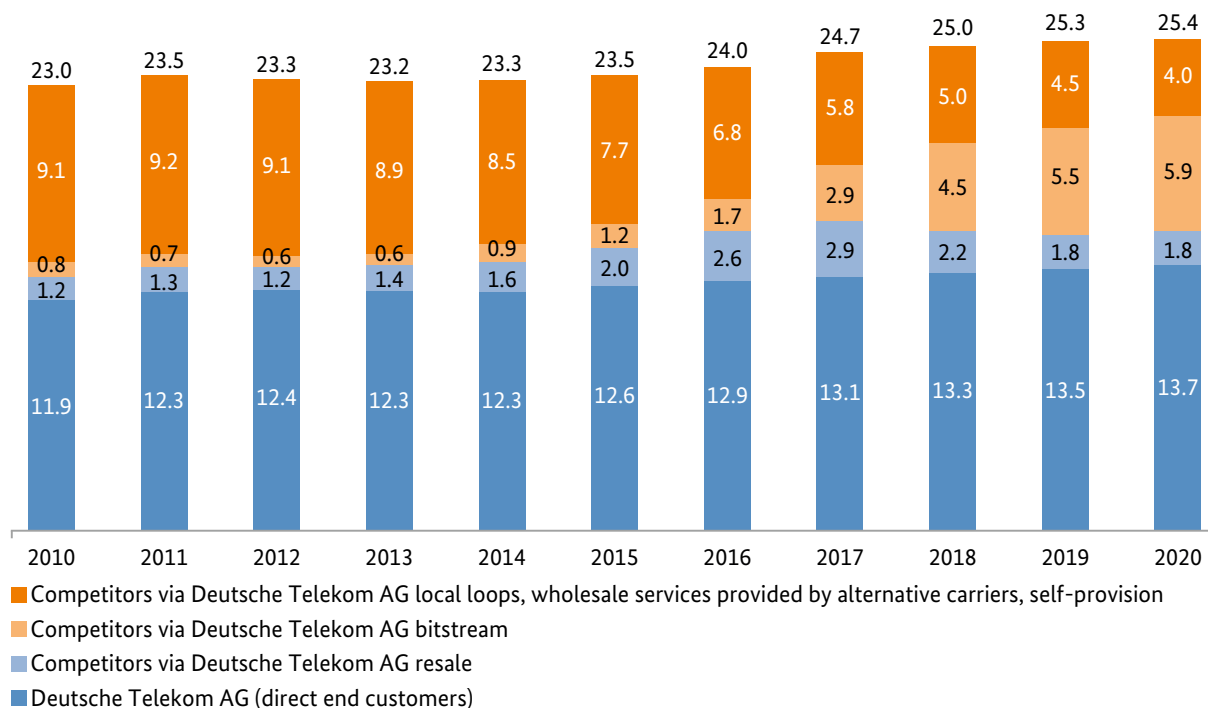
### DSL connections

In total, there were approximately 25.4m operational DSL connections at the end of 2020, around 13.7m of which were attributable to direct end customers of DTAG and around 11.7m to competitors, which

primarily marketed DSL connections to customers on the basis of the specific wholesale products of DTAG or alternative carriers. Based on these figures, DTAG's competitors had achieved a DSL market share of around 46% by the end of 2020.

### Active DSL connections

m



DSL segment growth continues to be driven by the positive trend in VDSL connections. At around 16.8m connections, VDSL accounted for approximately 66% of all DSL connections at the end of 2020. Around 7.6m VDSL connections were provided by DTAG's competitors and around 9.2m direct VDSL connections by DTAG.

Vectoring technology is driving the increasing spread of VDSL and currently enables transmission rates of up to 250 Mbps.

The significance of VDSL was also reflected at the wholesale level. In the last few years it has led to a considerable rise in demand for specific DTAG VDSL wholesale products. Demand for bitstream wholesale products was especially high, due largely to the fact that, in addition to the established layer 3 bitstream product, DTAG has offered a layer 2 bitstream product since the end of 2016 which is available to competitors as another alternative for providing end-user access.

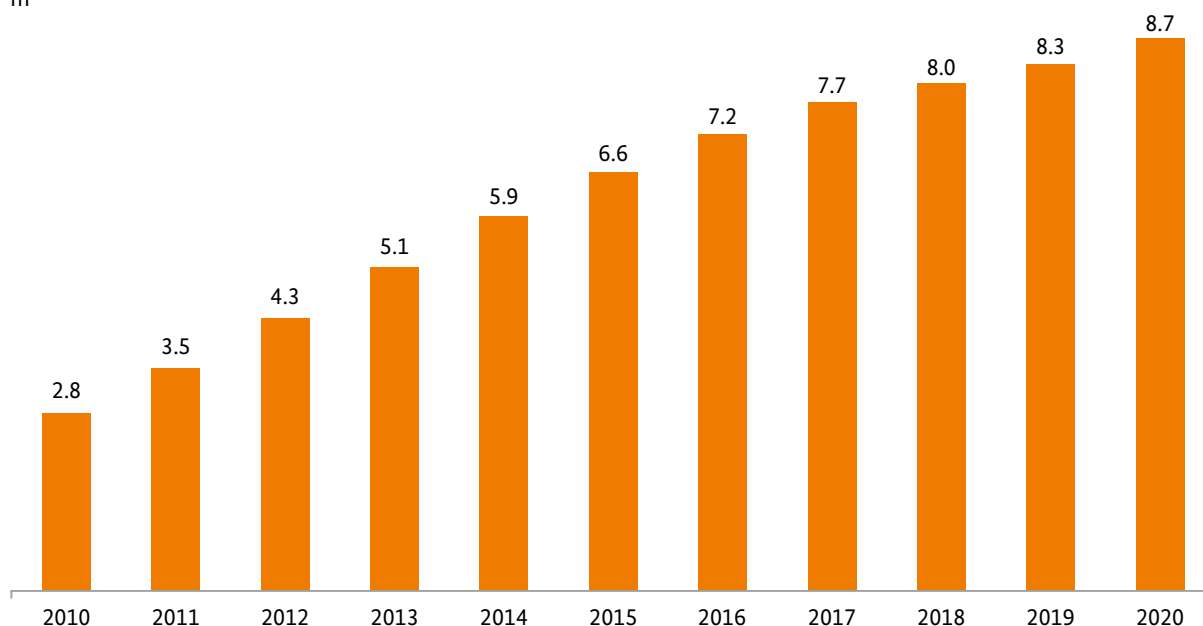
By contrast, demand for competitor-operated connections based on DTAG's high-bit-rate, unbundled local loops fell further due to their limited usage possibilities amidst the ongoing rollout of vectoring technology.

### Broadband connections via HFC networks

As more and more HFC networks are upgraded with the latest DOCSIS 3.1 transmission standard and investments in fibre-optic components continue, these networks can now increasingly offer download speeds of up to 1 Gbps. At the end of 2020 there were

around 8.7m connections via HFC infrastructure. Of these, over 5.3m (61%) had delivering speeds of at least 100 Mbps. Whilst annual growth from 2010 to 2016 was consistently between 600,000 and 800,000, from 2017 to 2020 it slowed to around 300,000 to 500,000.

### Active broadband connections via HFC networks m



### Broadband connections via FTTB/FTTH

Thanks to their outstanding technical properties and almost unlimited bandwidths, optical fibres are widely considered to be the perfect medium for transporting data. The ongoing expansion of FTTB and FTTH led to growth in the number of active connections for end customers, business customers and public sector customers of around 400,000 year on year to total around 1.9m at the end of 2020.

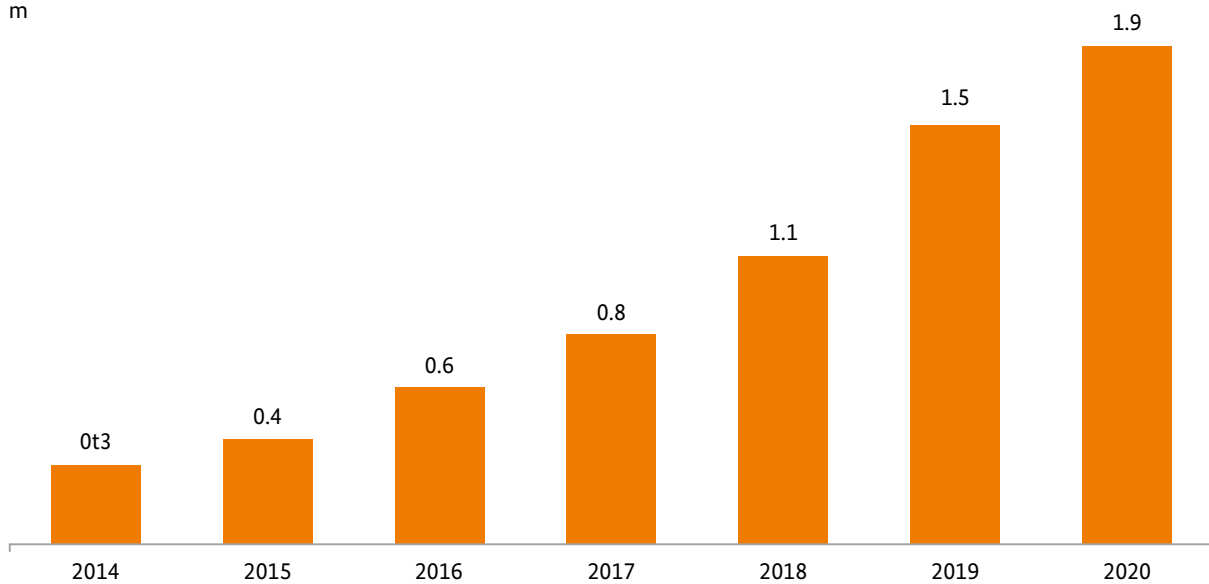
According to the Bundesnetzagentur's preliminary calculations, the number of customers covered or passed by FTTB/FTTH grew to 6.6m in 2020, an increase of 1.3m against 2019 (5.3m). These figures include both active and inactive FTTB/FTTH end-user connections that are available but are not operational under a corresponding contract, as well as end customers directly passed by FTTB/FTTH. Fibre-optic infrastructure already reaches these customers, ie an FTTB-/FTTH-dedicated optical fibre cable or

bundle directly passes their property (at a maximum distance of 20 metres).<sup>3</sup> Further investment is required to complete the connection to these end users.

The growth in demand drove up the share of active broadband connections in fixed networks accounted for by active FTTB/FTTH connections from 4% in 2019 to 5% in 2020. Nevertheless, the low prevalence of these connections is largely due to the high level of existing coverage with high-speed infrastructure (VDSL vectoring and HFC networks). The FTTB/FTTH share of broadband connections is expected to grow sharply in the coming years, partly on the back of rising private-sector investments in fibre and supporting funding initiatives at national, state and local level. Video telephony applications, high-resolution streaming services and other similar offerings are also driving up demand. According to current estimates, this is expected to have a positive effect on the take-up rate of just under 30%.

<sup>3</sup>The inclusion of customers passed (but not directly connected) is based on an extended version of the method used to collect data on the number of households covered for the 2019 annual report. The number of customers passed was not included systematically at the time.

### Active broadband connections via FTTB/FTTH m



### Satellite broadband connections

Some 23,000 customers were using satellite internet access from virtually any location at the end of 2020. Demand remained low due to the availability of more cost-effective alternative access options, often with higher maximum bandwidths. Satellite internet connections can help to provide full broadband coverage in regions where other technologies are not, or not sufficiently, available.

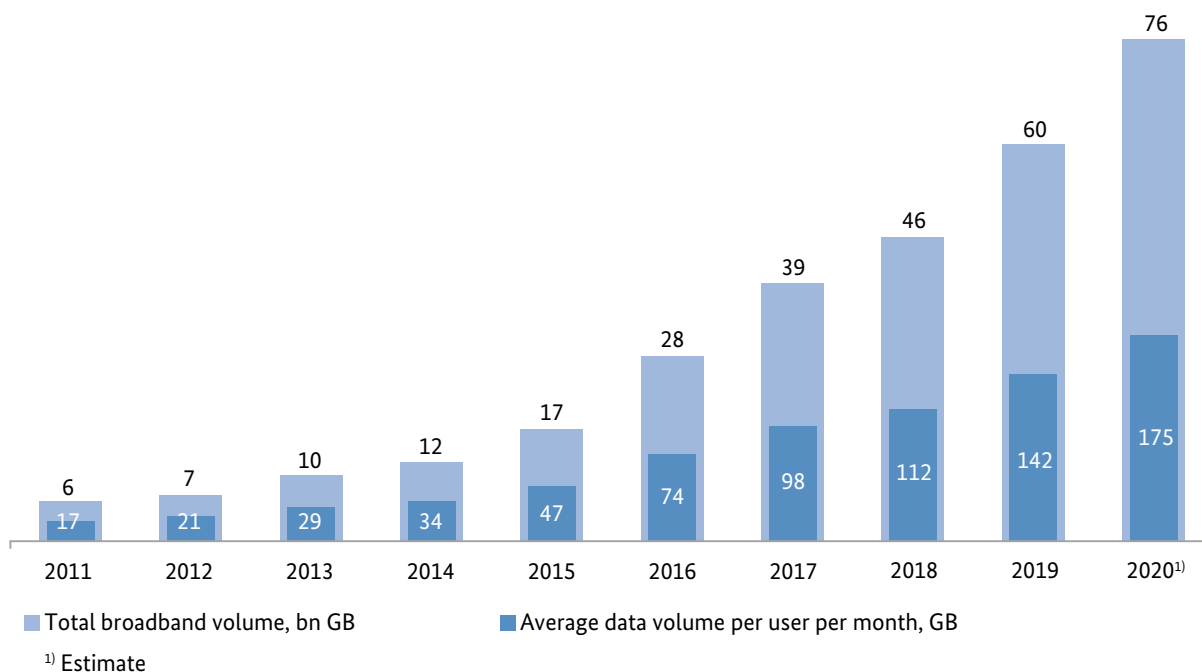
### Data volumes

The data volume per fixed-network broadband connection<sup>4</sup> continues to rise sharply. End customers used a total volume of roughly 60bn GB in 2019. This corresponded to an average data volume per connection per month of around 142 GB.

Shifts in end-user consumption habits during the Covid-19 pandemic led, among other factors, to a spike in the total fixed-network volume in 2020 to an estimated 76bn GB. This corresponds to an average of approximately 175 GB per fixed-network broadband customer and an increase of around 23%.

<sup>4</sup>The traffic volumes shown do not include data volumes from DTAG's IPTV (internet-based TV) service.

### Development of data volumes in fixed networks



#### Bundled products

Bundled products that, in addition to a broadband connection, include at least one other telecommunications service (fixed-network telephony, TV or mobile services) in a single contract are offered as standard by companies in their marketing to end customers. In some cases, it is no longer financially expedient to purchase these services separately.

End customers who enter into a fixed-network and mobile contract with the same provider can increasingly take advantage of discounts and exclusive offers by bundling the two contracts in special advantage programmes. By offering such measures, providers seek primarily to increase customer loyalty to their products.

At the end of the first half of 2020, DTAG and its competitors had around 34.1m contracts with bundle tariffs and advantage programmes. Accounting for approximately 20.9m customers, bundled products with two services were still by far the most common of these. The majority of these double-play products consist of an IP-based telephone service in addition to a broadband connection.

Around 11.7m customers had triple-play bundles at the end of the first half of 2020. Approximately 60% of these consisted of a broadband connection, a telephone service and a TV service, whilst roughly 40% had a mobile component instead of a TV service.

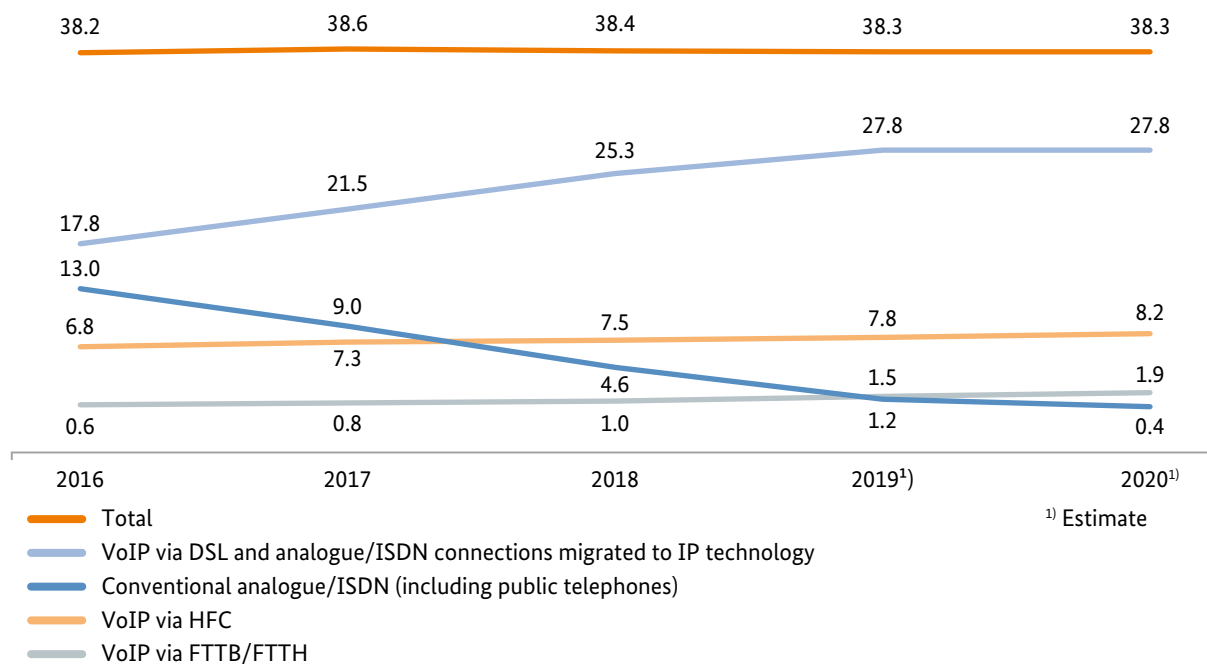
Around 1.5m customers were using quad-play bundles and advantage programmes consisting of four fixed-network and mobile services.

### Telephone connections

The changeover to Voice over Internet Protocol (VoIP) in fixed networks is now almost finished. The last few

years have seen contrasting trends in voice communication using conventional telephone lines on the one hand and IP-based voice services on the other.

Total number of telephone connections  
m



The number of IP-based voice services has increased to the detriment of conventional telephone lines. Overall, demand for voice communication services from fixed networks declined slightly in 2019

compared with the previous year. The total number of telephone connections is not expected to change significantly in 2020.

### Telephone connections and IP-based voice services – competitors' shares

	2018		2019		2020 <sup>1)</sup>		
	Total stock	Competitors' share	Total stock	Competitors' share	Total stock	Competitors' share	
	m	%	m	%	m	m	%
VoIP via DSL <sup>2)</sup>	25.32	40	27.79	38	27.83	10.80	39
VoIP via HFC	7.50	100	7.81	100	8.22	8.19	100
VoIP via FTTB/FTTH	1.04	85	1.49	84	1.88	1.53	81
Analogue/ISDN lines <sup>3)</sup>	4.56	30	1.18	76	0.33	0.30	91
Public telephones	0.018	6	0.017	6	0.016	0.001	6
<b>Total connections</b>	<b>38.44</b>	<b>52</b>	<b>38.29</b>	<b>54</b>	<b>38.28</b>	<b>20.79</b>	<b>54</b>

1) Estimate

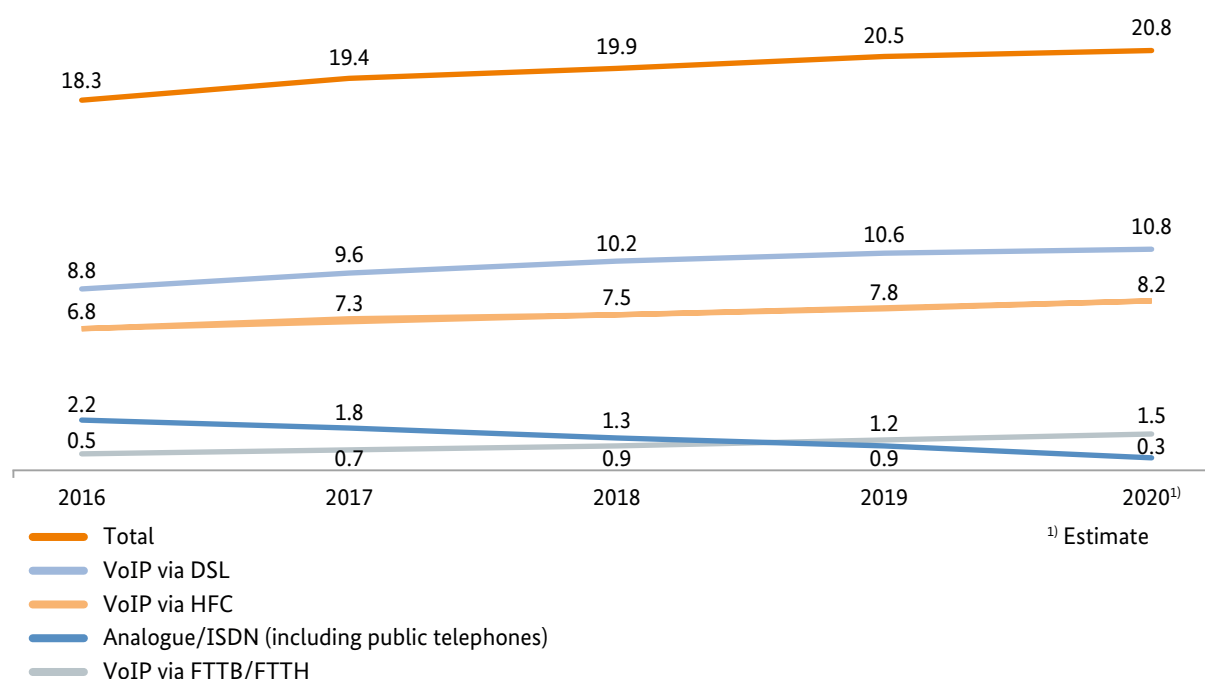
2) Including analogue/ISDN connections migrated to IP technology

At the end of 2020 the Bundesnetzagentur estimates that in the DTAG and competitor fixed networks there were around 27.8m DSL lines used for VoIP and analogue/ISDN connections that had been migrated to IP technology. The number of HFC connections used for telephony increased to approximately 8.2m. By the end of 2020 the number of voice lines in optical fibre networks (FTTB/FTTH) had also risen to approximately 1.9m.

At the same time, the number of conventional fixed-network analogue/ISDN lines fell to around 0.3m. These lines are being replaced by IP-based technologies, which now account for roughly 100% of connections. According to preliminary calculations, the total number of public payphones (coin- and card-operated) is expected to be around 16,000 at the end of 2020.

#### Telephone connections from alternative subscriber network operators

m

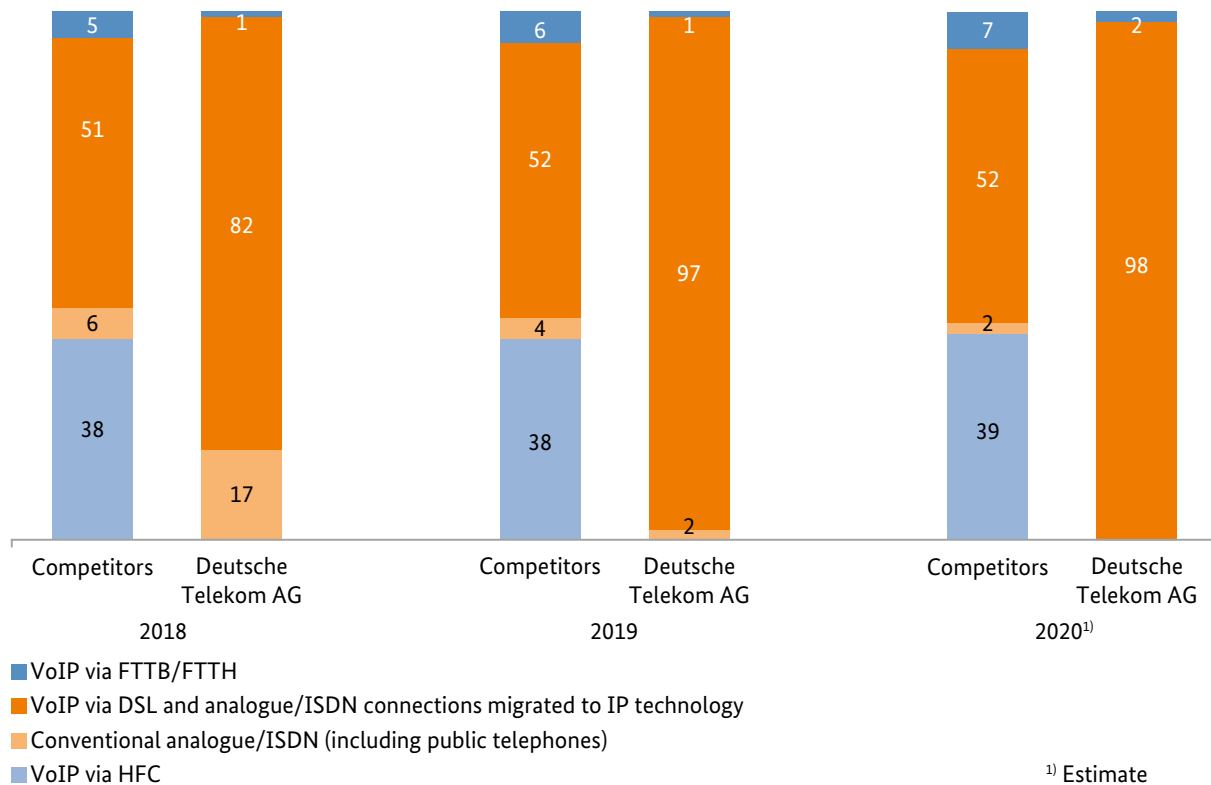




DTAG's competitors had an estimated 20.8m telephone connections at the end of 2020. The number of conventional analogue and ISDN lines provided by

alternative subscriber network operators decreased further, whilst the share of IP-based voice services continued to rise.

Telephone connections from alternative subscriber network operators and DTAG by technology  
%



Relative to the number of fixed-network telephone connections provided by DTAG's competitors, in 2020 the share of DSL lines for VoIP (approximately 52%) was higher than the share of voice lines in HFC and optical fibre networks, which together accounted for around 46%. Overall, the Bundesnetzagentur estimates that around 98% of all competitors' lines were based on IP technologies at the end of 2020. At DTAG, DSL lines used for VoIP and analogue/ISDN lines migrated to IP technology accounted for around 98% of telephone connections at the end of 2020, with a

further 2% or so coming from VoIP lines in fibre-optic networks. Both for DTAG and for alternative subscriber network operators, conventional telephony via analogue and ISDN lines is now of no relevance.

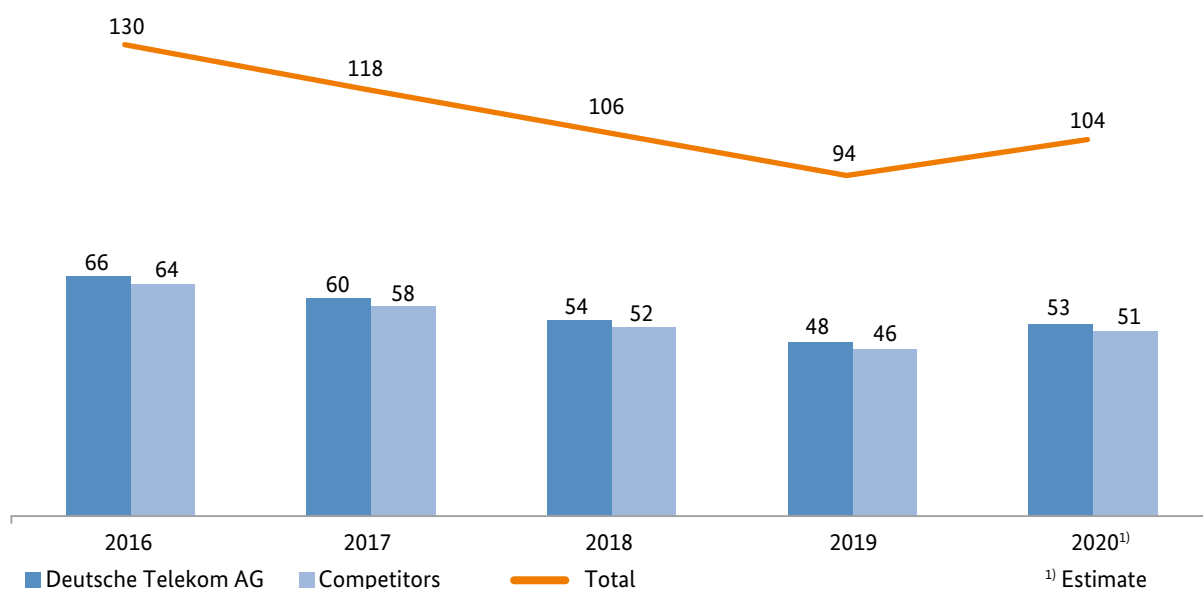
The fixed-network voice communication services of alternative subscriber network operators are operated on the basis of contracts on access to the DTAG local loop, or using the alternative providers' own local loops.

### Call minutes in fixed networks

Up until 2019, the volume of call minutes within Germany, international calls and calls to German mobile networks within fixed networks was in

decline. According to the Bundesnetzagentur's estimates, the volume of call minutes in fixed networks grew to approximately 104bn minutes in 2020, a year that was dominated by the coronavirus pandemic.

#### Outbound fixed call minutes bn

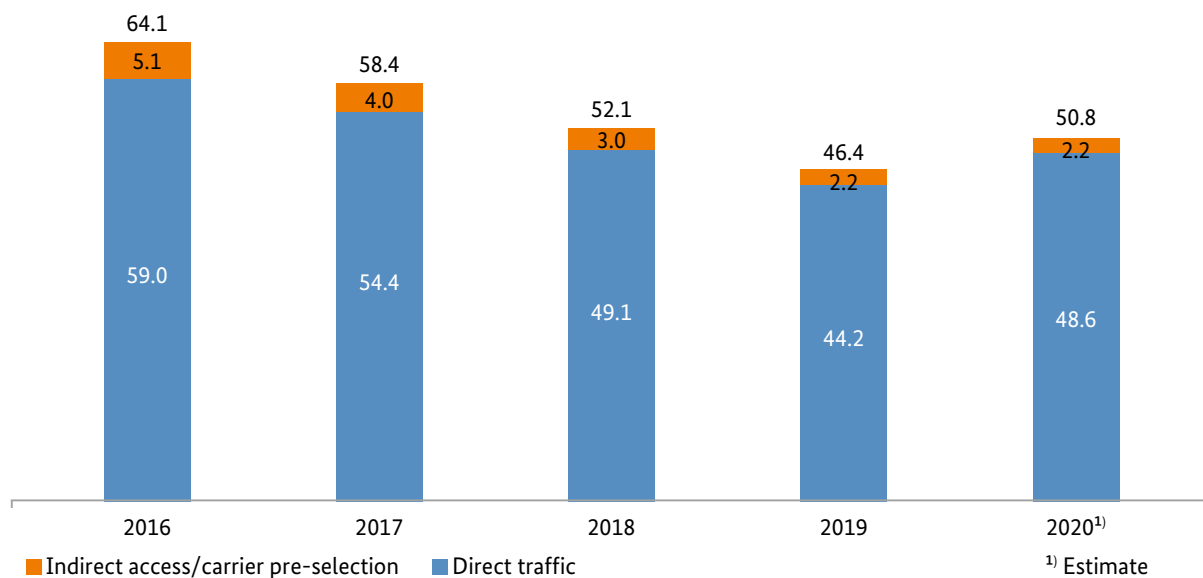


Calls within German fixed networks amounted to an estimated 89bn minutes in 2020. According to an initial forecast, around 90% of these were billed via flat rates. In addition, calls to national mobile networks accounted for around 10bn minutes (around

44% flat rate) and calls to foreign fixed and mobile networks for an estimated 5bn minutes.

The Bundesnetzagentur estimates that almost 100% of all calls were being handled via IP technology by the end of 2020.

#### Call minutes via alternative providers bn



In total, the Bundesnetzagentur estimates that around 50.8bn call minutes were handled by DTAG's competitors in 2020, up from roughly 46.4bn in 2019. As in previous years, direct traffic accounted for the lion's share of these minutes – around 48.6bn minutes in 2020.

Based on initial forecasts, indirect access and carrier pre-selection calls handled by alternative providers accounted for a total of 2.2bn minutes – or around 4% – of all calls handled by competitors in 2020 (around 2% of total calls). Despite a decrease in the number of lines with carrier pre-selection in the DTAG network, pre-selection call volumes exceeded indirect access.

With regard to individual call segments, the Bundesnetzagentur estimates that DTAG's competitors were able to roughly maintain their shares of domestic calls (49%), calls to foreign fixed and mobile networks (59%) and calls to national mobile networks (46%).

In general it should be noted when interpreting the above-mentioned call minutes that certain traffic volumes are not currently included in the Bundesnetzagentur's database. These primarily include voice transmission by over-the-top providers that do not operate their own fixed-network lines or telecommunications networks and that offer internet-based services independent of the network infrastructure (eg DSL, HFC or optical fibre).

## Mobile communications

### Subscribers

#### Actively used SIM cards

Data collected by the Bundesnetzagentur suggests that there were 107.5m active SIM cards at the end of 2020.<sup>5</sup> Statistically speaking, each inhabitant has around 1.3 SIM cards. 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.

#### Actively used SIM cards and distribution

		2018		2019		2020	
		m	%	m	%	m	%
<b>Total, excluding M2M SIM cards</b>		<b>107.5</b>		<b>107.2</b>		<b>107.5</b>	
<b>Penetration (SIM cards/inhabitant)</b>		<b>–</b>	<b>130</b>	<b>–</b>	<b>129</b>	<b>–</b>	<b>129</b>
Business:	Network operators	80.0	74	79.8	74	80.3	75
	Service providers	27.5	26	27.3	26	27.2	25
Contract type:	Postpaid	70.1	65	70.9	66	72.5	67
	Prepaid	37.4	35	36.3	34	35.0	33
M2M SIM cards		23.1	–	27.7	–	36.3	–
LTE subscribers (excluding M2M SIM cards)		50.5	–	60.1	–	63.6	–
VoLTE users		20.9	–	32.2	–	45.7	–
Use at a fixed location/hybrid use		1.1	–	1.2	–	1.2	–

<sup>5</sup> Not including M2M cards.

The shares of actively used SIM cards attributable to network operators and to service providers remained stable year on year. At the end of 2020 the network operators accounted for 75% (80.3m) of SIM cards in active use versus 74% (79.8m) in 2019. 2020 saw a marked shift towards postpay contracts. The share of active postpaid cards was up by one percentage point at the end of 2020 to 67% (72.5m) compared with 70.9m in 2019.

The number of LTE SIM cards in active use was 63.6m at the end of 2020, up by almost 6% year on year.

Some 36.3m SIM cards were being used for data communication between devices (M2M) at the end of 2020 (2019: 27.7m). This increase of over 30% is likely to be a result of sustained high demand for smart home and IoT applications.

LTE voice telephony services are increasingly based on Voice over LTE (VoLTE). Based on the Internet Protocol, VoLTE offers superior voice quality and faster connectivity compared with conventional 2G and 3G telephone services. At the end of 2019, 32.2m active users had a VoLTE-capable device in combination with a suitable mobile contract. This number grew sharply in 2020 with the widespread availability of VoLTE-capable devices and increasingly attractive LTE tariffs. The number of VoLTE users increased by 42% in 2020 to 45.7m.

At roughly 1.2m in 2020, the number of SIM cards used in a fixed location or as a hybrid solution was on a par with the prior year. Mobile connections at a fixed location are used to establish internet access over a mobile connection via a special UMTS, LTE or 5G router. These connections are predominantly offered as a fixed-network substitute in regions lacking in powerful fixed-network infrastructure. Alternatively, SIM cards used in a fixed location can be used as a hybrid solution. Where necessary, the router establishes parallel internet connection paths via the mobile and fixed networks and bundles the capabilities of both.

### Registered SIM cards

The total number of SIM cards registered in Germany is significantly higher than the total number of SIM cards in active use. One reason for this is that second and third devices or other spare SIM cards are not in constant use.

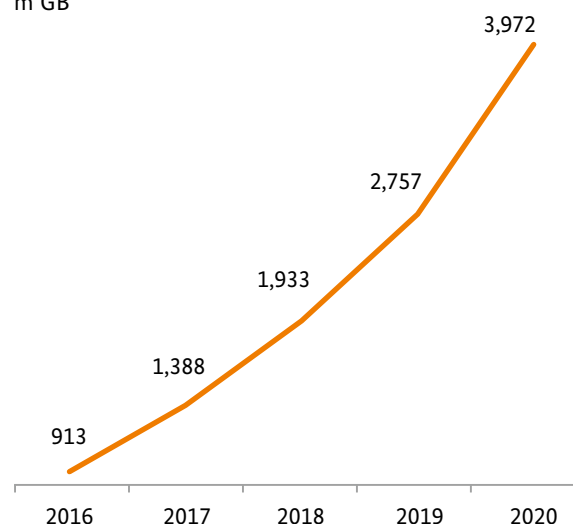
At the end of 2020 the mobile network operators reported a total of 150m registered SIM cards<sup>6</sup>. This is an increase of around 9.3m cards compared with 2019.

### Traffic volumes and usage

#### Mobile broadband

Mobile data volumes continue to rise sharply. Current data collected by the Bundesnetzagentur suggests that 3,972m GB of data were transmitted in 2020, up from 2,757m GB in 2019. At 44%, the rate of growth in 2020 was significantly higher than in 2019 (38%). It was also the first time in several years that the growth rate had increased. The absolute increase of 1,215m GB is the highest ever observed by the Bundesnetzagentur.

#### Mobile data volumes m GB

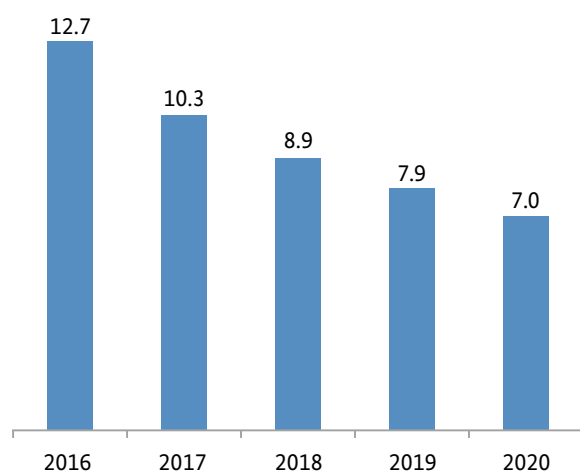


<sup>6</sup>No standard definition applies to the total number of SIM cards specified in the publications of network operators. Each company decides for itself how to count SIM cards and when adjustments are required.

### SMS messages

Use of the Short Message Service (SMS) declined further in 2020. The number of SMS messages sent fell to 7.0bn in 2020 from 7.9bn in 2019. The growing popularity of smartphones and smartphone messaging apps that replace traditional text messaging continue to drive this trend. However, the annual rate of contraction is slowing down, which could be due in part to the increasing use of SMS-based M2M applications.

**SMS messages sent**  
bn



### Call minutes

Around 155bn minutes of outgoing calls were made within German mobile networks in 2020. Mobile call volumes now significantly exceed the volume of calls in the fixed networks (104bn minutes).

Mobile telephony saw a 22% higher growth rate in 2020 than in the previous year, possibly due to the effects of the Covid-19 pandemic and the ensuing increase in mobile voice calls. The increase in 2019 had been just 7%.

The breakdown of mobile call traffic has altered only marginally in recent years. Around 40% of call minutes in 2020 (2019: 41%) were within the same operator network (on net), whilst approximately 33% (2019: 32%) were calls to other national mobile networks (off net).

The number of inbound call minutes terminated within mobile networks in 2020 increased by 25% to around 131bn minutes in consequence of the Covid-19 pandemic. Roughly 47% of the call minutes were from the same operator network and 40% from other national mobile networks.

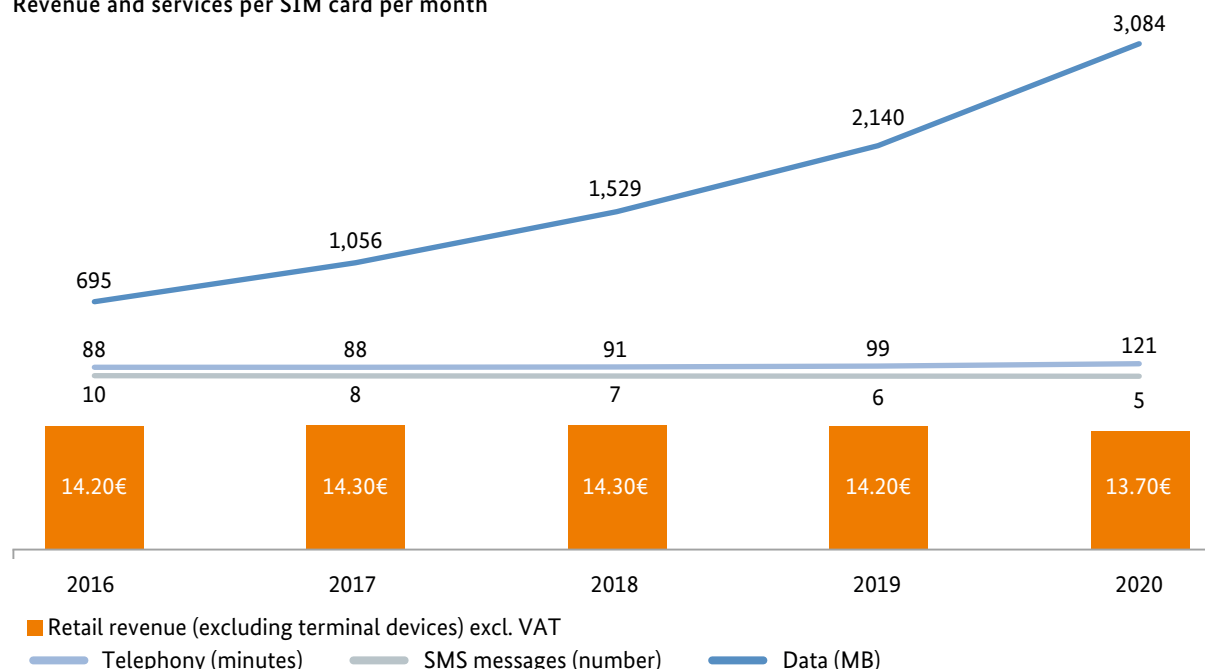
### Outbound and inbound mobile voice minutes

	2018	2019	2020
<b>Mobile outbound traffic minutes (bn)</b>	<b>118.50</b>	<b>126.88</b>	<b>155.28</b>
To German fixed networks	29.76	30.22	37.60
To the same mobile operator network	47.80	51.98	62.62
of which: To other national mobile networks	36.52	40.50	50.67
To foreign networks (fixed/mobile)	2.81	2.67	2.76
Other traffic	1.61	1.51	1.63
<b>Mobile inbound traffic minutes (bn)</b>	<b>94.17</b>	<b>104.36</b>	<b>130.92</b>
From German fixed networks	10.44	9.78	13.99
From the same mobile operator network	46.68	50.26	61.62
of which: From other national mobile networks	34.17	41.47	52.42
From foreign networks (fixed/mobile)	2.88	2.59	2.58
Other traffic	-	0.26	0.31

In 2020 monthly revenue (excluding terminal equipment and VAT) per SIM card in active use was around

€13.70. The average data volume used per SIM card increased by 44% year on year to 3,084 MB.

#### Revenue and services per SIM card per month



#### International roaming

Since the introduction of "roam like at home", which essentially allows consumers to use their domestic mobile plan on equal terms in other countries of Europe, the use of mobile data and voice services has increased. However, the Covid-19 pandemic has reversed this trend. The volume of data generated abroad fell by around 11% from 98.7m GB in 2019 to 88.3m GB in 2020. The number of outgoing call minutes to foreign networks fell by around 24% from 3,812m in 2019 to 2,887m in 2020. The downward momentum in the number of text messages sent in other countries of Europe gathered pace, with SMS use decreasing by around 51% year on year from 223m in 2019 to 110m in 2020.

#### Infrastructure and network coverage

The expansion of the mobile communication networks relies heavily on the installation of additional radio base stations. These interfaces between the wireless and wireline network grew in number by 18% in 2020 to 224,554. The number of LTE base stations in operation at the end of 2020 was 75,901. UMTS/3G accounted for 56,934 base stations and GSM/2G for 72,209 base stations. The number of 5G base stations grew sharply, from 139 at the end of 2019 to 19,510 at the end of 2020.

#### Radio base stations

	2018		2019		2020	
		%		%		%
<b>Total</b>	<b>181,640</b>	<b>100<sup>1)</sup></b>	<b>190,595</b>	<b>100</b>	<b>224,554</b>	<b>100</b>
5G	0		139	0	19,510	9
LTE	54,911	30	62,567	33	75,901	34
UMTS/3G	57,180	31	57,457	30	56,934	25
GSM/2G	69,549	38	70,432	37	72,209	32



In practice, the GSM, UMTS, LTE and 5G technologies are often integrated in a single base station (this is known as a single radio access network, or SRAN). Since base stations that combine multiple technologies are counted multiple times in the above disclosures, the number of physical antenna sites is far fewer than the number of radio base stations (end of 2020: 83,703).

A survey published by the European Commission<sup>7</sup> in mid-2019 put LTE network coverage in Germany at

98.6% in relation to households. The survey covered all 28 EU member states (at that time)<sup>8</sup> plus Norway, Switzerland and Iceland. The average LTE network coverage in relation to households for all EU member states was 99.4% in mid-2019.

## 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 2018 to 2020.

Key figures	2018	2019	2020
Revenue (€bn)	57.0	57.5	57.0 <sup>1)</sup>
Investments (€bn)	9.1	9.8	10.5 <sup>1)</sup>
Employees	147,900	143,800	139,200 <sup>1)</sup>
Total active fixed broadband connections (m)	34.2	35.2	36.1
- DSL	25.0	25.3	25.4
- HFC	8.0	8.3	8.7
- FTTB/FTTH	1.1	1.5	1.9
- Other	0.1	< 0.1	< 0.1
Broadband penetration rate (active connections/household) % <sup>2)</sup>	84	86	88
Total telephone connections in fixed networks (m)	38.4	38.3	38.3 <sup>1)</sup>
- Conventional analogue/ISDN (including public telephones)	4.6	1.2	0.4 <sup>1)</sup>
- VoIP via DSL and analogue/ISDN connections migrated to IP	25.3	27.8	27.8 <sup>1)</sup>
- VoIP via HFC	7.5	7.8	8.2 <sup>1)</sup>
- VoIP via FTTB/FTTH	1.0	1.5	1.9 <sup>1)</sup>
DTAG leased subscriber lines (m)	5.2	4.6	4.1
Active SIM cards (m)	107.5	107.2	107.5
Mobile penetration rate (active SIM cards/inhabitant) % <sup>3)</sup>	129.5	128.8	129.2
<b>Competitors' shares %</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Revenue	57	57	57 <sup>1)</sup>
Investments	52	55	56 <sup>1)</sup>
Fixed broadband connections	61	61	61
DSL	47	47	46
Telephone connections in fixed networks	52	54	54 <sup>1)</sup>

<sup>1)</sup> Estimate

<sup>2)</sup> Number of households according to Eurostat

<sup>3)</sup> Number of inhabitants according to the Federal Statistical Office

<sup>7)</sup> See Broadband Coverage in Europe 2019 at <https://ec.europa.eu/digital-single-market/en/broadband-connectivity>.

<sup>8)</sup> The United Kingdom was still a member of the European Union at the time of collecting the data.

## **Results of the consumer survey on the use of online communications services**

Together with the Berlin-based market and opinion research institute INFO, the Bundesnetzagentur developed and conducted a representative consumer survey on the use of OTT communication services within Germany. The survey aimed to gain insights into how OTT services are actually used and with what intensity. Data of this nature is highly relevant for the Bundesnetzagentur's market monitoring and consumer protection activities. The survey was conducted at the end of 2019. A total of 2,210 people took part.

The findings show that some 83% of those surveyed regularly use OTT communications services, and that they are particularly popular among the younger generation.

The most frequently used services in Germany are WhatsApp (96%), Facebook Messenger (42%), Instagram (30%), Skype (18%) and Snapchat (12%). The Bundesnetzagentur published its report on the use of online communications services in Germany in May 2020.

## Consumer protection and advice

The number of written complaints in connection with nuisance marketing calls reached an all-time high of 63,273. In parallel, the Bundesnetzagentur imposed fines of approximately €1.35m.

The Bundesnetzagentur reviewed the charges for mobile number porting and found that the typical charge of around €30 was not in line with statutory guidelines. It ordered a price cap on this service of €5.73 (net).

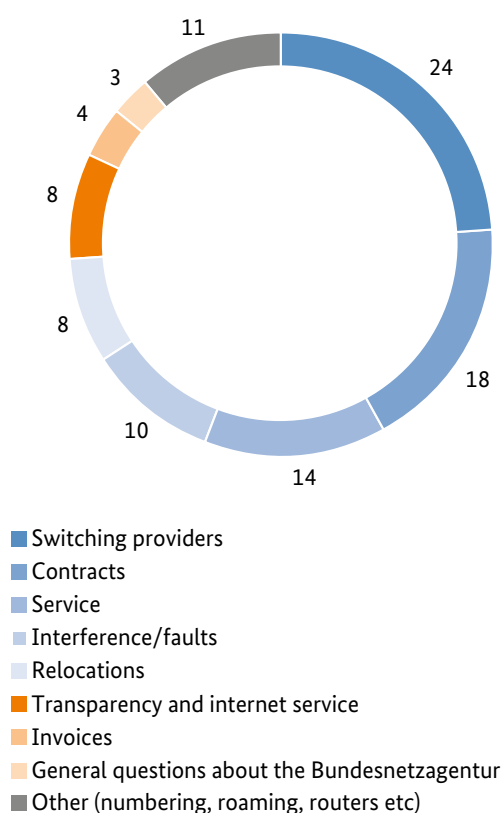
## Enquiries from customers of telecommunications companies

The Bundesnetzagentur provides consumers and other end users with information on telecommunications regulation and assists with finding resolutions to individual cases in dialogue with telecommunications companies. Affected customers of telecommunications companies can raise their concerns with the Bundesnetzagentur via an online contact form that guides them through the process of providing information and uploading supporting documents.

In 2020 the Bundesnetzagentur received a total of over 22,000 enquiries and around 7,500 follow-up enquiries. These figures make no distinction between complaints with and without an underlying breach. The telecommunications companies regularly check in on the progress of the Bundesnetzagentur's investigations with an eye to resolving consumer concerns. Whilst the number of complaints fell overall compared with the prior year, technological advances and other factors mean that the subjects of the complaints are growing in complexity.

Roughly one quarter of all enquiries from end users relate to switching providers, followed by contractual issues, service, interference/faults, relocations, telecommunications providers' transparency disclosures and internet service, and invoices.

**Main subjects of enquiries from customers of telecommunications companies**  
%



An analysis by subject area revealed a spike in enquiries related to provider switches in April and May 2020. The Bundesnetzagentur aims to safeguard a seamless transition between providers by taking steps to ensure that the telecommunications providers prevent unintentional disruptions to service and allow subscribers to keep their existing phone number. In 2020 almost 1,000 mishandled provider switches prompted the Bundesnetzagentur to initiate an escalation process.

End users were also affected by irregularities in the implementation of contractual content, specifically the conclusion, termination, or extension of their contract with a telecommunications company. Among other things, their questions related to performance, pricing, the contract term and notice periods. While the Bundesnetzagentur is bound by telecommunications law when assisting end customers with a wide variety of matters, the telecommunications companies regularly offered their end users constructive solutions to the concerns passed on by the Bundesnetzagentur. A growing number of customers requested information on data privacy regulations.

Alongside the provision of basic services, which DTAG currently ensures, telecommunications coverage-related concerns addressed to the Bundesnetzagentur related to the statutory provisions regarding quality and the minimum scope of basic coverage, the prerequisites for provision by a specific service provider (network access), and the deadlines and installation costs for establishing a connection. The availability of broadband internet access services was a particularly popular topic. There still appears to be a large gap in information that needs to be filled regarding both the broadband expansion and the options for connecting (new residential areas) to broadband networks.

End users wishing to move properties and take their telecommunications services with them frequently contacted the Bundesnetzagentur about connections that were blocked by the previous occupant's provider. In this case, the provider can resolve the problem by notifying the network operator that the customer has moved out. The Bundesnetzagentur also found that not all customers were aware of their right to continue using their existing contract at the new address. Users either terminated the contract without looking into the possibility of continuing it at their new property or concluded a new contract with their existing provider for the new address.

Due to the Covid-19 pandemic, in 2020 many people began working from home and generally doing more at home. The Bundesnetzagentur recorded an increase of around 16% in the number of enquiries relating to internet use and transparency. In many cases, it was only after starting to work from home that users noticed discrepancies between nominal and actual performance, or a need to adjust their contract to handle the demands of working from home and home schooling. End users can use the Bundesnetzagentur's measuring tool to determine whether their telecommunications provider is fulfilling the services promised in the contract. Where a provider is unable to deliver the contractually agreed service, they will, as a rule, either accept early termination of contract by the end user or offer the end user the option to switch to the next tariff down at no cost.

Some end customers contacted the Bundesnetzagentur for assistance with unsuccessful invoice disputes. Most of the disputed line items related to calls or call charges that they could not explain. These were mainly the costs of calls made from areas close to borders with non-EU countries, as well as on board ships and aircraft. The Bundesnetzagentur also provided clarification on calls made from outside Germany to free service hot lines within Germany.

Some users reported inconsistencies in the billing of third-party services. Subscription services from third parties may be billed via the telecommunications provider's bill. The Bundesnetzagentur advises subscribers to set up a third-party billing block if they wish to block this option.

## Dispute resolution

Consumers and other customers of telecommunications companies seeking to resolve disputes without having to pursue the matter through the courts can contact the Bundesnetzagentur's telecommunications consumer dispute resolution panel. Dispute resolution is available to subscribers at no cost. The panel aims to reach a speedy and satisfactory resolution for both sides and thus avoid lengthy and costly court proceedings.

In 2020 telecommunications companies showed an unprecedented willingness to participate in dispute resolution proceedings. Participation in proceedings mediated by the telecommunications consumer dispute resolution panel is voluntary for both parties. Companies may refuse to participate without specifying the reasons. However, a company that is willing to take part in dispute resolution proceedings not only demonstrates its commitment to resolving the conflict but can also help to enhance customer loyalty. It is an opportunity for the company to improve its customer relations by learning from the issue. In 2020 an increasing number of companies made use of the opportunities provided by dispute resolution proceedings.

The telecommunications consumer dispute resolution panel mediates disputes that arise in connection with specific customer protection provisions of telecommunications law (section 47a of the Telecommunications Act (TKG)).

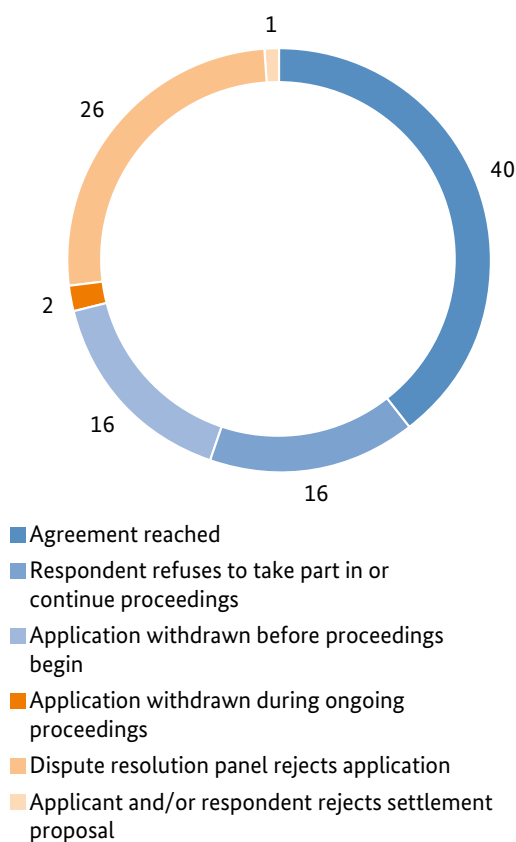
Contractual disputes once again accounted for the lion's share of the cases in 2020. Most customer grievances related to the failure of companies to provide the contractually agreed services. Billing, contract terminations and disagreements on the contract term were further common sources of dispute.

In 2020 the telecommunications consumer dispute resolution panel received 1,848 applications for dispute resolution. In addition, the panel received 838 enquiries and requests for assistance, mostly as to whether the facts presented in their cases could be resolved through conflict resolution.

The consumer dispute resolution panel handled and closed 1,844 cases in 2020. In 40% of closed cases, the parties reached an agreement, usually before a settlement proposal was made. Frequently, companies will offer their customers a resolution once proceedings are under way.

In a handful of cases, the parties rejected the settlement proposed by the dispute resolution panel. In 16% of cases, the telecommunications companies implicated in the dispute resolution proceedings refused to take part or to continue the proceedings and offered no solution to the issue in hand. In 18% of cases, the applicants withdrew the applications because, eg the matter had been resolved quickly. In 26% of the cases closed in 2020, the consumer dispute resolution panel dismissed the application for dispute resolution on the basis that the prerequisites for initiating proceedings were not met – in particular the absence of a violation of customer protection rights under the TKG.

Results of dispute resolution proceedings in 2020  
(% (rounded))



In accordance with the Alternative Consumer Dispute Resolution Act, additional information is published in the dispute resolution panel's annual activity report, which can be found on the Bundesnetzagentur's website.

## Switching providers

If customers are confident that a change of provider will go without a hitch, they are more likely to make full use of the options available to them from competing telecommunications service providers.

The Bundesnetzagentur is of the assumption that most switches to new providers are handled satisfactorily. In many cases, the providers involved resolve any difficulties between themselves. The companies are obliged to remedy the individual case within a short time frame to minimise any disruption to the customer's telecommunications services. Where the customer has provided sufficient facts establishing a right to resumption of service, the Bundesnetzagentur forwards the case for resolution to the companies involved. The Bundesnetzagentur continues to strive to determine as closely as possible the causes of disruptions, with a view to taking suitable steps to reduce the number of unintentional service disruptions to a minimum.

The number of complaints concerning service interruptions in connection with a change of provider was 1,800 in 2019. This dropped below 1,000 in 2020. The Bundesnetzagentur issued no orders and imposed no penalties or fines in this regard in the reporting period.

## Review of wholesale and retail charges for mobile number porting

In proceedings against three mobile network operators, the Bundesnetzagentur reduced the wholesale charges for porting a mobile telephone number to €3.58. The last of the three rulings was pronounced on 6 January 2020. The Bundesnetzagentur subsequently asked 17 mobile providers to voluntarily reduce their retail prices from typically around €30 to €6.82 (gross). On 20 February 2020 the presiding Ruling Chamber opened separate ex post rates control proceedings against the 5 market participants that were unwilling to voluntarily commit to reducing the porting charge. In the course of the proceedings, one company voluntarily reduced the retail price to a maximum of €6.82 (gross). For the remaining four providers that continued to charge around €30, the Ruling Chamber decision of 20 April 2020

determined that the charge was not in line with statutory guidelines and ordered a price cap on mobile number porting of €5.73 (net).

## Transparency measures

The transparency requirements and information obligations of the Transparency Ordinance, which aim to promote transparency on the telecommunications market, have been making it easier for consumers to select products in the telecommunications market since June 2017.

In the period under review a number of consumers and other customers of telecommunications companies contacted the Bundesnetzagentur in particular to report discrepancies between delivered performance and contractually agreed download speeds. The rules require service providers to inform consumers when concluding their contract of possible ways to test internet speed, for instance by making them aware of the Bundesnetzagentur's measuring tool, available at [www.breitbandmessung.de](http://www.breitbandmessung.de). The customer can use measurement logs to inform their provider of any inconsistencies between actual and contractually agreed data transmission rates.

The Bundesnetzagentur has defined the requirements that apply to measurements taken by end users and asks consumers and other customers of telecommunications companies to use the desktop version of its broadband measuring tool. A growing number of end customers made use of this option in 2020.

## Breitbandmessung/Funkloch app

In early April 2020 the Bundesnetzagentur published a fourth report containing detailed findings from the broadband measuring campaign. End users can use the test tool to measure the performance of their fixed-line and/or mobile broadband connection independent of provider and technology. The measurements included in the publication were taken between 1 October 2018 and 30 September 2019. A total of 829,426 valid measurements for fixed lines and 527,558 for mobile connections were used.

In fixed broadband connections, 70.1% of users (2017/2018: 71.3%) across all bandwidth classes and providers recorded at least half of the maximum contractually agreed download data transfer rate, whilst for 16.4% of users (2017/2018: 12.0%), the maximum download rate was met in full or exceeded. The results vary according to bandwidth class and provider.



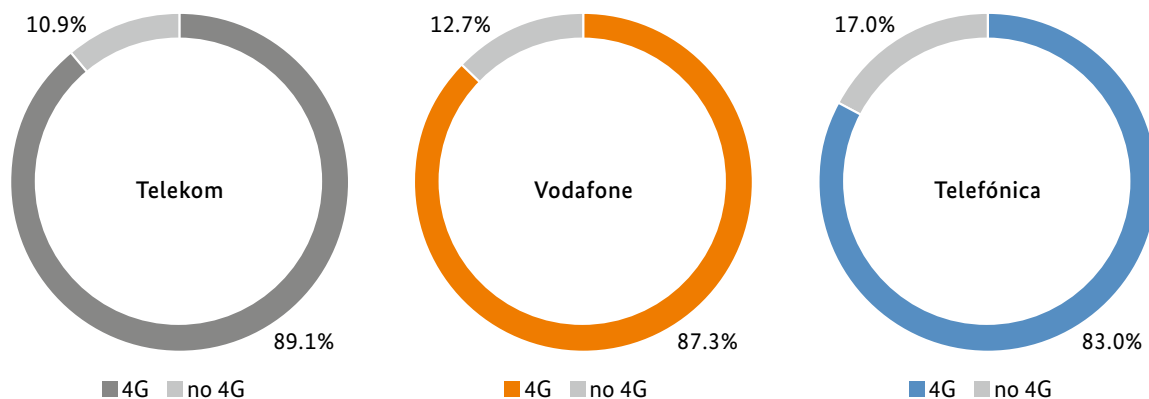
The ratio of actual to agreed maximum data transfer rates for mobile broadband connections was once again below that for fixed broadband connections. 14.9% of users (2017/2018: 16.1%) across all bandwidth classes and providers recorded at least half of the contractually agreed maximum download data transfer rate, whilst for 1.5% of users (no change against the prior year), the maximum download rate was met in full or exceeded. The percentages tended to be lower in particular in the higher bandwidth classes.

## Monitoring mobile network coverage

In October 2020 the Bundesnetzagentur launched the first interactive map displaying the current extent of mobile network coverage in Germany. The map is available at [www.breitband-monitor.de](http://www.breitband-monitor.de). This marked the start of supplier-specific, nationwide monitoring of network coverage. The introduction of this monitoring tool serves to improve transparency, pinpoint coverage dead spots and identify action areas.

Data provided by the network operators shows that 96.5% of Germany is covered by 4G from at least one mobile network operator. Including 3G coverage, this figure climbs to 97.3%. Regions entirely without mobile network coverage comprise a total of 0.3% of the country. The data is updated regularly.

The mobile network operators regularly deliver comparable data on the current 2G, 3G and 4G coverage for the interactive map. The idea is to monitor coverage from a user perspective. The Bundesnetzagentur validates the information on the basis of its own tests, data from the Funkloch app and other sources of information, eg mobile users. In the future, the map is set to incorporate 5G coverage and dropped voice call hotspots.



## Action to combat the misleading use of geographic telephone numbers

The use of specific telephone numbers by companies to give the appearance of being local remained a key focus of consumer protection activities in the telecommunications sector in 2020. The Bundesnetzagentur requires users of geographic telephone numbers to be linked to the respective locality, i.e. the subscriber must have a telephone line or a place of residence or business in the geographic area of the phone number being used. Geographic telephone numbers allow inferences to be drawn about the geographic location of the subscriber.

In order to protect consumers and other market participants, the Bundesnetzagentur initiated administrative proceedings against companies faking a local presence. This action was sufficient to remedy most violations of numbering and competition law. Where the companies failed to take remedial action, the Bundesnetzagentur ordered the network operator to disconnect the illegally used telephone numbers.

The Bundesnetzagentur has now added an online complaints form to its website via which users can report violations of this nature. The online form is an easy way for users to submit their complaints about businesses that appear to be local, along with further information required for processing, to the Bundesnetzagentur.

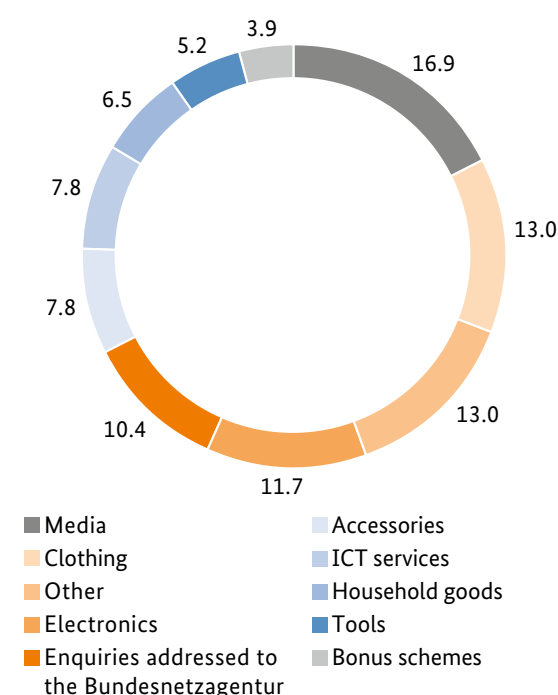
The Bundesnetzagentur also ordered the disconnection of telephone numbers where it identified unauthorised third-party use. In some cases, phone numbers were provided without authorization to third parties or for third-tier use with the specific goal of creating ambiguity over the chain of responsibility. These telephone numbers often appeared in connection with exploitative business models, such as emergency call-outs for tradespeople.

## Geo-blocking

In Germany, the responsibility for enforcing the Geo-blocking Regulation (EU 2018/302) falls to the Bundesnetzagentur. The Regulation addresses unjustified discrimination against customers in the EU based on their nationality, residence or place of establishment. It removes barriers to cross-border business between providers and customers for the sale of goods and provision of services ("shop like a local" principle). The Geo-blocking Regulation applies to both online and brick-and-mortar retailers. Its key provisions cover access to online

interfaces, non-discriminatory treatment when purchasing or accessing goods and services, and non-discriminatory treatment in connection with payments. The Regulation also specifies that a customer buying goods is not entitled to delivery to a location outside the provider's field of activity. Since July 2019 it has been easier for consumers to submit their complaints to the Bundesnetzagentur using an online dialogue. Almost 80 cases were reported in 2020. Most related to orders for media content, electronic equipment and clothing (see figure 1).

Geo-blocking complaints by category %



All cases in 2020 were resolved in the consultation stage without the need for further action. The Bundesnetzagentur was able to swiftly resolve complaints in the interests of consumers. In June 2020 the European Consumer Protection Cooperation Network introduced mechanisms granting the Bundesnetzagentur stronger powers to invite national authorities in other EU countries outside of Germany to take action against local traders.

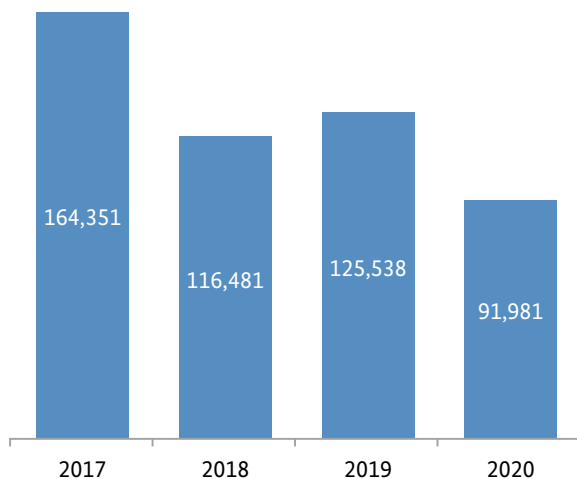
The European authorities now cooperate internationally to enforce consumers' rights with respect to geo-blocking via a newly introduced electronic information system. The Bundesnetzagentur also worked closely with the European Consumer Centre Germany to resolve consumer complaints.

## Combating number misuse

The Bundesnetzagentur is the supervisory authority responsible for combating number misuse. It follows up on any breach of number use. Cases pursued in this context frequently concern breaches of the consumer protection provisions of the Telecommunications Act and the Unfair Competition Act. A variety of measures are in place to protect affected parties against disturbances and financial losses.

In 2020 the Bundesnetzagentur received 91,981 written complaints and enquiries in connection with number misuse, in addition to 19,639 telephone enquiries and complaints relating to number misuse and nuisance marketing calls. The coronavirus pandemic had no immediate impact on the total number of complaints.

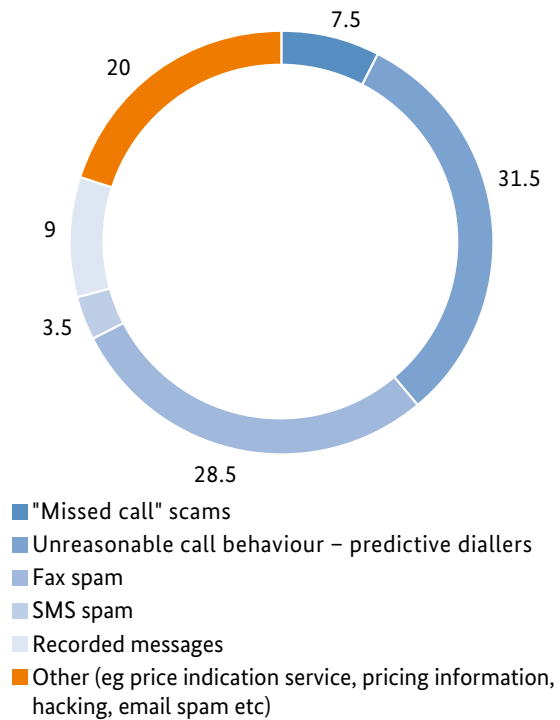
### Written complaints and enquiries



The Bundesnetzagentur works to protect consumers from unsolicited advertising and nuisance calls, fee-based call queuing, the unauthorised billing of third-party services and subscriptions, and many other breaches.

The Bundesnetzagentur opened administrative proceedings in 1,754 cases, resulting in orders to disconnect 1,745 phone numbers. Billing and collection bans were issued for 5,574 telephone numbers. All actions are published (in German) online in a continually updated list at [www.bundesnetzagentur.de/Massnahmenliste](http://www.bundesnetzagentur.de/Massnahmenliste).

Share of complaints by subject  
%



### Determination on payments via mobile phone bills

The Bundesnetzagentur's determination on the rules for payments via mobile phone bills took effect on 1 February 2020. The rules offer protection against unwanted services and "subscription traps" and permit mobile communications companies to bill third-party services only either where the customer is redirected during the process of paying for a third-party service from the third-party provider's website to a website of a mobile provider or where the mobile communications company implements various defined consumer protection measures (combination model). The number of complaints received about third-party services in the mobile communications sector has receded substantially following the determination to around 25 complaints per month since April 2020. The total number of complaints dropped by around half against the prior year.

### Telephone system and router hacking

The Bundesnetzagentur follows up on a wide variety of different types of cyberattacks on end customers. In all cases, an unknown attacker hacks into the end customer's router/telephone system and illegally generates a number of premium-rate calls, primarily to numbers outside of Germany. Some of the international calls are initiated using call forwarding or indirect access via a carrier selection prefix. Two notable cases involved calls being made unnoticed

to (0)137 and (0)180 area numbers for the purpose of obtaining promotional codes.

In 2020 the Bundesnetzagentur received 147 complaints about hacker attacks on routers/phone systems. This figure was on a par with the prior year.

The Bundesnetzagentur issued billing and collection bans to protect the end customers targeted by the attacks. This ensures that customers can neither be billed for the costs of calls to such numbers nor pursued for recovery of the debt. The Bundesnetzagentur also frequently ordered payment bans to protect the network operators. These ensure that the network operators make no payments to foreign partners in respect of illegally generated call charges. In order to provide effective protection, the Bundesnetzagentur relies on the prompt provision of information about hacking incidents and the freezing of cash flows until it reaches a decision. Information about hacker attacks is frequently provided by the network operators affected.

The Bundesnetzagentur continues to pursue the cyber-security strategy adopted in 2018 at a national and international level. Its focus is on identifying patterns of misuse early on and permanently halting payment flows.

#### **Indirect access**

For the first time ever, this year the Bundesnetzagentur ordered the disconnection of carrier selection prefixes for indirect access. Extensive investigations in response to consumer complaints found that several providers of indirect access services were advertising identical subscription plans and/or flat rates instead of providing the statutory pricing message. This is an infringement of both telecommunications law and the numbering plan for carrier selection prefixes. The Bundesnetzagentur also found cases of non-transparent billing, ongoing subscription billing despite cancellation by the customer, and evidence of non-compliance with the statutory price transparency requirements. Calls to destinations advertised as particularly cheap regularly failed to connect.

The Bundesnetzagentur ordered the respective operators to permanently halt all availability of the carrier selection prefixes implicated. This action also prevents further receivables from being incurred. The Bundesnetzagentur's disconnection orders were accompanied by billing and collection bans to prevent financial disadvantages for consumers. A corresponding ban was issued to a collection

agency that is known to work with all operators on the recovery of alleged claims.

#### **Unreasonable call behaviour – predictive diallers**

The Bundesnetzagentur received a total of 28,995 complaints in the reporting period concerning unreasonable call behaviour by call centres. This is where repeated call attempts are made at inopportune times or multiple times a day that do not lead to an actual telephone call. They are usually generated by the software used in call centres to manage telemarketing and outbound calls. There are no specific laws governing the use and configuration of such software or call behaviour by call centres. At the hands of the software configuration, call recipients can be subjected to considerable harassment in violation of section 7(1) of the Unfair Competition Act. The Bundesnetzagentur decides on the unreasonableness of the nuisance calls on a case-by-case basis, taking into account the viewpoint of the average market participant in its assessments.

Before it can do so, it is reliant on complaints containing thorough descriptions of the nuisance calls. These complaints are considered alongside inbound complaints about cold calling, which are actioned separately. As in 2015, the Bundesnetzagentur systematically addressed the sustained high level of complaints (about the issue in general) with a comprehensive analysis of the complaints it received between 1 February 2019 and 31 January 2020 about nuisance calls from call centres. The analysis revealed that most customer grievances related to silent calls. A silent call is where the caller and call recipient are connected but no conversation takes place. In some cases background noise from the call centre can be heard. The daily and weekly frequency of calls were also a major source of irritation. A substantial portion (27.3%) of all complaints noted that spoof caller IDs were displayed during the call attempts. The detailed findings from the most recent evaluation can be found in the evaluation report published on the Bundesnetzagentur's website.

The Bundesnetzagentur regularly takes remedial action pursuant to section 67(1) TKG, including reprimands and orders to disconnect the call centre telephone numbers. 36 companies were sent letters in 2020 notifying them of violations. The notification process aims to pre-empt further action by informing companies about complaints at an early stage, thus giving them the opportunity to make changes to their call behaviour.

### **"Missed call" scams displaying telephone numbers from outside Germany**

6,987 complaints were received in connection with "missed call" scams designed to elicit a chargeable return call. The number of complaints fell significantly in 2020 compared with previous years. The Bundesnetzagentur's targeted efforts in this area are having the intended effect.

The Bundesnetzagentur's order requiring the activation of a price indication service in mobile communication networks to provide no-cost information on the charges associated with specific country codes continued to apply throughout 2020. The Bundesnetzagentur also issued billing and collection bans to ensure that consumers can neither be billed for the costs of calls to such numbers nor pursued for recovery of the debt. The Bundesnetzagentur is currently reviewing whether the price indication service should be extended to include additional country codes.

### **SMS spam and fax spam**

The Bundesnetzagentur received 3,265 complaints in the reporting period about SMS spam. Although this number increased slightly against 2019 (2,894), the Bundesnetzagentur still considers the number of complaints to have stabilised at a considerably lower level than prior to 2017. This is largely due to the new regulations in section 111 TKG along with the Bundesnetzagentur's concerted efforts to combat misuse. In 2020 the Bundesnetzagentur issued warnings to senders of SMS spam and increasingly ordered the disconnection of the sending parties' numbers.

Following the first pandemic lockdown in early 2020, the Bundesnetzagentur observed a spike in complaints about unsolicited promotional SMS messages advertising travel services. Particularly in such cases the Bundesnetzagentur made extensive use of its powers to order the disconnection of phone numbers.

The Bundesnetzagentur received 26,268 complaints about fax spam in 2020 (2019: 25,941).

### **Subscription traps in the fixed network**

The Bundesnetzagentur took action against subscription traps in the fixed network in 2020. Cases included attempts to circumvent price transparency requirements using one-click "saver tariffs" or "low-cost subscriptions". The offer of such subscription services also violated both the allocation rules for directory enquiry services numbers issued by the Bundesnetzagentur for the phone number in question, and competition law. The illegally used phone number 118007 was disconnected. Billing and collection bans were also issued to ensure that consumers are neither invoiced for the subscription service or calls to 118007 nor pursued for the recovery of the debt.

### **Disconnection of directory enquiries, 11830**

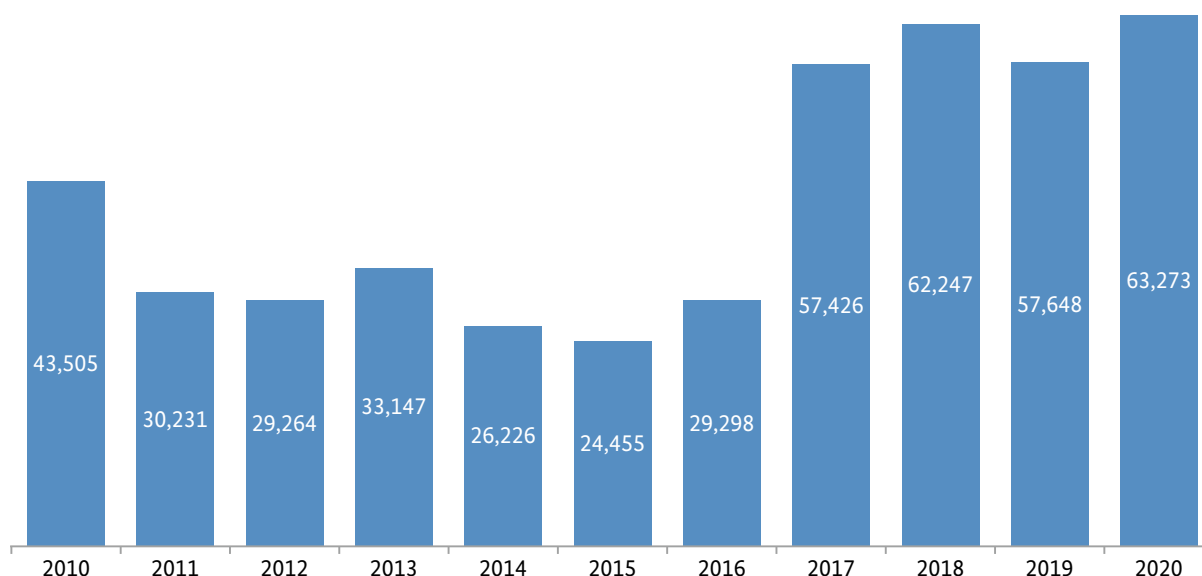
The Bundesnetzagentur ordered the disconnection of the directory enquiries number 11830 and issued billing and collection bans to protect consumers against bogus claims by this provider. The Bundesnetzagentur learned that calls forwarded via the directory enquiries number 11830 frequently failed to include the proper pricing message for the forwarded call. Further breaches of other consumer protection regulations were also found.

### **Combating nuisance marketing calls**

Thousands of consumers inadvertently become the victims of nuisance marketing calls every year. They become involved in marketing calls from often professionally trained callers who seek to boost sales of certain products or services, despite the fact that the consumer neither wanted nor consented to the call. The Bundesnetzagentur stepped up its efforts to sanction unsolicited marketing calls in 2020. It opened investigations into numerous companies and issued a total of 17 fines, some of which were based on over 1,000 consumer complaints. The fines totalled around €1.35 million.

The number of complaints received by the Bundesnetzagentur regarding nuisance marketing calls spiked in 2020. While recent studies show that telemarketing activities are in decline, especially at large companies and at the hands of budget cuts, the Bundesnetzagentur has yet to see a turnaround in respect of nuisance marketing calls. Quite the opposite, in fact: in 2020 the number of complaints received by the Bundesnetzagentur reached an all-time high: 63,273 written complaints were received concerning nuisance marketing calls, up by almost 10% year on year.

### Written complaints about nuisance marketing calls



The Bundesnetzagentur also learned of particularly grave violations regarding the manner of nuisance calls. For instance, many consumers reported being inadvertently manipulated into signing a contract either during or after the call. Others reported callers either systematically concealing the identity of their customer or posing as government representatives in order to fraudulently gain their trust.

In one notable case, proceedings against the mobile provider mobilcom-debitel resulted in a fine of €145,000. The Bundesnetzagentur found that the company had made calls without positive opt-in by the call recipients. Moreover, following the unsolicited call, the company then claimed that many call recipients had signed up for a third-party subscription service. The sanctioned company used a pre-formulated positive opt-in in its small print from which it was unclear that customers were consenting not only to receiving advertising from the company concerned, but also advertising on a large number of third-party providers and their extensive products. Many aggrieved consumers also reported receiving repeated calls despite having opted out. The company was accused of neglecting to safeguard a timely and complete exchange of data between the call centres implicated and thus failing to properly comply with opt-outs. In December 2020 the Bundesnetzagentur imposed a further fine of €145,000 on one of the call centres involved in making the nuisance marketing calls. In both cases, the proceedings are not yet legally binding.

These cases clearly demonstrate that nuisance marketing calls continue to pose a serious problem resulting in many forms of harassment and distress for a large number of consumers. Customer grievances related particularly frequently to marketing calls from companies in the insurance, finance and energy supply sectors. The number of complaints received about calls from the insurance and finance industry knocked the energy supply industry from the top spot as customers' biggest gripe. The number of complaints about telecommunications services is now in decline following the Bundesnetzagentur's targeted efforts to tackle this sector in 2019 and 2020.



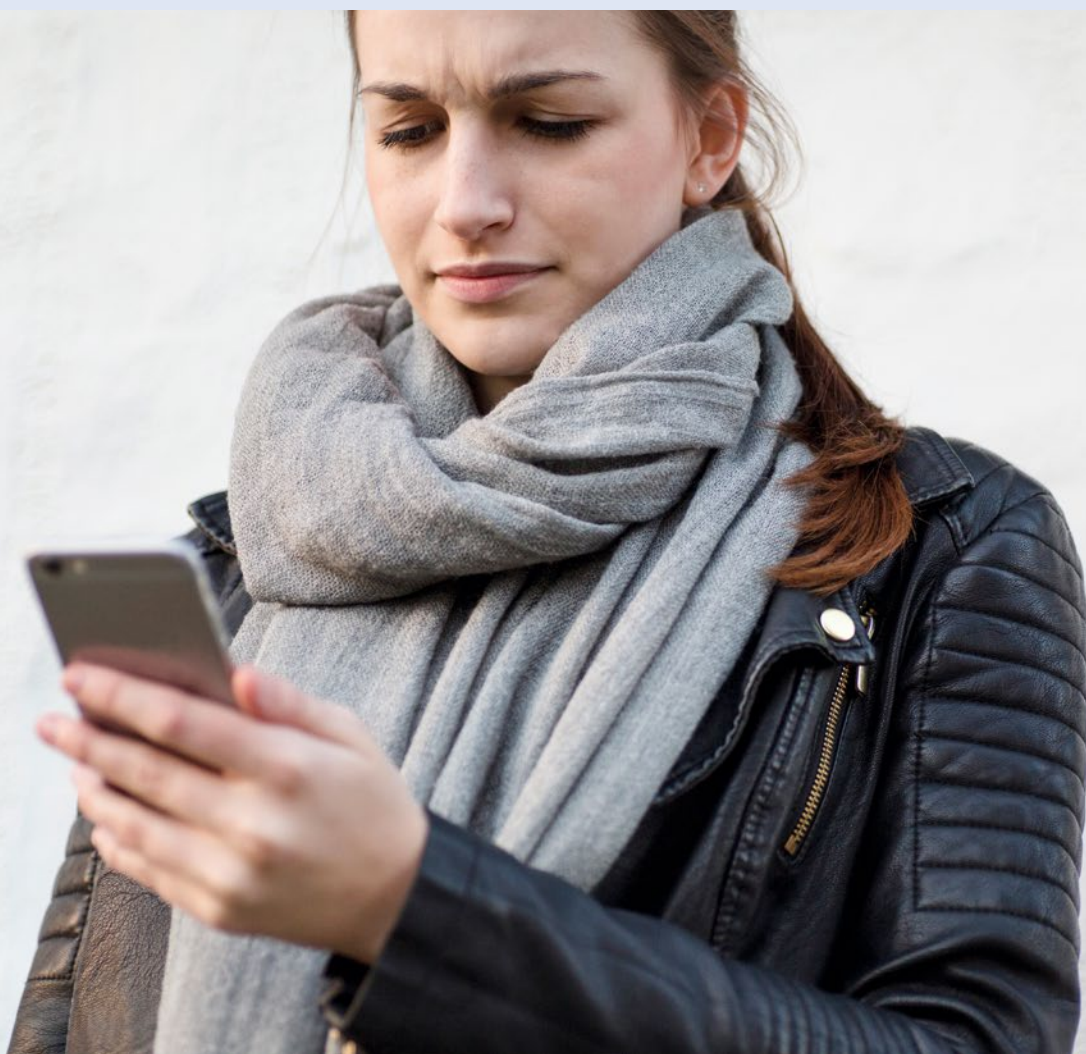
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The number of complaints concerning telecommunications services has been in decline since the Bundesnetzagentur's targeted efforts to tackle this sector in 2019 and 2020.

As in previous years and despite the coronavirus crisis, the Bundesnetzagentur continues to cooperate closely with all organisations and other groups working to crack down on nuisance marketing calls and guide the ongoing development of the legal framework. To enable consumers to react promptly and correctly to nuisance marketing calls, the Bundesnetzagentur regularly publishes information on the latest measures and provides a wide range of tools and means of protection for those affected.





The Bundesnetzagentur is also seeing rising numbers of consumers being manipulated into signing up for lottery/sweepstake subscriptions. The callers coerce consumers into paying a recurring fee for a lottery or sweepstake subscription under the pretence of a non-existent receivable.

Numerous tip-offs received by the Bundesnetzagentur report callers making reference to an apparent lottery subscription in an attempt to manipulate the call recipient into providing their bank details with the goal of debiting not substantial sums of money. The callers claimed that these charges were required in order to fend off even higher costs. Since the Bundesnetzagentur suspects that many of these calls are being made without consumer opt-in and potentially constitute criminal activity, the Bundesnetzagentur is seeking dialogue with the criminal prosecution authorities and informing the people affected.

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## Universal service

In 2020 almost 1,100 end users wrote to the Bundesnetzagentur for support with matters concerning the provision of basic telecommunication services. Universal services are a minimum set of available services to which all end users must have access at a reasonable price. Telekom currently provides the basic services in Germany. The reality is that many end users contact the Bundesnetzagentur after experiencing delays in telephone line provisioning. The Bundesnetzagentur is generally able to reach a speedy and satisfactory resolution with Telekom's involvement.

The provision of public payphones and cardphones is likewise part of the universal service. At the end of 2020 an inventory of payphones and cardphones listed around 14,600 phones. This number is expected to decline further as mobile connections (107.5m active SIM cards) continue to become more widespread. This market development and the full cover

age nationwide that has been attained with landlines have reduced demand for public telephones.

## Text and video relay service for people who are deaf or hard of hearing

The service provides an accessible way for people who are deaf or hard of hearing to make telephone calls with hearing persons. To do so, they set up a video or data link via a PC, tablet or smartphone to a sign language interpreter or speech-to-text reporter provided by the service. They call the requested person and translate the message into spoken language. Conversely, the recipient's message is translated into sign language or written language. The text and video relay service enables people who are deaf or hard of hearing to make phone calls.

Use of the service rose again sharply in 2020, particularly in spring. The Covid-19 pandemic's impact on public life led to a greater desire amongst people who are deaf and hard of hearing to stay abreast of developments and share their experiences. The service was used extensively as a result.

The Bundesnetzagentur once again took appropriate measures in 2020 to ensure the financing of the text and video relay service.

In particular, it determined the proportionate costs to be paid by providers of publicly available telephone services.

## Misuse of transmitting equipment

In 2020 the Bundesnetzagentur took action to combat the use of a variety of transmission-capable cameras and microphones concealed in everyday objects. Whilst the Bundesnetzagentur continued to monitor typical banned transmitting equipment such as smoke detectors and power banks with hidden cameras or concealed microphones, it also cracked down on multi-functional devices including automatic feeders with built-in cameras. Toy cars and robot vacuums with transmission-capable cameras or microphones were also in the spotlight.

As in the previous year, the Bundesnetzagentur successfully worked with the manufacturers to ensure the products were reconfigured in line with legal requirements without having to impose a ban on sales.

In 2020 the Bundesnetzagentur also took action against unauthorised advertising for transmission-capable spy cameras and microphones. The advertising ban covers all spy cameras and microphones with a transmission function whether or not they are concealed in everyday objects. Adverts claiming that a transmitting device is capable of listening to others' private conversation not intended for the public or of capturing images of persons by stealth are prohibited. The Bundesnetzagentur follows up on breaches with administrative fine proceedings. Fines can be up to €100,000.

#### **Current cases from 2020:**

Deleted offerings: 2,069.

Proceedings against buyers asked to make modifications to ensure legal compliance or to destroy items: 12.

Of these, 6 voluntarily destroyed the item in question, 3 were issued with notices. Some 678 investigations were opened against sellers/manufacturers.

The Bundesnetzagentur followed up on 11 breaches of the advertising ban.

### **Market surveillance pursuant to the Electromagnetic Compatibility of Equipment Act and the Radio Equipment Act**

With the pandemic in full swing in 2020, the majority of the Bundesnetzagentur's research into product compliance was carried out from home. This meant that retailers of potentially non-compliant products were asked to send samples to the Bundesnetzagentur for further inspection.

The Bundesnetzagentur's accredited test laboratory was able to continue testing throughout.

In 2020 the number of anonymous test purchases rose further. The Bundesnetzagentur also stepped up collaboration with internet platforms in 2020. Although fewer products overall were inspected in 2020, the Bundesnetzagentur was able to identify numerous defects resulting in follow-up action with a positive effect on consumer protection.

As in the previous year, surveillance activities in 2020 focussed on retailers offering extremely high unit volumes online. The Bundesnetzagentur pinpointed 2,142 product offerings online that failed to comply with European standards.

These products were blocked by the platform operators. 1,027 offerings were blocked in the prior year, affecting 3.5 million products.

In addition to formal defects, such as the lack of a German-language user guide or inadequate labelling, other products were found to cause radio interference or electromagnetic interference and are thus banned from sale within the European Union. From over 21 million devices, more than 7 million were baby monitors with no German-language user guide and inadequate labelling. Also of note were the over 1 million radio remote controls (such as key fobs for automatic garage doors) found to be using incorrect frequencies with the potential to cause interference with safety-critical radio services.

Market surveillance in the retail sector was hampered by the imposition of coronavirus restrictions. The Bundesnetzagentur inspected around 3,100 types of device in Germany's retail sector; far fewer than in 2019. The authority issued a total of 31 sales bans and wrote 782 letters to remedy formal defects found with non-compliant products. Some 510,000 products were affected.

Consumers are increasingly ordering products online directly from non-EU countries. The Bundesnetzagentur works closely with the German customs authority to ensure such products do not fly under the market surveillance radar. In 2020 German customs reported around 8,800 consignments it suspected of meeting this criterion. Due to the pandemic, this number was lower than in 2019. In over 95% of cases, the products were not approved for the German market. A total of around 200,000 products were affected.

### **EU Market Surveillance Conference 2020**

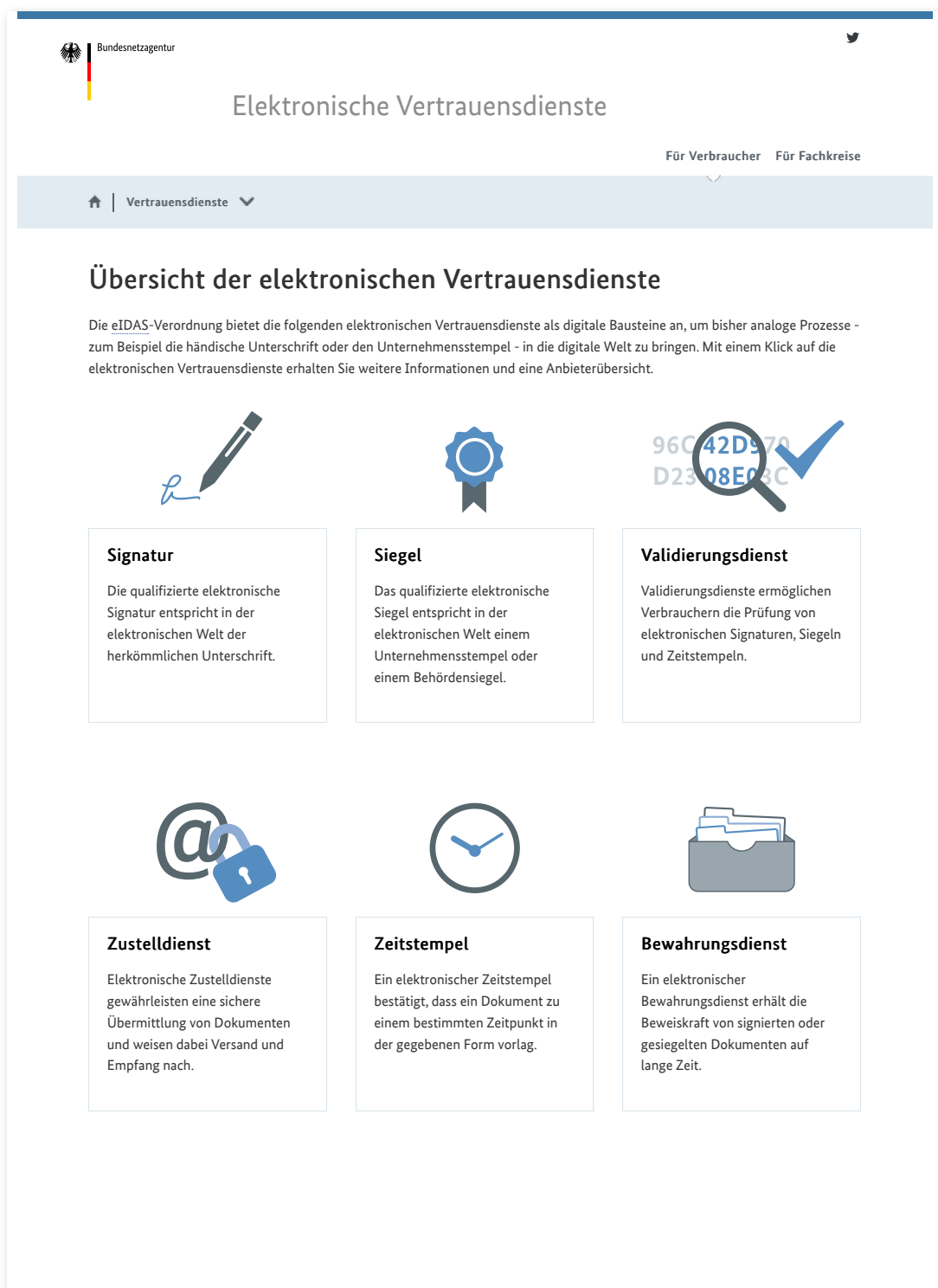
As part of Germany's Presidency of the Council of the European Union, which it held in the second half of 2020, a European market surveillance conference was held on 4–5 November 2020. The event was organised together with the Federal Ministry for Economic Affairs and Energy and the European Commission. The office of the German Market Surveillance Forum, which is part of the Bundesnetzagentur, helped to prepare and host the conference.

Over 700 representatives from consumer protection organisations, the market surveillance authorities, customs authorities and other international partners were in attendance. Due to the Covid-19 pandemic, the conference was held entirely online.

as a virtual video conference. Its main topic was the future application of the new market surveillance Regulation (EU) 2019/1020 effective 1 January 2021 (articles on the EU Product Compliance Network) and 16 July 2021.

## Consumer portal for electronic trust services

Electronic trust services are an important tool in the implementation of digital strategies. The Bundesnetzagentur has set up a consumer-centric portal dedicated to these services at [www.elektronische-vertrauensdienste.de](http://www.elektronische-vertrauensdienste.de). The portal offers clear explanations in German of the different trust services and provides useful resources for users.



**Bundesnetzagentur**


# Elektronische Vertrauensdienste

Für Verbraucher Für Fachkreise

Vertrauensdienste


## Übersicht der elektronischen Vertrauensdienste

Die eIDAS-Verordnung bietet die folgenden elektronischen Vertrauensdienste als digitale Bausteine an, um bisher analoge Prozesse - zum Beispiel die händische Unterschrift oder den Unternehmensstempel - in die digitale Welt zu bringen. Mit einem Klick auf die elektronischen Vertrauensdienste erhalten Sie weitere Informationen und eine Anbieterübersicht.




### Signatur

Die qualifizierte elektronische Signatur entspricht in der elektronischen Welt der herkömmlichen Unterschrift.




### Siegel

Das qualifizierte elektronische Siegel entspricht in der elektronischen Welt einem Unternehmensstempel oder einem Behördensiegel.




### Validierungsdienst

Validierungsdienste ermöglichen Verbrauchern die Prüfung von elektronischen Signaturen, Siegeln und Zeitstempeln.




### Zustelldienst

Elektronische Zustelldienste gewährleisten eine sichere Übermittlung von Dokumenten und weisen dabei Versand und Empfang nach.



### Zeitstempel

Ein elektronischer Zeitstempel bestätigt, dass ein Dokument zu einem bestimmten Zeitpunkt in der gegebenen Form vorlag.



### Bewahrungsdienst

Ein elektronischer Bewahrungsdienst erhält die Beweiskraft von signierten oder gesiegelten Dokumenten auf lange Zeit.

## Certificate of compliance with physical protection thresholds in electromagnetic fields

In accordance with the procedure for providing proof as regards limiting exposure to electromagnetic fields (EMF Controls Ordinance), before commencing operation of a radio transmitter site with an equivalent isotropically radiated power greater than or equal to 10 watts, the Bundesnetzagentur must verify compliance with the physical protection thresholds determined in the Twenty-sixth Ordinance on Electromagnetic Fields and issue a corresponding certificate of safety. The onus is on the operator of the radio system to apply to the Bundesnetzagentur for this certificate.

As a rule, the maximum radiation generated by the radio system and the corresponding protective zones around the site are determined using a computer model. A certificate of safety is granted provided the protective zone for the site in question ends within the controllable space, ie where it can be ruled out that persons reside within the critical zone or where the necessary precautions can be taken to prevent this from happening.

If proof of compliance cannot be determined using the computer model, the applicant can ask the Bundesnetzagentur to conduct tests and verify compliance with the thresholds at the boundary of the controllable area. In 2020 the radio monitoring and inspection service conducted 242 measurements in response to applications for certificates of safety. This corresponds to around 1.3% of the total number of certification procedures carried out.

As mobile networks continue to expand, conventional calculation methods are increasingly proving inadequate for certifying new radio system configurations that utilise 4G and 5G technology. At the end of 2019, the sectorised computer model used by the Bundesnetzagentur was extended to include the item "Material damping" and further developed in order to ensure its continued usefulness as an efficient method of calculation.

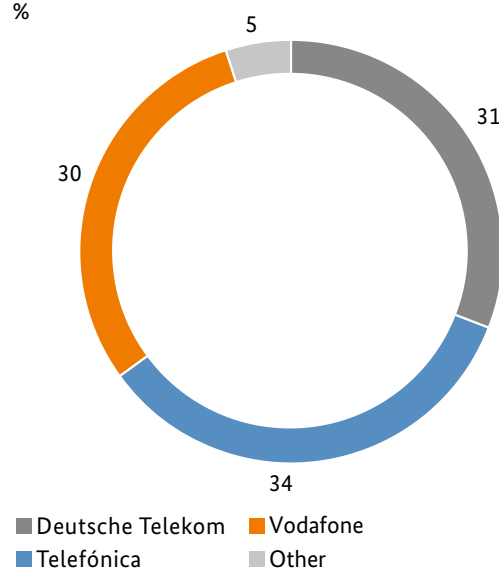
The introduction of the new WattWächter field theory model in 2020 significantly expanded the possibilities for performing a detailed analysis of a transmitter site. This new method will also allow the calculation of values to determine compliance with the thresholds for the large majority of complex 4G and 5G transmitter sites going forward.

In 2020 around 95% of the certificates of safety issued were for mobile telecommunications transmitters (on a par with 2018 and 2019).

**Applications for certificates of safety and certificates issued (values rounded)**

Year	Applications	Issued
2018	18,070	18,130
2019	17,650	17,980

**Certificates of safety issued to operators of radio transmitter sites**  
%



In contrast to the procedure for obtaining a certificate of safety, the EMF Controls Ordinance requires the operator of a fixed amateur radio installation with an equivalent isotropically radiated power greater than or equal to 10 watts to register the system with the Bundesnetzagentur prior to operation. The Bundesnetzagentur works to ensure compliance with the rules of the safety certification procedure and their intended protective effects on health by constantly inspecting radio installations requiring certification and regularly conducting EMF measurements.

Around 15% of the sites issued with a certificate of safety in the previous year were selected for inspection. The radio monitoring and inspection service then reviewed the accuracy of the disclosures made in the operator's application, determined the operational state of the radio installation and, where necessary, checked the EMF levels in relation to the permitted thresholds at the boundary of the controllable area.

The radio monitoring and inspection service also takes EMF measurements at publicly accessible locations as part of its testing programme. The results are published in the Bundesnetzagentur's EMF database. This database is a free online tool for anyone with an interest in radio installation sites subject to certification requirements in Germany and the results of the EMF tests.

### Investigating interference – the radio monitoring and inspection service

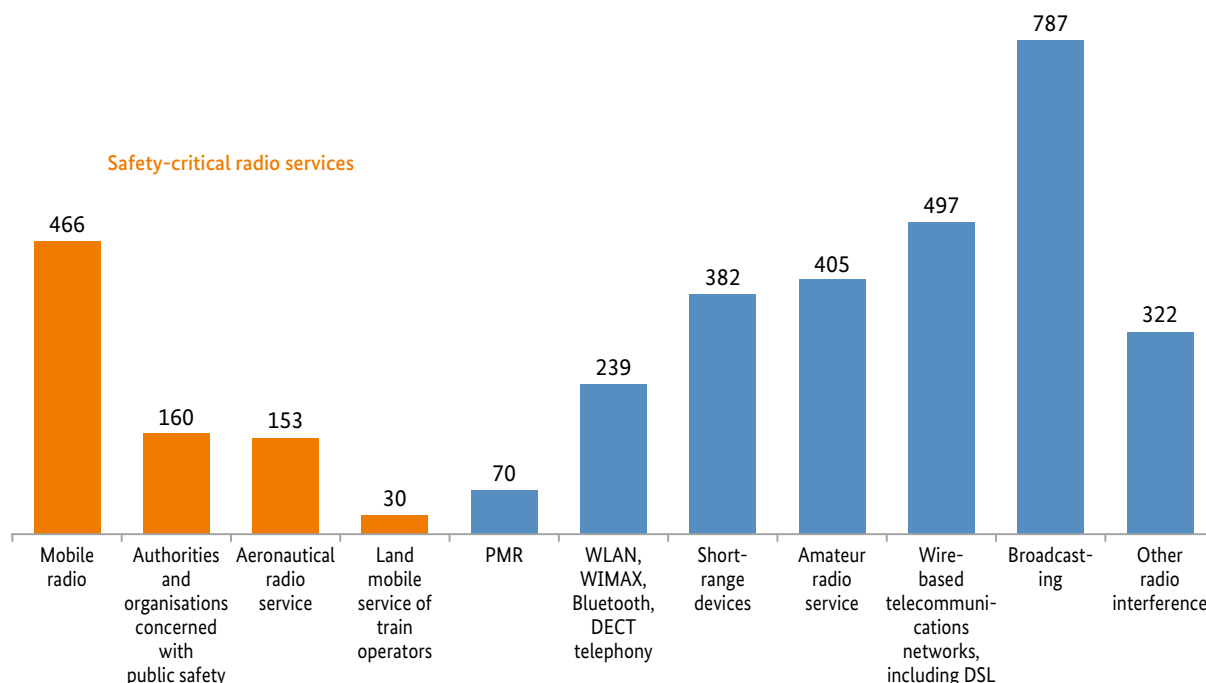
The Bundesnetzagentur makes an important contribution to consumer protection through its radio monitoring and inspection service. In 2020, despite the lockdowns resulting from the coronavirus pandemic, the radio monitoring and inspection service resolved over 3,500 cases of radio and electromagnetic interference on site and guided operators through the fault clearance process. One in four of these faults affected safety-critical radio services, including the aeronautical radio service, the radio services of public protection and disaster relief agencies, or maritime

and inland waterways services, or had a large-scale impact on mobile communications services.

Given the material risks to which safety-critical radio and telecommunications services potentially expose objects of legal protection (especially life and limb), the radio monitoring and inspection service had to ensure the uninterrupted operation of these services throughout the hard lockdown phases in 2020.

To this end, at the beginning of the first lockdown the Bundesnetzagentur produced a comprehensive set of rules for the protection of employees working at the radio monitoring and inspection service. These rules were then updated continually throughout 2020. Hygiene precautions and personal distancing measures allowed employees to continue rectifying faults on site, processing fault reports and conducting site inspections. As a result, the radio monitoring and inspection service was able to continue offering round-the-clock availability and a nationwide call-out presence throughout the lockdowns.

Interference volumes by type of service in 2020



## Flight radiotelephony operator's licence exam

All operators of aircraft radio services at ground and aeronautical stations require a flight radiotelephony operator's licence issued by the Bundesnetzagentur or equivalent. The Bundesnetzagentur offers flight radiotelephony operator exams at its centres in Bremen, Berlin, Eschborn, Cologne, Leipzig, Reutlingen and Munich.

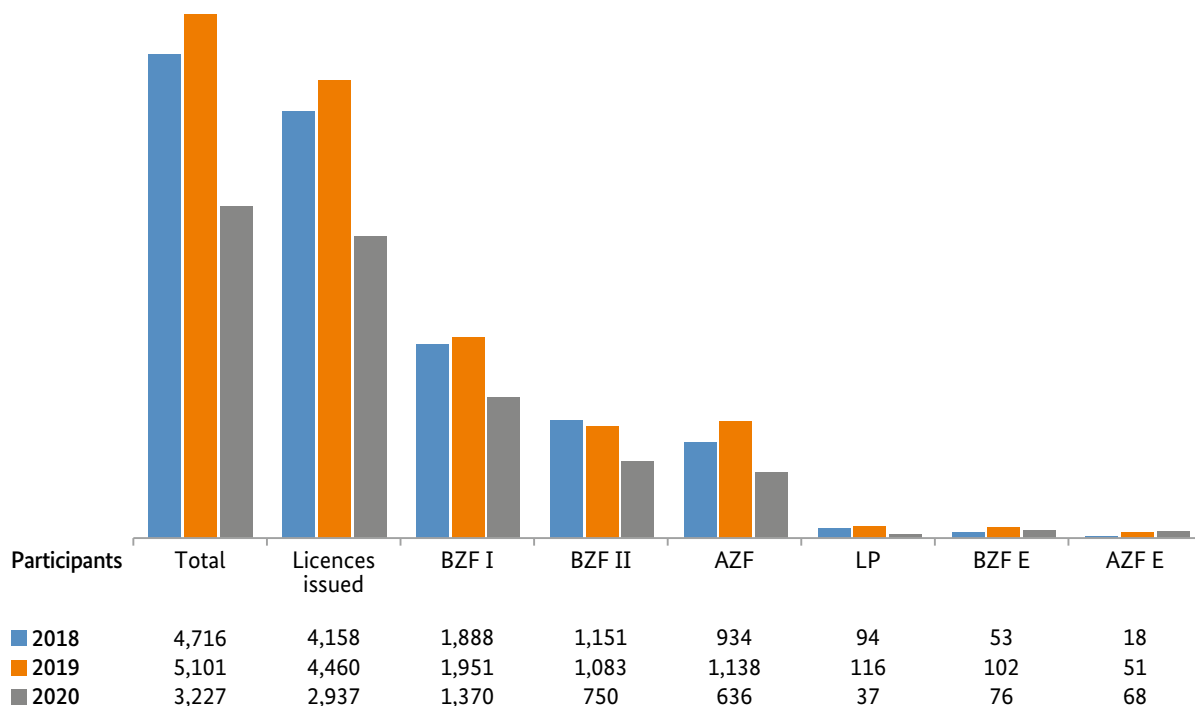
In 2020, 3,227 people took part in 262 exams held by the Bundesnetzagentur with the goal of acquiring their operator's licence. 2,937 passed the exam and were awarded a licence. Some exams were either cancelled or the number of attendees restricted in the reporting year due to the Covid-19 situation.

The various radiotelephony operator's permits for the aircraft radio service are:

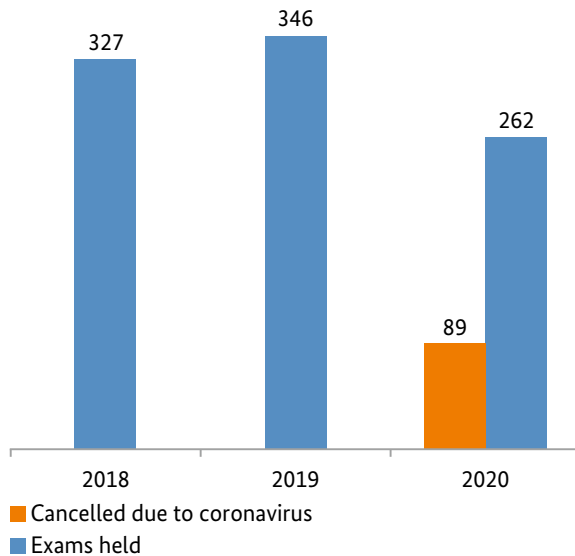
- BZF I For radiotelephony in English and German in accordance with visual flight rules
- BZF II For radiotelephony in German within the Federal Republic of Germany in accordance with visual flight rules
- BZF E For radiotelephony in English in accordance with visual flight rules
- AZF For radiotelephony in English and German in accordance with visual and instrument flight rules.
- AZF E For radiotelephony in English in accordance with visual and instrument flight rules.
- LP Language proficiency certificate.

The figures below show the number of flight radiotelephony operator's licences issued for each licence type, as well as the number of exams held at the Bundesnetzagentur's exam centres.

Exam participants and flight radiotelephony operator's licences issued



Flight radiotelephony operator exams held in Bremen, Berlin, Eschborn, Cologne, Leipzig, Reutlingen and Munich



Exams scheduled for the first two months of 2020 were held with the full quota of participants.

The coronavirus pandemic and the first lockdown necessitated the cancellation of all flight radiotelephony operator's exams scheduled from mid-March onwards.

Exams then resumed in August under strict compliance with the relevant hygiene concepts and with a reduced number of participants.

However, the Bundesnetzagentur increased the number of exams being held in order to offer as many candidates as possible the opportunity to attend. This allowed the Bundesnetzagentur to offer the majority of people seeking to obtain their flight radiotelephony operator's licence an exam date in the same year, although some candidates were unable to take the exam at their preferred location.

Compared with previous years, 75% of the exams scheduled were held with 65% of applicants.

## Migration of emergency call lines to IP

The PSTN switch-off expected in the relatively near future will also affect all of the ISDN-based emergency call lines operated nationwide through 430 emergency dispatch centres (112/110). The migration from ISDN to IP prompted the competent authorities under federal state law to switch providers in some cases and to comprehensively reform the emergency call areas of origin. Version 2.0 of the Technical Directive on Emergency Calls contains the technical details for setting up IP-based emergency call lines. IP technology will offer new possibilities for the future of emergency call lines. Whilst the switchover is fraught with challenges, the Bundesnetzagentur will continue to offer guidance for all parties involved.



## Rulings, activities and proceedings

The Bundesnetzagentur devoted much of 2020 to investigating the importance of digital platforms for business customers in Germany and exploring suitable approaches to regulating these platforms.

The Bundesnetzagentur feels that consumers should be able to have more faith that technicians will keep arranged appointments, and to this end included a sanctions mechanism between Telekom and its competitors in a reference offer. This should significantly and permanently reduce the number of times technicians fail to turn up for appointments.

## Spectrum management

### 2015 coverage obligations

The Bundesnetzagentur has overseen the expansion of mobile broadband coverage from the outset. Reporting obligations incumbent on the mobile network operators ensure that the Bundesnetzagentur is fully informed about the status of spectrum usage, the network expansion and rollout, and expansion planning.

The spectrum at 700 MHz, 900 MHz, 1800 MHz and 1500 MHz auctioned in 2015 was assigned in combination with a coverage obligation that requires every mobile network operator, using mobile transmission technologies, to provide broadband coverage to the population with rates of at least 50 Mbps per sector. The intention is to ensure that households as a rule have access to data rates of 10 Mbps and over.

The coverage obligation required each mobile network operator to achieve 97% household coverage in every federal state and 98% nationwide by 31 December 2019. Additionally, full coverage is to be ensured along main transport routes where technically feasible and actually possible. The mobile network operators can use their entire spectrum packages to meet the coverage obligation.

None of the three mobile network operators demonstrated full compliance with the coverage obligation as of 1 January 2020. As permitted by law, the mobile network operators were set partial deadlines and an extended overall deadline of 31 December 2020 by which they must comply fully with the coverage obligation. The mobile network operators all met the partial deadlines.

In 2021 the Bundesnetzagentur will assess conclusively whether the mobile network operators had fully complied with the coverage obligation as of the extended deadline. The Bundesnetzagentur will evaluate and review the information provided by the network operators. Supporting measurements will be taken by the radio monitoring and inspection service to check and verify the disclosures made by the mobile network operators.

### President's Chamber decision from 2018

In 2019 the Bundesnetzagentur held an auction for spectrum in the bands at 2 GHz and 3.6 GHz. Spectrum in these bands was awarded to the mobile network operators Telekom Deutschland GmbH, Telefónica Germany GmbH & Co. OHG and Vodafone GmbH, as well as to new entrant Drillisch Netz AG. The network operators received the spectrum in conjunction with extensive coverage obligations designed to promote ongoing improvements to mobile network coverage.

Mobile coverage can also be improved via infrastructure sharing and roaming. The Bundesnetzagentur thus encourages the operators to utilise partnerships for a cost-efficient network expansion. To further promote roaming as a way to improve nationwide coverage, the network operators are obliged to negotiate on partnerships and roaming.

Given the extensive coverage obligations incumbent upon the network operators, the Bundesnetzagentur expects them to cooperate on network expansion on a contractual basis within the limits set by competition and telecommunication law. Various network operators are currently negotiating partnerships with the aim of closing gaps in coverage (not-spots) and/or areas in which broadband coverage comes from only one network operator (grey spots). The Bundesnetzagentur and the Bundeskartellamt are overseeing these negotiations from an antitrust law and spectrum regulation standpoint.

- **Not-spots:** The established mobile network operators Telekom, Telefónica and Vodafone intend to step up collaboration to expand the networks. They plan to work together to build and use up to 6,000 sites on the basis of infrastructure sharing. The goal is to improve mobile broadband coverage, especially in rural areas but also along transport infrastructure and waterways. This collaboration between the network operators should cost-effectively bring coverage to under-served regions. New entrant Drillisch is also to be given the opportunity to be part of the cooperation.
- **Grey spots:** The three established network operators are also negotiating active sharing to improve broadband coverage in grey spots. Grey spots are areas where not all network operators offer LTE broadband.

At the spectrum auction in 2019, new entrant Drillisch acquired usage rights in the 2 GHz and 3.6 GHz bands. Building a nationwide mobile communication network is fraught with challenges. Yet consumers expect to be able to access mobile services nationwide. Domestic roaming can ease the passage of entry to the market for a new entrant, since roaming allows customers to use a different network if no proprietary network exists locally to them.

The President's Chamber decision contains an obligation to negotiate on domestic roaming. At present, the new entrant Drillisch and the three established mobile network operators are in corresponding negotiations. The Bundesnetzagentur is actively guiding the negotiation process.

In 2020 Drillisch called on the Bundesnetzagentur as arbitrator in negotiations with both Telekom and Vodafone. In response, the Bundesnetzagentur opened two sets of arbitration proceedings.

The decision of the President's Chamber contains extensive coverage obligations with broader mobile network coverage in mind. Hence, rights of use are granted to the mobile network operators in conjunction with certain obligations – such as to provide coverage for households and transport infrastructure (motorways, federal roads, state roads, waterways, rail routes) with fast mobile broadband. The network operators are also required to build additional base stations in not-spots so as to improve coverage in rural areas.

The Bundesnetzagentur drew up a concept for checking timely compliance with the coverage obligations and asked the mobile network operators for their feedback. The Bundesnetzagentur and the federal states jointly identified not-spots in which, as per the coverage obligation, the network operators are each required put an additional 500 base stations into operation.

The spectrum award proceedings in 2019 included obligations on the mobile network operators to provide coverage along rail routes. Heavily used rail routes with over 2,000 passengers per day must have coverage with a transmission rate of 100 Mbps by 2022. By 2024 all rail routes must have coverage with a transmission rate of 50 Mbps. These coverage obligations aim to accommodate the rising demand for consumer access to mobile broadband.

## Deadline reached for coverage obligations from 2015

In early 2020 the mobile network operators Telefónica, Telekom and Vodafone submitted their reports on the fulfilment of coverage obligations from the 2015 spectrum auction. The Bundesnetzagentur then began the process of reviewing the disclosures.

At the start of this review process, Jochen Homann, President of the Bundesnetzagentur, highlighted the importance for the companies to quickly rectify any shortfalls identified by the Bundesnetzagentur with respect to meeting their obligations. He said that the goal was to ensure mobile broadband was brought to all areas of the country as quickly as possible and that official sanctions could not be ruled out. The Bundesnetzagentur would resort to such action, said Mr Homann, if it served to broaden coverage.

All of the companies were set a new deadline of the end of 2020. The Bundesnetzagentur also set interim rollout targets with the result that all of the mobile network operators have made excellent progress with

expanding their networks. All three claimed to have met the household coverage obligations by the beginning of 2021. Additionally, the network operators are obliged to establish coverage along all main transport routes where legally permissible and actually possible. Here, too, they have made solid progress within the new deadline. Nevertheless, in individual cases the network operators reported legal or practical hurdles resulting in an inability to attain full coverage.

The Bundesnetzagentur is now reviewing compliance with the coverage obligation. It will examine and evaluate the setbacks cited by all three network operators that led in specific cases to a legal or practical inability to fulfil the coverage obligation for main transport routes by the set deadline. The goal remains to continue improving coverage along transport routes, for instance in close partnership with Deutsche Bahn. Full coverage for all transport routes with higher bandwidths will become a reality as the obligations from the 2019 auction are met.



The obligations pose major challenges for the mobile communications companies striving to roll out broadband. Not only must they consider the sheer number of miles to be covered, but also the high travelling speeds involved, the shielding of mobile signals caused by the physical characteristics of the trains, and compatibility with the train radio network. To safeguard the proportionality of the obligations, the Bundesnetzagentur foresees Deutsche Bahn's active involvement in attaining coverage for rail routes. The mobile network operators and rail operators are working with the Bundesnetzagentur on a concept for how the rail operators can contribute to the broadband expansion. This will provide a basis for identifying and removing the obstacles to rolling out mobile coverage along rail routes.

In June 2020 the Bundesnetzagentur responded to an application by Telefónica by assigning the 3.6 GHz spectrum auctioned in 2019 for nationwide deployment. Following an application from the network operators Telefónica, Telekom and Vodafone, in the fourth quarter of 2020 the Bundesnetzagentur assigned the 2 GHz spectrum purchased at auction in 2019 for nationwide deployment. These assignments also included coverage obligations.

#### **Approval for spectrum leasing**

In January 2020 the Bundesnetzagentur green-lit the lease by Telefónica of spectrum usage rights for blocks of 2 x 10 MHz (paired) in the 2.6 GHz band to the new entrant Drillisch.

This approval implements an antitrust policy decision of the European Commission. In order to secure approval of the merger with E-Plus (case no. COMP M.7018), Telefónica had agreed to a number of concessions which included leasing spectrum assets to a new entrant.

#### **Spectrum compass 2020**

The volume of voice and data traffic travelling via mobile networks continues to rise. High-speed mobile networks are essential to accommodate this unrelenting growth. Suitable spectrum is an important resource to enable these fast networks.

With usage rights for the key bands at 800 MHz, 1800 MHz and 2.6 GHz due to expire on 31 December 2025, it is imperative to make this spectrum available as early as possible for redeployment. Discussions at the international level point towards the possibility of further spectrum resources being added, in particular the UHF band above 470 MHz. For this reason, a decision is required on which frequencies

will be included in the impending proceedings and on the conditions attached to the usage rights.

On 19 August 2020 the Bundesnetzagentur published its Spectrum Compass 2020 paper, presenting initial considerations on the future availability of this spectrum. The paper is available online at [www.Bundesnetzagentur.de/mobilebroadband](http://www.Bundesnetzagentur.de/mobilebroadband). Interested parties were given the early opportunity of contributing to the discussion on the mobile spectrum due to become available. In the next step, the Bundesnetzagentur will comprehensively review the possible approaches to providing suitable spectrum for mobile communications.

#### **Application procedure for local broadband networks**

In addition to the nationwide usage rights for the 3400–3700 MHz spectrum awarded at auction, on 21 November 2019 the Bundesnetzagentur opened an application process for spectrum in the band at 3700–3800 MHz for local broadband networks. The path is now clear for this spectrum to be used in particular for industry 4.0, but also in the agricultural and forestry sector. The Bundesnetzagentur provides spectrum for local applications to support the digital transformation of economy and society.

With almost 100 frequency assignments made in the year since applications began, the procedure is off to an excellent start. Take-up of the new spectrum assets by operators is high. The Bundesnetzagentur reports tremendous interest in the acquisition of spectrum and expects the number of applications to remain consistently high. The Bundesnetzagentur continues to answer questions about the application procedure in dialogue with various interest groups and potential applicants.

With the operators' consent, the frequency assignment holders are published (in German) in a regularly updated list (since September 2020) at [www.bundesnetzagentur.de/lokalesbreitband](http://www.bundesnetzagentur.de/lokalesbreitband).

The 3700–3800 MHz spectrum for local broadband networks is set to be joined from 2021 by further spectrum for 5G in the band at 24.25–27.5 GHz. The Bundesnetzagentur will make this spectrum available for telecommunications services for end users, infrastructure links, industry 4.0 and the industrial Internet of Things. The draft administrative act was presented for comprehensive consultation and the planned rules and forms for the application procedure were made transparent to the market in advance. The frequency assignment fees for this band will be published in the Ninth Ordinance for

the Amendment of the Frequency Fee Ordinance. Applications can be submitted electronically. Like the established procedure for the 3700–3800 MHz band, the goal here is to minimise red tape. The Bundesnetzagentur is currently working on a new online application portal that will further improve the procedure.

#### **Award of 450 MHz spectrum**

With the usage rights for the 450 MHz band expiring on 31 December 2020, the Bundesnetzagentur took action to make the spectrum available for re-assignment – principally for critical infrastructure applications – and opened corresponding tendering proceedings. This will help to pave the way for the digitisation of the transition to sustainable energy and transport sectors, and contributes to the attainment of climate goals.

The Advisory Council had already adopted a resolution on 450 MHz in September 2019 in which it strongly advocated providing the energy industry with a proven secure communication solution on the basis of 450 MHz wireless technology beyond 2020.

The 450 MHz spectrum has good propagation characteristics that make it well suited to establishing a functional and resilient wireless network in a cost-effective way. In light of this, together with the expiry of rights of use on 31 December 2020, the Bundesnetzagentur drew up key elements for the needs-oriented provision of the spectrum for critical infrastructure applications and published these key elements for consultation. The paper set out the initial framework conditions for an approach to making the spectrum available. In parallel, interested parties were invited to register their anticipated spectrum needs for critical infrastructure applications.

The procedure allowed the Bundesnetzagentur to collect specific data on nationwide 450 MHz demand for critical infrastructure applications. This demand covered the entire spectrum available nationwide. A number of companies also expressed and, in some cases, registered spectrum demand for regional business models in order to realise critical infrastructure applications.

On the basis of the responses and the demand registered, in July 2020 the Bundesnetzagentur drew up a draft award decision for consultation.

The draft made spectrum available for nationwide use primarily for critical infrastructure applications. The spectrum would be awarded in tendering proceedings so as to take better account of safety and security concerns and special protection requirements when selecting the spectrum assignment holder.

A large number of responses were received during the consultation. The vast majority of these welcomed the provision of the spectrum for use primarily for critical infrastructure applications. Some safety and security-related concerns were also raised.

On the basis of the opinions received, on 28 November 2020 the President's Chamber decided to award the 450 MHz spectrum primarily for critical infrastructure and opened corresponding tendering proceedings. This decision takes account of the interests of the authorities and organisations concerned with public safety as well as the federal armed forces to the greatest possible extent. These bodies had argued that broadband spectrum was needed, among other things, for police and military applications. The President's Chamber decision of 16 November 2020 allows for shared use of the resulting radio network by public safety authorities and organisations and the federal armed forces.

Applications for 450 MHz could be submitted until 18 December 2020. The successful applicant is chosen in an objective and non-discriminatory selection procedure.

#### **Amendments to the Frequency Plan**

The Frequency Plan contains an overview of all frequency assignments up to 3000 GHz within the Federal Republic of Germany. Responsibility for maintaining the Frequency Plan falls to the Bundesnetzagentur. In 2020 the Bundesnetzagentur decided to reform parts of the plan and consulted with the relevant national and federal state authorities as well as affected parties and the public on the planned changes.



## One year of applications for 5G local campus networks

The application procedure for local 5G applications – wireless networks for providing telecommunications services – launched in November 2019. By the start of 2021 the Bundesnetzagentur had assigned over 100 frequencies. Jochen Homann, Bundesnetzagentur President, highlighted how the Bundesnetzagentur was creating space for innovation with these assignments. Numerous further applications have been received in the meantime and countless more are expected.

The Bundesnetzagentur makes 3700–3800 MHz spectrum available for local networks. These frequencies are particularly well suited to use for industry 4.0, but also for the agricultural and forestry sector and to support scientific research.

Applications can be submitted electronically and are processed with a minimum of red tape. The spectrum is available for deployment directly following assignment.

The assignment holders comprise large and medium-sized companies including Airbus Defence and Space GmbH, BMW AG and Evonik Industries AG. Other users of spectrum across Germany include universities and research institutes such as Fraunhofer.



In order to implement the provisions of the EU implementing decisions, which are legally binding and must be transposed into national legislation, the Bundesnetzagentur made sweeping changes to the Frequency Plan. Further changes initiated by international bodies (European Commission, CEPT etc) and arising from national requirements are also being implemented and editorial amendments made.

### Satellite communications

Satellite communications are made possible via geostationary satellites and increasingly via orbiting satellite systems comprising numerous individual satellites. One of the main advantages of satellite communications is their almost global signal coverage. Satellite communications support important social, research and governmental activities, as well as commercial uses. Instant availability is yet another advantage of satellite connectivity, allowing it to supplement terrestrial multimedia, communications and internet technologies. Satellite communications play an increasingly important logistical role in situations of crisis, such as natural disasters, as well as for peacekeeping missions and preserving domestic and international security. They also provide data and communication links in situations where terrestrial infrastructure either does not yet exist or has been destroyed.

In 2020 the Bundesnetzagentur registered 41 new satellite systems with the ITU. German satellite operators submitted a total of 2,200 coordination requests to the ITU for the occupancy of several hundred frequencies in orbit. The ensuing bilateral negotiations with other countries and national satellite operators aim to ensure that all satellite systems can operate interference-free. In addition, 83 frequency assignments were issued for earth stations in Germany.

Lastly, spectrum was assigned for five satellite networks as per the requirements for use in Germany, including, at the end of 2020, the first spectrum assignment for a mega-constellation of satellites comprising up to several thousand low earth orbiting satellites. This step ensures compliance with the spectrum-related legal framework for providing broadband internet via satellite in Germany. These satellite systems enable broadband internet services, including home office connections (VPN) and remote desktop, with similar latency as with terrestrial networks.

### Spectrum assignments

In 2020 the Bundesnetzagentur began refarming spectrum for private mobile radio applications. The number of spectrum assignments for digital PMR has grown steadily in recent years. The expansion of digital mobile radio technologies (DMR, dPMR) opens up extended functionalities for users, such as the option to transmit data in addition to voice traffic. This is relevant for traffic operations, energy providers and more (eg position data for individual vehicles, passenger information systems and data from switching contacts). The Bundesnetzagentur is taking a number of steps to ensure the most efficient use of spectrum, including to gradually shift the bandwidth over the next few years from 20 kHz to 12.5 kHz. The administrative act on PMR has been modified accordingly.

Frequencies in the UHF band used for wireless microphones in professional productions (470–608 MHz and 614–694 MHz) were assigned generally. This cuts out the usual red tape and costs for the culture and events industry, which has been hit particularly hard by the coronavirus pandemic.

## Market regulation

### Reference offer on local loop access

On 21 July 2020 the Bundesnetzagentur delivered its second and final decision following its review of the reference offer on access to Telekom Deutschland GmbH's local loop. The decision fixed the conditions and reciprocal obligations on competitors for access to Telekom's local loop. The reference offer contains an array of improvements on access to the last mile, so as to ensure equal conditions for competitors and Telekom alike. Telekom's competitors can now agree a switchover date with new customers directly upon applying for the connection.

The Bundesnetzagentur also feels that consumers should be able to have more faith that technicians will keep arranged switchover appointments and to this end incorporated a sanction mechanism between Telekom and its competitors in the reference offer. This should significantly and permanently reduce the number of cancelled technician appointments.

Other improvements include: sanctions on deficient performance between the contractual parties, eg by way of flat rate compensation payments and contractual penalties; the expansion of the Bundesnetzagentur's monitoring of provisioning quality and fault clearance; extended entitlements



to fault clearance work on the local loop where performance falls below technical benchmarks; and additional information options on the local loop for competitors.

These aspects had frequently been a source of friction between Telekom and local loop users in the past.

The decision also contains rules on the parallel use of Telekom's in-house cabling ("terminal line") by competitors and by Telekom itself. Mutual interference can occur if fibre optic-based and VDSL-based signals are sent simultaneously over the building's existing internal copper wiring. To help prevent potential interference between adjacent applications, assignment holders must make mutual arrangements with users of adjacent frequencies when setting up their signal feed. The new user of the terminal line – whether Telekom or a competitor – must tolerate the existing usage and any associated interference. Where the newcomer feeds their signals into the house and not the street cabinet, certain frequency bands must be kept free in order to protect the existing feeds from interference. The Ruling Chamber has ensured that only the minimum guard band necessary must be observed.

Telekom is prohibited from making unilateral changes to the reference offer defined by the Bundesnetzagentur until the end of May 2025. As demand for bandwidth is only expected to grow further, with attendant growth in the relevance of fibre optic-based products, a minimum term of the end of 2021 was set for the rules on the parallel use of in-house cabling to allow for a timely re-evaluation of the situation.

The reference offer was examined thoroughly in two-phase Ruling Chamber proceedings in which competitors were also heard. Back in December 2018, the Ruling Chamber had instructed Telekom to amend its local loop reference offer. Since Telekom failed to fully comply with this request in its revised draft, the Bundesnetzagentur was compelled to make the necessary changes itself (pronounced in the recent second partial decision) to ensure the agreement adequately meets the statutory criteria of fairness, timeliness and reasonableness.

A reference offer should enable competitors to conclude contracts for important access products quickly and without fuss with the regulated company, and without the need for protracted negotiations or the Bundesnetzagentur's help to resolve disputes.

### **Telekom's application for one-off local loop access charges**

The Bundesnetzagentur approved the one-off provisioning and termination charges for access to the Telekom local loop on 29 September 2020. The approval covers the provisioning and termination charges for local loop access as well as the charges for several other services (over 150 tariff headings).

The decision also set an allowed reasonable rate of return on investment for the regulated company, Telekom. The Bundesnetzagentur set this rate based on the European Commission's WACC Notice, applicable since 1 July 2020. The WACC Notice provides a uniform methodology Union-wide for calculating the weighted average cost of capital (WACC). It uses a combination of uniform domestic and Union-wide input parameters calculated annually by BEREC.

Although the WACC Notice itself does not bind the Bundesnetzagentur with respect to its decision, it does bind the European Commission in the context of its own rules on notification procedures. The Bundesnetzagentur must therefore assume that the Commission will review an approach according to the WACC Notice and – if it finds deviations – require the application of a methodology in line with the WACC Notice and – if necessary – open a substantive audit procedure pursuant to section 7a of the EU Framework Directive.

The WACC Notice must therefore, within the framework of regulatory discretion, (1) be applied as a relevant calculation method and (2) weighed against other methodologies under consideration on the basis of the regulatory objectives and principles. The calculations based on the Notice resulted in a WACC value of 2.9% compared to 4.39% in the last cost release using the Bundesnetzagentur's previous WACC/CAPM method. Since 2010 this has been based on an expert opinion published by Prof. Stehle and contains "exponential smoothing" methodology to account for both the current as well as past rates of return.

To prevent a sudden drop in the WACC value and to ensure stability in accordance with section 32(3) no. 4 TKG, the Bundesnetzagentur used the one-year transitional period granted by the WACC Notice to set a transitional WACC rate of 3.64%.

Overall, the Bundesnetzagentur concluded that an approach modelled after the WACC Notice with a transitional WACC rate promotes both a virtually complete domestic market and meets the need for

stable, long-term and predictable rates. It also helps to remove the legal uncertainty created by the judicial assessment on the determination of a rate of return within the legal framework, and thus offers a reliable and transparent method for determining the WACC rates in the future.

The chosen application of the European Commission's WACC Notice was criticised in the proceedings by both Telekom and competitors. Whereas Telekom prefers a method that produces the highest possible WACC value, its competitors, in the interests of achieving the lowest charges possible, are seeking the immediate application of the WACC Notice without a transition period. The European Commission did not express criticism of the method selected by the Bundesnetzagentur (WACC Notice with transition period). The real rate of return calculated in accordance with the WACC Notice will be applied exclusively to "old" infrastructure (copper investments). This does not affect new investments in broadband, optical fibre, mobile communications etc.

#### **Changed regulatory duties for fixed-network operators and Telekom**

The Bundesnetzagentur adopted a number of resolutions reversing the obligation on Telekom and 14 further alternative subscriber network operators to terminate calls originating from outside the EEA within their respective subscriber networks. Calls of this nature are thus now no longer subject to a rate approval. The companies had previously filed applications with the Bundesnetzagentur requesting amendments to the regulatory orders. Corresponding decisions had previously been adopted for mobile operators.

#### **Reference offer for IP bitstream access**

In a decision dated 22 December 2020, the Bundesnetzagentur instructed Telekom to revise its reference offer for IP bitstream access (layer 3 bitstream). The offer fixes the conditions and reciprocal obligations on competitors receiving IP bitstream access from Telekom.

The reference offer was examined thoroughly in two-phase Ruling Chamber proceedings in which competitors were also heard. Back in August 2018, the Ruling Chamber had issued an initial partial decision instructing Telekom to amend its IP bitstream reference offer. Telekom filed a revised model contract by the deadline stipulated, including some clarifications on the scope of implementation. The new version contained the large majority

of the requirements prescribed in the initial partial decision. However, the Ruling Chamber was compelled to impose some final changes to a small number of clauses to ensure the reference offer adequately meets the statutory criteria of fairness, timeliness and reasonableness. The Chamber has now pronounced its second partial decision containing the changes. These mainly relate to the rules on information about the DSL sync rate, which allows the party interested in a connection to fulfil their statutory transparency obligations to the end user, as well as the introduction of a contractual penalty in the event that Telekom fails to keep a technician's appointment for provisioning or fault clearance. The contractual penalty should serve to improve provisioning and fault clearance quality, which for many years has been the target of criticism by competitors. The intended effect is to significantly and permanently reduce the number of cancelled technician appointments. A corresponding arrangement has already been included in the local loop reference offer (second Ruling Chamber decision 3e-15/003 of 22 July 2020). The collocation agreement and the supplementary agreement on use of the "PreOrder interface", both of which are uniform contracts applicable to all products and contain rules on IP bitstream, form an integral part of the local loop reference offer defined in the resolution of 22 July 2020. The defined reference offer has a minimum term expiring on 31 December 2025. Telekom is prohibited from making unilateral changes to the offer during this time.

#### **Approval of rates for carrier leased lines**

On 22 June 2020 the Bundesnetzagentur approved the first-ever rates for carrier leased lines over native Ethernet with retroactive effect from 29 July 2019.

The rates distinguish between copper-only connections (non-upgradeable) in the 2–8 Mbps transmission bandwidths and optical fibre-only connections (upgradeable) in the 2–150 Mbps bandwidths. On 30 June 2020 Telekom requested approval of the charges for carrier leased lines over native Ethernet for the 20 M variant (non-upgradeable) to allow it to expand its product portfolio. Approval is expected in the first half of 2021 after conclusion of the notification procedure.

Rates for collocation feeds for the classic leased line variants CFV-SDH and CFV-Ethernet over SDH were approved from 1 January 2021 and limited until 31 December 2021 due to the expiry of existing approvals.

### **Abuse proceedings opened in the wake of SDH terminations**

On 16 December 2020 the Bundesnetzagentur opened ex officio abuse proceedings against Telekom pursuant to section 42 TKG following steps already taken by Telekom to phase out SDH-based transmission paths in the regulated sector.

### **Abuse proceedings due to provisioning delays on Market 4**

Abuse proceedings were opened against Telekom at the behest of VATM and a number of member companies due to unreasonable delays in the provisioning of various products on Market 4 and a lack of provisioning deadlines for many products. A ruling dated 31 August 2020 placed Telekom under obligation to offer deadlines for a number of Market 4 products as regards order confirmation and provisioning. In the event of delayed provisioning, the Bundesnetzagentur held that Telekom must, in place of the former lump-sum compensation, offer a specific contractual arrangement providing for contractual penalties comprising a tiered basic amount, ie based on a certain percentage of the provisioning charge, plus a surcharge per each weekday of the delay in the amount of 60% of the leasing charge due on that day.

### **Reference offer on migration**

Telekom has begun cancelling the first contracts for services produced on the old SDH platform. Given the large number of questions this raises regarding the migration process and availability of equivalent successor products, the Bundesnetzagentur has opened a reference offer process and asked Telekom to submit a corresponding draft contract.

### **CLL 2.0 reference offer: first partial decision**

The Bundesnetzagentur carried out its first review of a reference offer on CLL 2.0 (native Ethernet), submitted by Telekom. A large number of civil law-related and complex technical aspects were examined and a first partial decision was reached stipulating extensive changes. These changes related to eg various deadlines including for provisioning and fault clearance, duties to cooperate, the introduction of contractual penalties for non-compliance with provisioning deadlines, as well as various technical regulations, including on the service quality parameters. Telekom was also given extensive instructions on monitoring diverse products offered on the market.

## **Broadband subsidies**

The government-assisted expansion plays a key role in bringing high-bit-rate broadband lines to all of Germany, but to rural areas in particular. Subsidised networks that form part of the assisted broadband expansion must be organised such as to ensure they remain open to competition and sustainable in future so that private investment is not prevented or hindered by state aid.

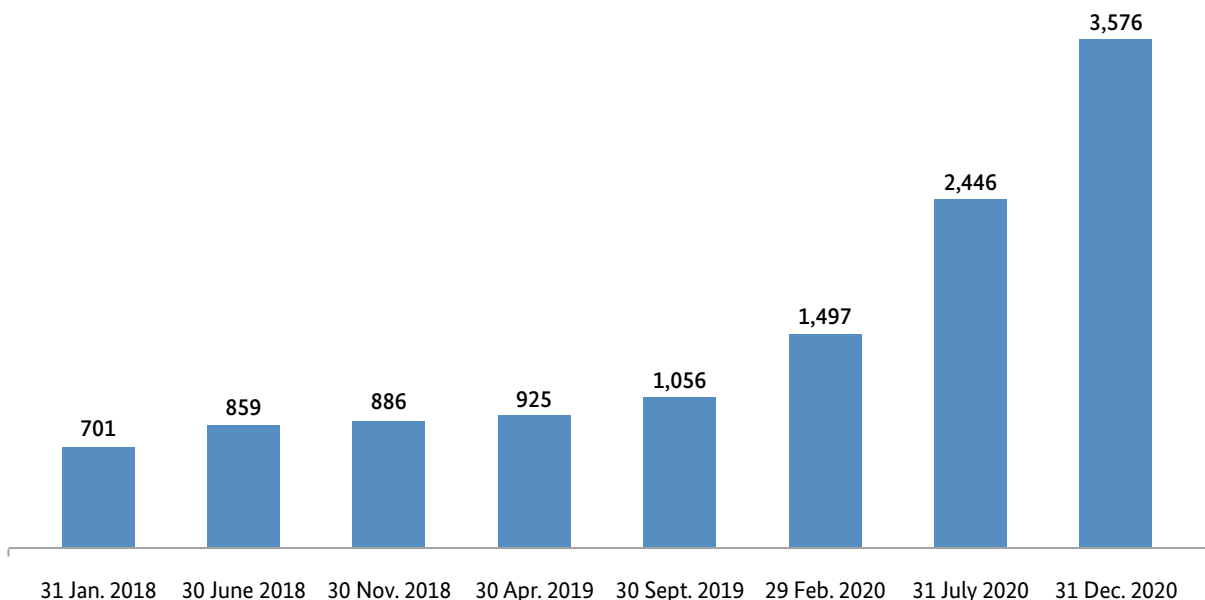
The Bundesnetzagentur gives feedback on the access conditions specified in the agreements between the organisations granting the aid and the network operators receiving the aid. This process is intended to secure open network access for third-party providers and thus give local consumers a choice of providers. In 2020 the Bundesnetzagentur reviewed around 200 agreements.

In November 2020 the European Commission approved the state aid rules to support the deployment of very high capacity broadband networks offering gigabit speeds in Germany. This decision means aid can now be utilised to improve connectivity in network grey spots. Aid was previously not available to regions with coverage above 30 Mbps. The Bundesnetzagentur had also issued an opinion on the new rules.

## Infrastructure atlas

The Bundesnetzagentur's infrastructure atlas is an online map of infrastructure available for shared use for the purpose of expanding broadband networks. The number of infrastructure operators supplying data for the atlas increased to over 3,500 in 2020. Most of these new data suppliers were regional authorities. Data is also increasingly provided from other sectors: in 2020 the number of data suppliers in the energy and telecommunications sectors grew by around 10% per sector.

### Development of data suppliers



### More data than ever

The atlas content has also been extended. Users can now view additional infrastructure types available for shared use in the broadband expansion. For example, since May 2020 the infrastructure atlas has included data on the location of over 2,000,000 wooden masts. The first "development areas" have also been added to the infrastructure atlas – these are parcels of land or properties that could potentially be used for infra

structure sharing (eg the installation of cell masts). The data will continue to be expanded step by step.

The large increase in the number of data suppliers and the rapid growth in some infrastructure data stored in the atlas pose challenges for the existing technology. The Bundesnetzagentur counters this by continually taking forward-looking action to develop and improve the software.



### Uniform user interface

A modern and uniform user interface introduced in May 2020 utilising the benefits and speeds of

modern web browsers has made it much easier to navigate the interactive maps.

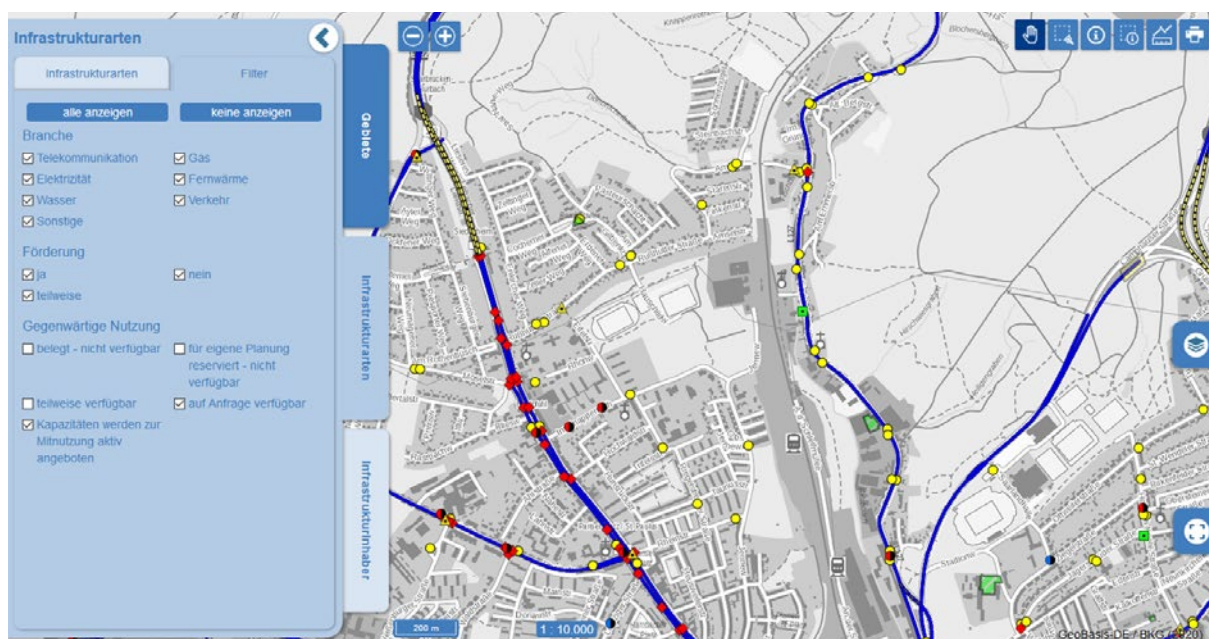


Background aerial shots offer a better overview of the local conditions.

### Improved map tools

Many of the different infrastructure types are growing rapidly. For some municipal infrastructure, eg sewerage systems, the stored data has more than doubled in volume in a single year. This sharp

growth requires improved map tools that allow users to quickly filter out the data sets they need from the mountains of available information. These improvements were released in WebGIS in July 2020.



The updated filter function now enables users to sort and display data sets by current use, sector and funding availability. It is now quick and easy to find infrastructure that is eg offered by the owner for shared use either actively or on request.

An improved tool for individual searches lets users browse interactively through detailed information on all infrastructure at any specific map location. This is particularly helpful where a lot of data is contained within a small area.

In November 2020 the infrastructure atlas database system was optimised to significantly speed up individual and regional searches and the creation of area reports. This established the basis for effectively meeting the high demands driven by rising data volumes and also helps users find the information they need faster than ever.

#### **Municipal data for the broadband rollout**

Local authorities often own facilities represented in the infrastructure atlas, including fibre-optic cabling, ducts and trenches, sewage pipelines, masts, traffic lights and street lighting. As the owner or operator of a public supply network, the local authority is obliged to provide information to the Bundesnetzagentur. In 2020 the Bundesnetzagentur wrote to all local authorities across Germany as part of an information campaign to inform them about the infrastructure atlas, their duty to supply data, and the opportunities the atlas affords to cities and communities.

The collection of data from local authorities is progressing extremely well. By the end of 2020 the Bundesnetzagentur had written to around 11,000 local authorities and received binding responses from 87%. Over 2,000 additional data suppliers were added as a result of the campaign. They are located mainly in Baden-Württemberg, Bavaria, Hesse and North Rhine-Westphalia. Over 1,400 of the new data suppliers come from these 4 federal states.

The campaign is still running. The Bundesnetzagentur will continue to add suppliers as further responses are received. The campaign has significantly enhanced the pool of data on infrastructure owned by local authorities.

Municipal infrastructure plays a key role in the broadband expansion. The shared use of existing infrastructure can reduce build-out costs and expedite the overall broadband expansion.

#### **Usage higher than ever**

The dialogue with the local authorities led, above all, to a significant rise in requests for access to the infrastructure atlas. The number of users around tripled against the previous year due to the introduction of the online application form for local authorities.

#### **Promoting M2M communication with numbering initiatives**

The automated exchange of information between objects or with a central data processing unit (machine-to-machine (M2M) communication) continues to represent a major growth area for the telecommunications industry. The award of 5G spectrum and permission to realise campus networks are crucial factors in the spread of M2M applications.

The Bundesnetzagentur provides the number resources needed for these M2M applications. For example, IMSIs (International Mobile Subscriber Identities) are necessary to assign technical addresses to mobile equipment. In order to continue orienting the conditions of use for IMSIs to the market and prevent growth from leading to a shortage of numbering resources, the Bundesnetzagentur held a public consultation on various possibilities for meeting demand for number resources for local private mobile networks. The national IMSI regulations will be further refined following an analysis of the consultation and the findings from the work of international standardisation bodies in the reporting year.

The ITU has generally assigned a quota of IMSIs available for internal use within a private network, freely selectable under the mobile country code 999. To help prevent any mutual interference between adjacent campus networks, the Bundesnetzagentur has created a directory of the IMSIs in use. Local spectrum assignment holders can voluntarily disclose IMSI use and also see the disclosures of others.

#### **Consultation on blockchain technology in the network sectors**

In June 2020 the Bundesnetzagentur published the results of its consultation on blockchain technology in the network sectors. It had received 28 opinions from businesses, associations and research institutes working in the field of blockchain technology in the network sectors. The consultation revealed the tremendous potential of blockchain in the network sectors. Enhanced transparency and tamper protec

tion for transactions, as well as the opportunities for business process automation, are seen as major pros offered by the technology. As specific blockchain applications emerge, it is vital to keep on top of the attendant regulatory and technical challenges. In the main, blockchain projects are still being piloted in the network sectors, with market-ready applications in use in isolated cases.

## German node for EU-wide blockchain

Blockchain is an innovative technology that can be used to realise a wide range of digital applications both efficiently and securely. As a member of the European Blockchain Partnership, the Bundesnetzagentur provides a German blockchain node and supports the European Blockchain Services Infrastructure, which aims to make a broad range of digital applications available as cross-border services for public administrations.

## Consultation on digital platforms

In March 2020 the Bundesnetzagentur opened a consultation to learn about business customers' experiences of marketing and sales activities via digital platforms in Germany. The Bundesnetzagentur has published an interim report containing the initial findings up to August 2020. Over 300 responses were received by the end of 2020. The consultation will continue into 2021. To date, the majority of participants are small and medium-size enterprises from the commerce/e-commerce segment.

Responses show that the majority of the participants consider both marketing activities and sales activities via digital platforms to be important or very important. Over half of business customers assume they would not even be able to exist in the market without digital platforms. Around 20% see themselves having considerable difficulties competing successfully in the German market without the use of digital platforms.

Participants report the most difficulties with "big" internationally active e-commerce platforms. For example, they report having experienced difficulties with digital platforms in the areas of complaints management, dealing with customer and product ratings, commissions and other fees, and the ranking and findability of own products.

## Suitable approaches to platform regulation

In view of the consultation on the importance of digital platforms for business customers in Germany, the Bundesnetzagentur devoted much of 2020 to investigating suitable approaches to the regulation of digital platforms. The results of this work were, among other things, incorporated into the opinion issued by the Federal Ministry for Economic Affairs and Energy on the European Commission's consultation on the draft Digital Services Act package, as well as into a BEREC opinion.

The distinct economic characteristics of digital platforms and the resulting impact of this raise an array of new questions and issues, since digital platforms are shaped by particularly strong network and concentration effects, among other factors. This can lead to anti-competitive or exploitative conduct.

The application of existing competition policy-based ex post analysis and enforcement instruments on the digital platform economy is considered to be an inadequate solution. Intervention has previously been dependent on the existence of anti-competitive conduct by a platform operator in the form of a breach of the prohibition of cartels or the prohibition of abuse. Moreover, protracted proceedings are unable to address the fast-paced digital platform economy with any degree of efficiency so as to prevent irreparable damage from occurring in the meantime.

Alongside the classic approaches of imposing sector-specific ex ante regulation (as is the case in the telecommunications sector) on the one hand and utilising competition policy remedies on the other, the Bundesnetzagentur proposes a third approach in the form of ex ante asymmetric regulation for specific digital platforms. This approach combines directly applicable rules of conduct with individual remedies following a case review and applies them to digital platforms with significant intermediation power. This would establish a third avenue for dealing with potentially anti-competitive conduct by digital platforms.



## International roaming

In Germany, the onus is on the Bundesnetzagentur to ensure compliance with the EU rules on roaming at the same cost as at home. Following the largely smooth abolition of roaming surcharges across Europe, the Bundesnetzagentur continues to monitor the market and sanction violations of the "roam like at home" principle.

In 2020 the Bundesnetzagentur took action to safeguard compliance with the roaming rules, in particular with respect to transparency requirements and possible rules on reasonable use (restriction of roaming services to prevent misuse). Moreover, as the coronavirus pandemic took hold in Germany, the Bundesnetzagentur asked all domestic roaming providers to help safeguard consumer interests as regards availability and any roaming fees incurred for calls to service numbers (especially travel companies and medical emergency services).

## Intra-EU communications

Since 15 May 2019 consumer contracts have been protected by price caps on per-minute calls made (€0.19/minute; net) and text messages sent (€0.06/SMS; net) from the subscriber's home country to other member states. Like for roaming, the Bundesnetzagentur is responsible for national oversight and enforcing the rules on regulated intra-EU communications. Back in 2019 the Bundesnetzagentur invited several indirect access providers to modify their prices in line with the price caps. In response, some providers changed their metering intervals to 300 seconds, prompting the Bundesnetzagentur to take further steps in 2020 to ensure compliance with the per-minute price caps. In 2020 the Bundesnetzagentur also asked 74 city carriers to comply with the regulated price caps. All companies responded by modifying their tariffs in line with the regulations.

## Annual report on net neutrality

In 2020 the Bundesnetzagentur once again published an annual report on net neutrality in Germany, covering the period from 1 May 2019 to 30 April 2020. A key topic of the report was security and youth protection filters as bolt-on features to internet access services. In the Bundesnetzagentur's view, these features are generally permissible where there are no restrictions on the underlying internet access and all applications are treated equally. Additionally, the end user must be able to control – ie activate

and deactivate – the filter function. Prices and other internet access conditions may not be influenced by whether the end user has activated or deactivated content blocking.

## Education flat rate

One impact of the Covid-19 crisis has been to elevate online learning to a central educational tool, which in 2020 kindled debate on the introduction of an "education flat rate". To improve the home schooling situation, policy-makers called for mobile providers to offer low-cost tariffs with access to educational content for pupils whose parents are unable to afford internet access.

Both Telekom (since October 2020) and Vodafone (since November 2020) now offer such tariffs under their business customer plans. The Bundesnetzagentur entered into early dialogue with the network operators to ensure that the planned education flat rates comply with the net neutrality rules. Restricted internet access services – known as walled garden services – are not compatible with the open internet principle within the meaning of the regulation. However, the end user may have a legitimate need to apply a filter on the end points. For instance, schools can cherry-pick educational content and block other content. Accordingly, the internet access providers offering the current tariffs neither define educational content nor do they apply any filtering of online content.

## Covid-19

In consequence of the Covid-19 crisis and the rise in working from home and online learning, as well as the increased use of telephony, video meetings and streaming services, the Bundesnetzagentur promptly opened intensive, regular dialogue with the telecommunications industry to form a picture of any building threat to the continuity of the networks.

In its report on the utilisation of the telecommunications networks, the Bundesnetzagentur found no evidence of instability. It is not aware of any network congestion wrought by the Covid-19 pandemic. The network operators confirmed this in their status reports to the Bundesnetzagentur. The network operators took all the necessary precautions to safeguard the optimal operation of their networks throughout the crisis.

# The importance of digital platforms for business customers in Germany

In September the Bundesnetzagentur published the initial results from an ongoing consultation about the importance of digital platforms for business customers in Germany.

Business customers, especially small and medium-size enterprises, reported competition restraints through digital platform operators.

This is because of network effects that tend to bring about a concentration that benefits certain platforms. The risk is that the markets tip in favour of a single dominant platform that ends up with the lion's share of all transactions. Where this happens, the platforms become almost as unassailable as the holders of a natural monopoly, eg power grids, says the Monopolies Commission.

Known as gatekeepers, these market-leading providers are no longer subject to the pressure of competition that would force them to refrain from abusive behaviour or improve user options for switching to other providers. As soon as users become dependent on their products or services, platforms can more or less autonomously create their own rules to play by for entire markets. Existing competition law concepts are unable to address the digital platform economy with sufficient speed or flexibility, often taking effect after it is too late for those affected.

Hence the Bundesnetzagentur proposed strengthening the position of business customers through a new regulatory approach for digital platforms. The aim is to stop any abuse of market power before it starts. "Once the damage has been done, it's too late," said Jochen Homann, Bundesnetzagentur President.

The Bundesnetzagentur recently introduced a platform for business customers to report on their experiences doing business via digital platforms in Germany. The initial findings show that the majority of the participants consider both marketing activities and sales activities via digital platforms to be significant. Nearly three quarters would see themselves having considerable difficulties competing successfully in the German market without the use of digital platforms.

At the same time, however, the companies report experiencing various difficulties with digital platforms. These have mostly to do with complaints management, dealing with customer and product ratings, commissions and fees, and the dual role of the platform operator as operator of the platform and at the same time provider on their own platform.

Customer experiences reported to date focus mainly on e-commerce platforms.



Nevertheless, the Bundesnetzagentur published a traffic management plan as a preparatory measure in the event of network overload. The solutions and actions in the plan conform to the EU net neutrality rules.

## **Companies responsible for maintaining the operation of telecommunication infrastructure**

As part of efforts to contain the spread of the novel coronavirus, the federal states and the federal government coordinated their efforts to impose temporary curfews and restrictions on social contact.

The federal states made exceptions for the retail, crafts and trade, and service sectors so as to keep important areas of public life up and running.

As a rule, telecommunications companies recognised by the Bundesnetzagentur as responsible for maintaining the operation of network infrastructure are also excluded from the restrictions. For clarity, the companies responsible for maintaining the operation of telecommunication infrastructure that fall under the aforementioned exceptions in the federal states are published on the Bundesnetzagentur's website.

The Bundesnetzagentur also informs the companies listed about how they can access and issue a written verification to all employees required to work in public spaces in order to maintain operations.

A sample certificate for employers is published for this purpose on the Bundesnetzagentur's website. Individual employees/companies mandated with maintaining operations can be given this certificate as proof of the requirement to work in public spaces. It is a simple way to confirm that individuals susceptible to controls are authorised to work in public spaces to safeguard the upkeep of important areas of public life and/or the infrastructure of a company included on the Bundesnetzagentur's list.

## **Automated information procedure**

The automated information procedure enables authorised bodies (especially the police, state police, federal and state protection authorities, emergency dispatch centres) to request customer data, such as names, addresses and telephone numbers, via an automated and highly secure system 24 hours a day. The Bundesnetzagentur bundles the responses received from all the companies contacted and

passes them on to the authorities. In 2020 the automated information procedure was modernised further with the implementation of the new TR-AAV 2.0 technical directive, guided and monitored closely by the authorised bodies as well as the telecommunications companies included in the scheme. At present, the systems of 101 authorised bodies are registered, with 94 telecommunications companies required to take part in the scheme.

Information can now be provided extremely rapidly – if necessary, within a few seconds – thanks to technological improvements. The procedure has become a well-established investigative tool that receives up to 120,000 requests for names and telephone numbers each day. In 2016 the Bundesnetzagentur's systems processed 10.26 million requests. This number increased to 17.79 million in 2020, bringing the total growth since 2016 to around 73%.

As part of its supervisory responsibility, the Bundesnetzagentur stepped up measures to improve issues with poor data quality in the responses provided by some telecommunications companies. With the number of complaints from authorised bodies reaching triple digits in the last year, the Bundesnetzagentur opened a corresponding number of administrative proceedings to review the problematic information.

## **Public safety – technical safeguards**

Protecting the privacy of telecommunications and personal data, protecting systems against faults or interference, and managing the risks to the security of telecommunications networks and services are the key objectives of section 109 TKG. The Bundesnetzagentur took account of the ever-changing technologies in the telecommunications sector and the attendant shifts in threats and risk exposure (especially for infrastructure with a high level of risk) with the publication of a catalogue of security requirements in the Bundesnetzagentur Official Gazette in compliance with the notification requirement pursuant to Directive (EU) 2015/1535. A list of critical functions for infrastructure with a high level of risk was also published for comment. Once the responses have been evaluated, the list of critical functions is set to be published in the Official Gazette in early 2021.

Throughout the reporting period, the Bundesnetzagentur carried out random checks at around 290 companies on the implementation of the security concept. Additionally, some 110 new and 260 revised

concepts were submitted to the Bundesnetzagentur for review to determine compliance with section 109(4) TKG. 14 companies fulfilled the obligation after being threatened with fines, while 6 companies met the requirement after a fine was imposed.

The contact restrictions in place due to coronavirus meant that implementation audits were increasingly carried out on the basis of requests for documentary evidence and information proving compliance. On-site inspections were only carried out in the first quarter of 2020. Given the importance of telecommunications networks, from the second quarter onwards selected companies were required to file a weekly status report. None of the companies reported any factors impairing availability.

In 2019 the Bundesnetzagentur received 57 reports of security breaches within the meaning of section 109(5) TKG, compared with a total of 52 in the reporting period. 12 reports prompted the Bundesnetzagentur to request detailed information on the causes and effects along with action taken to prevent future violations. 9 incidents related to breaches with a nationwide impact exceeding the reporting criteria.

## **Migration of emergency call lines to IP**

The PSTN switch-off expected in the relatively near future will also affect all of the ISDN-based emergency call lines operated nationwide through 430 emergency dispatch centres (112/110). The migration from ISDN to IP prompted the competent authorities under federal state law to switch providers in some cases and to comprehensively reform the emergency call areas of origin. Version 2.0 of the Technical Directive on Emergency Calls contains the technical details for setting up IP-based emergency call lines. IP technology will offer new possibilities for the future of emergency call lines. Whilst the switchover is fraught with challenges, the Bundesnetzagentur will continue to offer guidance for all parties involved.

## International cooperation

In 2020 the main focus of the Bundesnetzagentur's international activities was once again its work with the Body of European Regulators for Electronic Communications, BEREC. The tasks arising in connection with the new European Electronic Communications Code (EECC) were continued on schedule despite the challenges posed by the coronavirus pandemic.

## Work with BEREC

The Body of European Regulators for Electronic Communications, BEREC, offers NRAs within the European Union a platform to enter into dialogue and develop joint approaches within the telecommunications sector. BEREC's international standing is reflected in the burgeoning advisory role it fulfils for numerous EU bodies. At the end of 2018, new Union-wide regulations for the telecommunications sector were adopted in the form of the EECC (European Electronic Communications Code) and the BEREC Regulation, which mandated BEREC with introducing 12 sets of guidelines and two databases in 2019 and 2020.

Work on the guidelines and other technical aspects was carried out by the BEREC Working Groups, composed of experts from the NRAs, based on BEREC's annual work programme. The Bundesnetzagentur was represented on all BEREC Working Groups and provided one of the two co-chairs for two of these groups ("Fixed Network Evolution" and "Regulatory Accounting").

As is commonplace throughout the working world, the success of these Working Groups is largely down to the members' personal interactions and discussions. Due to the coronavirus pandemic, BEREC and the NRAs transitioned quickly to video meetings and virtual collaboration tools to allow the Board of Regulators to adopt documents without any significant delays. This ensured that all guidelines were adopted and published on schedule.

### Geographical survey

In order to contribute to the consistent application of geographical surveys in connection with network rollout, section 22(7) EECC required BEREC, after consulting stakeholders and in close cooperation with the European Commission and relevant NRAs, to issue guidelines to assist the NRAs and/or other competent authorities on the consistent implementation of their obligations. The deadline for this was 21 June 2020.

The guidelines published on 5 March 2020 serve as a guide for the NRAs and other competent authorities to implementing a uniform approach to conducting geographical surveys.

BEREC also worked on an additional set of guidelines on geographical surveys beyond the minimum required by EECC. These mainly cover the implementation of optional methods for displaying rollout

plans for very high capacity networks on the basis of the data collected in the geographical survey.

Moreover, BEREC is drawing up guidelines on the verification of data collected for the geographical survey in order to ensure a consistent and robust data pool. A corresponding draft was submitted for public consultation between 15 December 2020 and 27 January 2021.

Both sets of guidelines were developed with the involvement of the competent NRAs.

### **Quality of service**

In accordance with section 104 EEC, on 6 March 2020 BEREC published a set of guidelines, compiled together with the Bundesnetzagentur, detailing quality of service parameters. The guidelines cover the definitive quality of service parameters, including the parameters relevant for end users with disabilities, and the applicable measurement methods for these QoS parameters, as well as statements on the content and format of publication of the QoS information and the quality certification mechanisms.

### **Public warning systems**

The Bundesnetzagentur assisted BEREC with the guidelines on assessing the effectiveness of public warning systems transmitted by different means, pursuant to section 110(2) subparagraph 2 EEC. The guidelines provide a method to analyse and compare the effectiveness of electronic warning systems to enable member states to meet their obligations under section 110 of the Code. Section 110 gives member states until 21 June 2022 to deploy an electronic public warning system to warn of imminent or developing major emergencies and disasters. It distinguishes between two types of system: those under paragraph 1 (eg location-based SMS and Cell Broadcast) and those under paragraph 2 (eg app solutions).

The guidelines are for member states planning to deploy a public warning system in accordance with section 110(2), since paragraph 2 systems must be at least as effective as a comparable paragraph 1 system.

### **Co-investment**

The Bundesnetzagentur also contributed to the guidelines on co-investments. Under section 76(1) EEC, undertakings designated as having significant market power may submit co-investment offers intended for third parties on the rollout of very high capacity networks to the NRA and have the NRA

assess the commitments therein. Co-investment offers can potentially result in the deregulation of the new network. To ensure such co-investment offers do not inhibit competition, in particular where the company with significant market power is the provider for co-investment projects, section 76(1) requires the fulfilment of certain criteria – eg the offer to co-invest must be on fair, reasonable and non-discriminatory terms. The NRAs in the member states must assess co-investment offers for compliance with these conditions.

The guidelines provide further clarification on the criteria listed in the EEC and offer guidance for the NRAs and the companies concerned. They were published on 11 December 2020 following a public consultation in summer 2020.

### **Common approaches to the identification of the network termination point in different network topologies**

In early March 2020 BEREC published its guidelines on common approaches to the identification of the network termination point in different network topologies, designed in accordance with section 61(7) EEC. The guidelines propose uniform criteria to be used as far as possible by the NRAs when identifying the network termination point in public electronic communications networks. The NRAs are to take the utmost account of these guidelines as far as possible when determining the network termination point.

### **Common criteria for the assessment of the ability to manage numbering resources by undertakings other than providers of electronic communications networks or services**

The Bundesnetzagentur was represented on the BEREC Working Group that drew up the guidelines on common criteria for the assessment of the ability to manage numbering resources by undertakings other than providers of electronic communications networks or services (non-ECN/ECS entities) and the risk of exhaustion of numbering resources if numbers are assigned to such undertakings.

The guidelines propose uniform conditions Union-wide for assigning numbering resources to non-ECN/ECS entities pursuant to section 93(2) EEC. This newly introduced piece of legislation is intended to take account of recent trends and address the growing demand for numbering resources from non-ECN/ECS entities. In order to take prompt action for continuing the assignment of numbering resources, the guidelines also propose a procedure and uniform criteria for assessing the risk of exhaustion.

The higher demand for numbering resources from non-ECN/ECS entities is mainly due to the spread of machine-to-machine (M2M) services and the development of connected devices and products (wearables, connected cars, smart homes etc).

### **Very high capacity networks**

BEREC adopted its guidelines on very high capacity networks on 1 October 2020 following a public consultation. The guidelines specify which criteria a network must meet in order for it to be considered a VHCN by the NRAs.

Broadly speaking, a network is considered a VHCN if it meets (at least) one of the criteria specified in margin number 18 of the guidelines. A VHCN must therefore meet one of the following conditions (simplified):

- Criterion 1: Fixed-line connection with a fibre roll out at least up to the multi-dwelling building
- Criterion 2: Wireless connection with a fibre roll out up to the base station
- Criterion 3: Fixed-line connection capable of delivering, under usual peak-time conditions, services to end users with a certain quality of service (performance thresholds 1).
- Criterion 4: Wireless connection capable of delivering, under usual peak-time conditions, services to end-users with a certain quality of service (performance thresholds 2).

The performance thresholds 1 and 2 determine the thresholds for various parameters (eg downlink data rate, uplink data rate, IP packet error ratio etc). The threshold values were determined by BEREC on the basis of a data collected from the network operators. In future, the guidelines will play a role in the implementation of EECC rules, eg within the framework of section 61(3) subparagraph 3(a) or with respect to certain VHCNs when applying section 76.

### **Best practices report on adequate broadband internet access service**

On 11 June 2020 BEREC published a report on best practices to support the defining of adequate broadband internet access in the context of the new universal service rules, compiled jointly with Bundesnetzagentur experts. The EECC requires each member state to define adequate broadband internet access service in line with national conditions and in consideration of the bandwidth used by the majority of consumers within its territory, and to make at least the bandwidth available that is necessary to support the minimum set of services defined in

Annex V of the Code (e-mail, search engines, internet banking etc).

Given that no tried-and-tested procedure for determining the adequacy of broadband internet access services on the basis of the EECC was in place in 2020, BEREC's report looked at the respective bandwidths in nine member states determined under the existing regulatory framework as sufficient to safeguard "functional internet access" and the principles underlying this determination.

### **Relevant Markets Recommendation**

The European Commission published a draft update to the Relevant Markets Recommendation in summer 2020. BEREC fulfilled its obligations under the EECC and in October 2020 issued an opinion in response to the draft. Given the recommendation's role as a central component of telecommunications regulation, the Bundesnetzagentur worked together with BEREC on this opinion.

In contrast to the version (from 2014) valid until 21 December 2020, the new Relevant Markets Recommendation only contains two wholesale markets it deems susceptible to regulation: the market for local loop access and layer 2 bitstream, and the market for access to dedicated capacity. The markets for access to mass-market products (layer 3 bitstream) and for call termination are no longer deemed susceptible to regulation – a critical step in BEREC's view, not least because regulation remains a necessity given the unchanged market situation in most member states. The changes would impede regulatory intervention should it become necessary.

The new Relevant Markets Recommendation was adopted by the Commission on 18 December 2020.

### **Euro rates**

The EECC sets uniform price caps on voice termination rates in the mobile and fixed networks Union-wide. This required the European Commission to adopt a delegated act by 31 December 2020, which took into consideration the BEREC opinion submitted to the Commission in October 2020. Through its contribution to formulating this opinion, the Bundesnetzagentur was able to ensure that important changes with respect to the definition of termination services were included in the final wording of the act. European operators are now free to structure their termination rates as they see fit, provided they do not exceed the maximum rates stipulated. Previously, the rates had to be approved by the competent authorities in the member states.



Alongside the uniform price caps, the delegated act also includes a new and simplified definition of call termination, as well as rules on voice calls originating from non-EU countries. The latter aims to prevent European operators from having to pay higher call termination charges to operators in non-EU countries who, in turn, as a rule pay lower termination charges (as regulated by the single Union-wide rates).

However, the delegated act does not govern the additional services required for voice call termination. These remain the remit of the NRAs, which are responsible for regulating the prices.

### **Digital Services Act/Digital Markets Act**

On 15 December 2020 the European Commission presented a draft comprehensive set of rules on digital-market regulation. The Commission intends for the Digital Markets Act to enable ex ante regulation of digital platforms within the framework of EU competition law. The main goal of the Digital Services Act is to update the E-Commerce Directive by setting out the obligations and duties incumbent upon online intermediary services (including their content), from "micro" service providers to very large online platforms.

In 2020 the Bundesnetzagentur contributed to BEREC's response to the Commission's public consultation. In it, BEREC recognised how digital platforms contribute to innovation and generate advantages for consumers, but in parallel it raised concerns regarding the growing market power of some digital platforms and the resulting control they are afforded over goods and services. Not only that, but their control also extends to data and information that is necessary for effective competition and continual innovation. BEREC therefore recommends ex ante regulation tailored specifically to the digital environment.

Following publication of the Commission's concrete legislative proposals, at the end of December BEREC began work on a position paper on the Digital Markets Act to clearly highlight the differences between the draft legislation and BEREC's response. BEREC plans to issue further opinions in the course of the legislative process, which is expected to take around 18 months.

### **Access recommendations**

The European Commission plans to reform the recommendations on access to the network of the operator with significant market power. These are: the

"Next Generation Access Recommendation" from 2010 and the "Non-discrimination obligations and costing methodologies Recommendation" from 2013. To this end, the Commission consulted with BEREC, market participants and associations by way of an extensive questionnaire.

BEREC published an opinion on 2 October 2020 in which it welcomed the need to make adjustments in line with the EECC, but also noted that the recommendations should neither extend beyond the framework laid down by the EECC nor overlap with the BEREC Guidelines (see above). The goal is to ensure that the future access recommendation can be applied to all relevant markets susceptible to ex ante regulation, as well as being relevant for the roll-out and use of next-generation networks, especially very high capacity networks.

The Commission is preparing a new draft of the recommendations, which it will submit for opinion to BEREC in the second half of 2021.

### **5G Radar 2020–2026**

5G is of strategic importance for BEREC and has thus been the focus of activities in several BEREC Working Groups and other bodies for several years. 5G poses challenges ranging from work on standards, interoperability and new business models, to spectrum availability and issues surrounding network safety and resilience.

In December 2020 BEREC presented the 5G Radar 2020–2026, which will help BEREC and the NRAs to identify needs relating to 5G and address them according to urgency. The 5G Radar complements BEREC's annual work programme and provides a longer-term framework for planning future tasks. The 5G Radar is not a collection of specific projects, but rather an indicator of possible trends that could require regulatory attention in the future.

### **Net neutrality**

BEREC published an updated version of its Net Neutrality Guidelines in June 2020 following comprehensive public debate and a public consultation on the draft revision. In light of its experiences gained in the practical application of European rules on net neutrality and the existing Net Neutrality Guidelines, BEREC incorporated an array of clarifications. For example, BEREC added a guide to evaluating zero-rating products and similar offerings. Other changes relate to the permissibility of end point-based blocking, eg to provide parental control or filtering functions.

In 2020 BEREC again published a report on the implementation of net neutrality regulation. From March 2020 onwards, the NRAs reported regularly to BEREC on the situation in the networks and any regulatory or other action taken in view of the Covid-19 crisis, including details of the measures implemented. BEREC compiles this information in a report to the European Commission and publishes the data on the BEREC website. In November 2020 BEREC published a report for the period from March 2020. Overall, it revealed that the increase in remote working and the growing use of streaming services are not leading to problems with the availability or general quality of internet access services in Europe. The same goes for Germany.

### **International roaming/intra-EU calls**

Some three years after the definitive abolition of roaming surcharges with the introduction of the "roam like at home" principle, the European Commission presented its first interim report to the European Parliament and Council at the end of 2019 and made a start on reforming the Roaming Regulation. With the current rules due to expire in June 2022, a review and revision is necessary.

BEREC was asked by the European Commission to provide its expert opinion on the preparation of the impact assessment and the legislative proposal for the new Roaming Regulation. The contributions prepared by BEREC together with the Bundesnetzagentur supplement the two documents BEREC submitted to the Commission in 2019 on the preparation of the interim report.

The Bundesnetzagentur also collected further data from German-based mobile providers for BEREC's roaming statistics, which it made available to BEREC to use in its International Roaming BEREC Benchmark Data Reports and the 8th BEREC Report on Transparency and Comparability of International Roaming Tariffs.

The first yearly update to the benchmarks in the BEREC Guidelines on the approval of additional charges to ensure the sustainability of intra-EU communications was scheduled for 2020. The Bundesnetzagentur was on hand throughout this process. The updated guidelines were published in October 2020.

The Bundesnetzagentur also complied with the new regulations on intra-EU communications introduced on 15 May 2019 requiring the authority to collect data on these services from telecommunications

providers and forward the data to BEREC for the first Intra-EU Communications BEREC Benchmark Data Report, published in early October 2020.

### **General Authorisation database**

The member states database required pursuant to section 12 EECC for recording all reports from providers of electronic communications services was completed in 2020. The first step was to agree a data sheet with the NRAs for uploading national data. Work then started on creating the EU database in mid-2020 and was completed on time for the scheduled launch date of 21 December 2020.

## **International spectrum management**

### **ITU Radiocommunication Sector**

Work in the ITU-R was dominated in 2020 by the coronavirus pandemic. All physical meetings were halted in March before being held virtually and within limited time frames from April onwards. Work focussed initially on organisational decisions for the 2020–2023 study cycle, in particular in relation to World Radiocommunication Conference topics. At the moment, it is unclear if WRC-23 can go ahead on the date scheduled. Despite setting up correspondence groups to work on ongoing topics between the meetings, the global distribution of participants is hampering progress somewhat.

During the preparations for WRC-23, it became clear that members hold different positions on the possible harmonisation of 7 Hz spectrum for mobile broadband, the future of the UHF band, and determinations for IMT technology in the fixed service. Opinions also vary greatly with regard to satellite communication links for unmanned aerial vehicles.

Consensus had already been reached at the WRC on the proposed approach for intelligent transport systems for road, rail and aviation. Despite intense debate on the use of satellites or high-altitude platform stations to provide broadband coverage, the participants were able to agree on global solutions.

### **CEPT's Electronic Communications Committee (ECC)**

The Bundesnetzagentur cooperated with other European regulatory authorities in 2020 to offer support with numerous technical and regulatory studies and help finalise European spectrum rules <https://www.ecodocdb.dk/home>.

Notably, the ECC adopted a number of decisions modifying the technical conditions for MFCN to ensure suitability for 5G in the 900 MHz, 1800 MHz,

2.1 GHz, 2.6 GHz, 3.6 GHz and 26 GHz bands. The ECC took account of the coexistence of MFCN with other radio applications in these and adjacent frequency bands, eg the Future Railway Mobile Communication System, as well as aspects of synchronisation and coordination at borders. It analysed the impact of the use (operation and data traffic) of unmanned aerial vehicles (drones) on existing mobile networks. The findings are also relevant for further types of "aerial user equipment" in other deployment scenarios. The ECC issued new or revised existing decisions on, among other things, intelligent transport systems in the 5.9 GHz band, future WLAN use in the 5935–6425 MHz band, future radio applications for rail operators, and several areas of satellite communications.

### **Radio Spectrum Committee (RSC)**

The European Commission's Radio Spectrum Committee draws up implementing decisions binding on all member states with the aim of harmonising radio spectrum policy.

In the reporting year, in preparation for the deployment of 5G, the RSC harmonised and/or updated the conditions for MFCN in the bands 2.1 GHz, 2.6 GHz and 26 GHz.

A new implementing decision was also drawn up for intelligent transport systems, which harmonises the use of the 5875–5935 MHz band for road and urban rail systems EU-wide <https://ec.europa.eu/digital-single-market/en/radio-spectrum-committee-rsc>.

### **Radio Spectrum Policy Group (RSPG)**

In the reporting period, the RSPG and the Bundesnetzagentur produced a joint report on the successful WRC-19. RSPG and BEREC also issued a joint opinion on 5G and issues of electromagnetic compatibility, available at <https://rspg-spectrum.eu/rspg-opinions-main-deliverables/>.

## **Standardisation**

### **Standardisation of 5G/5G dialogue platform**

The 3rd Generation Partnership Project (BEREC) is the major driver behind 5G standardisation. 3GPP completed the second phase of 5G development in the form of Release 16, albeit with some delays due to the pandemic situation. Release 16 broadens the applicability of 5G, eg to aircraft communication, the Internet of Things, private 5G networks and industrial use. 3GPP is now working on Release 17, which will incorporate an array of further improvements and innovations.

The Bundesnetzagentur is an active partner of 3GPP. The Bundesnetzagentur also moderates a 5G dialogue platform (AP5G) to give 5G user businesses and industries in Germany a direct channel to 3GPP to voice their standardisation needs.

### **Artificial intelligence (AI)**

The Bundesnetzagentur actively contributes to the standardisation of AI applications in the telecommunications sector at national (DIN, DKE) and international (ETSI, ITU-T) level.

Its activities focus on network processes managed using software-defined models (ITU Focus Group on Machine Learning for Future Networks including 5G, the ETSI Smart Machine-to-Machine (M2M) Communications committee, and the ETSI Experimental Networked Intelligence Group). To promote the economic development of AI and foster trust and acceptance of AI by industry, customers and end users alike, the Bundesnetzagentur draws up action recommendations and prepares analyses for the Federal Ministry for Economic Affairs and Energy.




## Spread of digital technology in the postal markets and booming online sales

Operators in the postal markets have been turning more and more to digital products and processes. The boom in online shopping during the Covid-19 pandemic has led to growth in parcel volumes and revenues. Letter volumes have continued to decline because of the shift towards electronic alternatives for personal and business communications.

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Strong postal operators providing communities with reliable services are vital for the economy and society. During the Covid-19 pandemic it became clear just how well this works in Germany. National parcel and letter delivery services continued without disruptions.

The postal markets proved themselves to be a stable factor. The CEP (courier, express and parcels) services market continued to grow as in previous years. All the parcel service providers have announced a double-figure percentage increase in CEP volumes in 2020. It is likely that this trend will be reinforced in the coming years.

Digital communications are displacing traditional letters. There was a measurable decline in the letters market in 2019. Deutsche Post Group is assuming a further reduction in volumes in 2020. Its competitors in the letters market are anticipating little change in their figures. Overall, there will be a slight decline in volumes.

## Market watch<sup>1</sup>

Developments in the postal markets have been characterised by the spread of digital technology. Growth in the CEP (courier, express and parcel) services market continued into 2019, driven by the steady growth in e-commerce, which in turn was boosted by the Covid-19 pandemic. The letters market reported further decline in 2019.

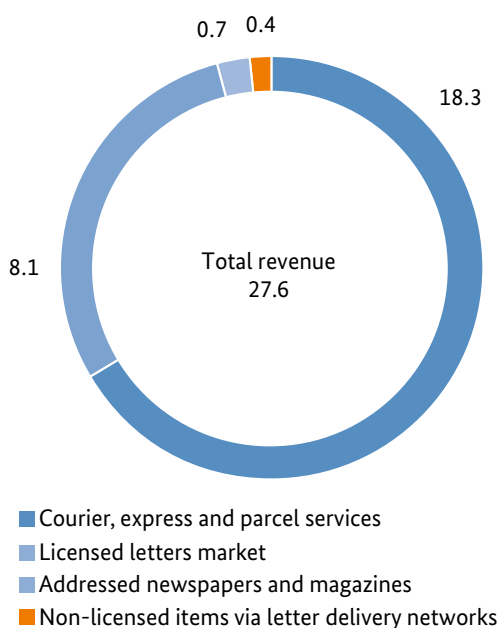
## Markets in the postal sector

The markets in the postal sector comprise CEP services, the (licensed) conveyance of letters weighing up to 1,000g, the delivery of addressed newspapers and magazines (press distribution), and the (non-licensed) conveyance of other postal items, usually via letter delivery networks.

In 2019 the postal markets generated total revenues of €27.6bn, marking an increase from the previous year (€27.3bn) of around 1.2%. The letters and CEP markets showed vastly opposing trends, with the CEP market again the primary growth driver. Revenues in the CEP market rose by around 3.5% from €17.7bn to €18.3bn.

By contrast, licensed letter revenues fell in 2019 by 2.7%. There was also a further decline in letter volumes due to electronic communications via email, SMS and other messaging and internet-based services. A positive trend in the postal markets is anticipated for 2020 as well.

Revenues in the postal markets 2019  
€bn



<sup>1</sup>Developments in the markets are presented using revenue and volume figures. The absolute figures have been rounded. The percentages have been calculated using non-rounded revenue and volume figures for reasons of accuracy. The figures in the text, charts and tables may therefore differ.

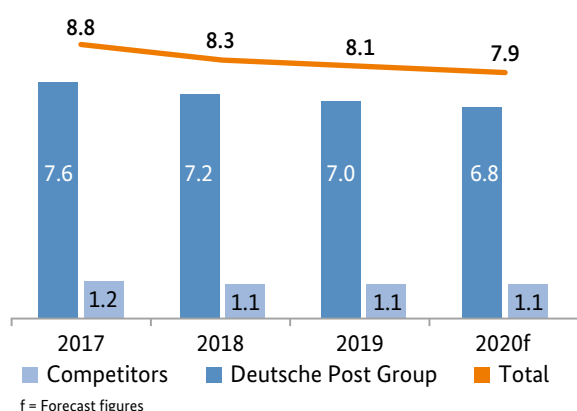


## Letter services

### Revenues

Licensed letter services (letters up to 1,000g) reported a further decline in revenues from about €8.3bn in 2018 to €8.1bn in 2019. Decreasing or stagnating revenues are expected in 2020 across the licensed market.

Licensed letters market revenues by provider group  
€bn



The competitors to Deutsche Post Group in the licensed letters market again reported revenues of around €1.1bn for 2019. The competitors' revenues were therefore largely unchanged from 2018. The competitors also anticipate no changes in revenues for 2020, with forecasts of about €1.1bn.

Deutsche Post Group achieved revenues in the licensed letters market of around €7.0bn in 2019, a decline of 3.3% on the figure of €7.2bn for 2018. A further decline in revenues has been forecast for 2020.

There has been a small shift in the revenue-based shares in the licensed letters market over the years. There has been a slight decrease in the overall share of Deutsche Post Group from 86.5% in 2018 to 85.9% in 2019. The revenue-based market share of Deutsche Post Group's competitors consequently increased from around 13.5% to around 14.1% in 2019.

Revenue-based shares in the licensed letters market  
%

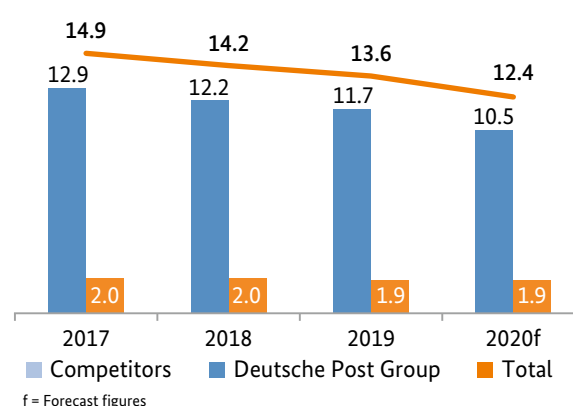
Year	2017	2018	2019	2020f
Deutsche Post Group	86.4	86.5	85.9	85.7
Competitors	13.6	13.5	14.1	14.3

### Volumes

The total volume in the licensed letters market fell by about 4.3% from 14.2bn items in 2018 to 13.6bn in 2019. At Deutsche Post Group the volume fell by 3.8% from around 12.2bn items in 2018 to around 11.7bn in 2019.

By contrast, volumes for its competitors remained practically unchanged. The number of items the competitors conveyed in 2019 was still at around 2.0bn.

Licensed letters market volumes by provider group  
Billion items



Deutsche Post Group is assuming a further decline in volumes in 2020. Its competitors are anticipating little change in their volumes. Overall, a decline in volumes is therefore expected.

Volume-based shares in the licensed letters market  
%

Year	2017	2018	2019	2020f
Deutsche Post Group	86.6	86.9	86.0	85.2
Competitors	13.4	14.1	14.0	14.8

Deutsche Post Group continues to dominate the licensed letters market. On account of its high revenue-based share of just under 86% in 2019, no fundamental shift in market shares in favour of the competitors is expected in the future despite the decline in volumes. Forecasts for 2020 show an increase in the competitors' volume-based share to about 15% and therefore a decrease in Deutsche Post Group's share to around 85%.



### Competitive structure

The competitors to Deutsche Post Group offer their services primarily to business customers. In 2019 the revenue-based percentage ratio of business to personal customers served by the competitors was about 98% to 2%.

Proportionally high wage costs and continued low margins make it difficult for the competitors to expand their position in the end-to-end letters market to any considerable extent. Setting up and maintaining alternative nationwide delivery networks is difficult in light of the decline in volumes and the consequently low degree of usage of the networks.

In 2019 27% of revenues were accounted for by just 1% of the competitors, which form the top-five group, while the top ten represent 36.8% of revenues.

### Competitors' revenue concentration 2019

	TOP 5	TOP 10	TOP 20	Remainder
Revenue share	27.0	36.8	48.7	51.3

### National stamp prices

Deutsche Post AG's standard letter stamp price is €0.80. The price had been approved by the Bundesnetzagentur with effect from 1 July 2019 until 31 December 2021.

### Stamp prices for letters\* (Deutsche Post AG) in Euro

Year	2010–2012	2013	2014	2015	2016–2018	from 2019**
Standard letter up to 20g	0.55	0.58	0.60	0.62	0.70	0.80
Compact letter up to 50g	0.90	0.90	0.90	0.85	0.85	0.95
Large letter up to 500g	1.45	1.45	1.45	1.45	1.45	1.55
Maxi letter up to 1,000g	2.40	2.40	2.40	2.40	2.60	2.70
Postcard	0.45	0.45	0.45	0.45	0.45	0.60

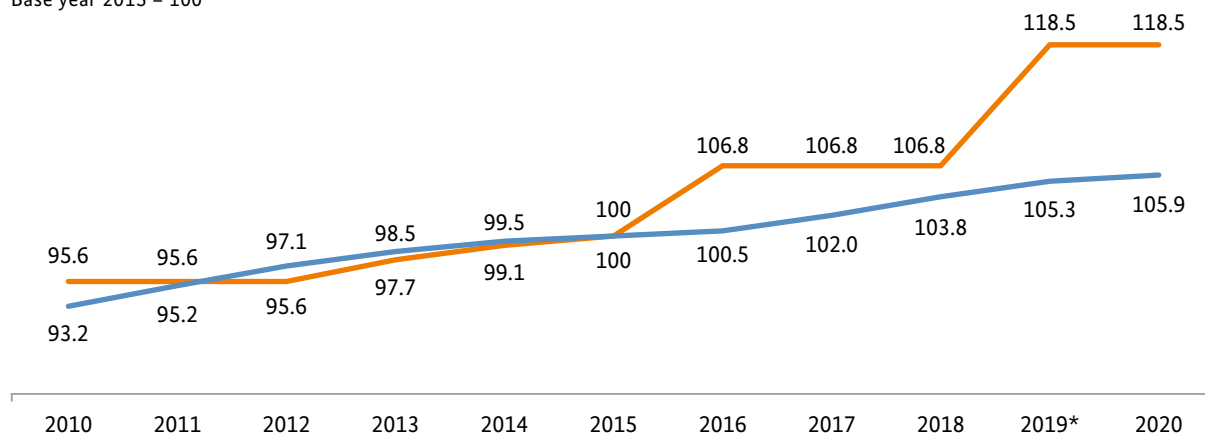
\*As at 1 January each year

The previous letter price increase introduced in 2016 was the first to be considerably higher than the increase in the consumer price index. With the postal charges unchanged between 2016 and 2018, the difference between the general consumer price index and the letter stamp price index narrowed to three

points but has now widened again on account of the price increases approved with effect from 1 July 2019. There was a clear increase in the letter stamp price index to 118.5, which has continued into the first half of 2020.

### Consumer prices and Deutsche Post AG letter prices

Base year 2015 = 100



— Consumer price index (expenditure on products in basket of goods for private households in Germany); basis: 2015 = 100%; source: Federal Statistical Office

— Deutsche Post AG letter price index (single-piece standard, compact, large and maxi letters and postcards); basis: 2015 = 100%

\* Price increases as from 1 July 2019

### European stamp price comparison

In May 2020 the Bundesnetzagentur published a comparison of the prices for standard, compact, large and maxi-size letters for personal customers. The prices were compared with those for products offered by universal service providers in a total of 31 different European countries.

Deutsche Post AG's inflation-adjusted prices for all four basic products are below the European averages for guaranteed next-day delivery (D+1) services. The standard letter price was compared with the most common products. The comparison showed that Deutsche Post AG's inflation-adjusted price is €0.05 above the average. The picture is similar when including products with a delivery speed other than D+1. The prices for large and maxi letters are well below the European averages, with a price difference of €1.22 and €1.23 respectively.

### Courier, express and parcel (CEP) services

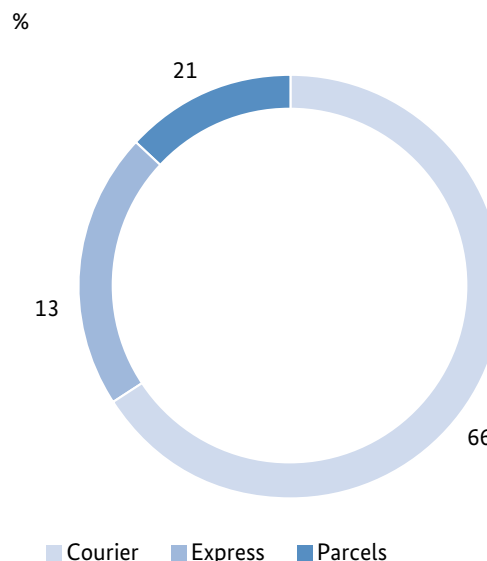
In light of the increasing importance of CEP services (especially parcel services) for the postal markets in Germany, the Bundesnetzagentur has been collecting its own data from market participants since 2018. This enables the Bundesnetzagentur to gain a full insight into market activities.

According to the Bundesnetzagentur's definition, only CEP services for items with an individual weight of up to 31.5kg are included, in order to make a clearer distinction between the postal markets and the freight and logistics markets.

Most of the revenues in 2019 were again generated in the parcels market. The vast majority of items in the CEP market are parcels. Only a comparatively small proportion are express items, although the relative revenue for these items is considerably higher. This is reflected in much higher unit revenues for express services when comparing revenues and volumes for the individual segments.

Parcel services made up around 66% of revenues (2018: around 65%). The express market generated 13% of revenues (2018: around 15%) and the courier market around 21% (2018: around 20%).

### Revenue shares 2019



### Revenues

In 2019 total revenues in the CEP market amounted to €18.3bn. Courier services accounted for around €3.8bn and express services for €2.3bn. Parcel services (domestic and international parcels) again made up the largest share of revenues in the CEP market in 2019 at €12.2bn.

### CEP market segment revenues

€bn*				
Year	2017	2018	2019	
Courier	3.6	3.6	3.8	
Express	2.9	2.6	2.3	
Parcels	10.2	11.4	12.2	
Total	16.6	17.7	18.3	

\*Discrepancies in the table are due to rounding.

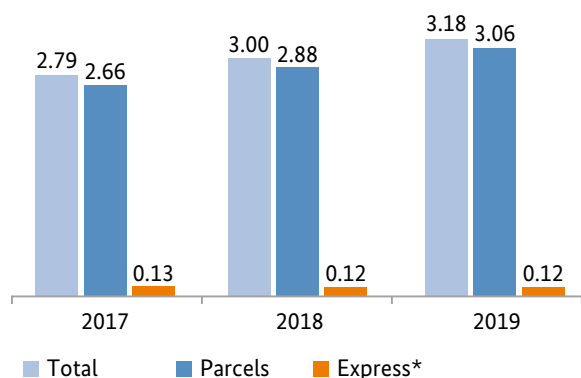
\*\*The figure for the express segment for 2017 is not comparable with the figures for the following years. The decline shown in the table is due to the use of more exact definitions.

### Volumes

In 2019 a total of around 3.18bn express and parcel items were conveyed. This represents an increase of 6.2% on the previous year (2018: 3.00bn items). As with revenues, volumes continued to follow the upward trend of previous years. Total parcel volumes increased from 2.88bn items in 2018 to 3.06bn in 2019. Express volumes in 2019 were largely unchanged from 2018.

### Parcel and express volumes

Billion items



\*The figure for the express segment for 2017 is not comparable with the figures for the following years. The decline shown in the table is due to the use of more exact definitions.

The volume of items in the courier market cannot be determined as for the parcels or express market. Courier service providers do not always record individual items but rather the number of journeys made, hence no figures for volumes in the courier market are included here.

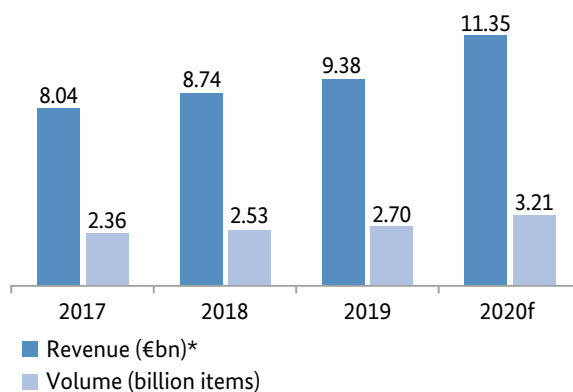
### Parcel services

Economic developments in the parcels market are being driven by the growth in online shopping and the resulting increase in parcel volumes. In 2019 total revenues in the parcels market amounted to €12.2bn. This was around 6.4% more than in the previous year. In 2018 parcel revenues had totalled €11.4bn.

Domestic parcel revenues increased 7.4% year-on-year (2018: €8.74bn; 2019: €9.38bn).

Domestic parcel volumes increased slightly less, by just under 6.7% year-on-year (from 2.53bn items in 2018 to 2.70bn items in 2019). Parcel operators forecasted further increases in revenues and volumes for 2020.

### Domestic parcels market



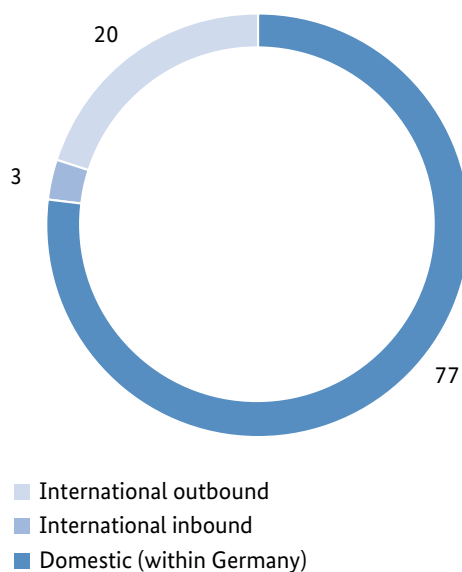
f = Forecast figures

\*The figure for 2018 has been corrected due to changes in the breakdown between domestic and international revenues.

Domestic parcels made up 77% of total parcel revenues in 2019. International outbound parcels represented 20%. Most of these revenues were from parcels to EEA (European Economic Area) countries. International inbound parcels made up 3% of total revenues. The majority of these parcels came from EEA countries.

### Revenue-based shares in the parcels market 2019

%



### Courier and express services

The proportion of B2C (business to consumer) items is expected to increase in both the courier and the express services market, primarily because of changes in customers' needs, such as same-day delivery.

Express service revenues amounted to €2.3bn in 2019. This represents a decrease of 10.8% from 2018 (€2.6bn). Courier service revenues increased by 4.7% from about €3.6bn in 2018 to €3.8bn in 2019.

### Market structure and competition

The structure of the individual markets in the CEP sector is very different. The courier services market is characterised by a large number of small operators, mostly sole proprietorships and mostly regional operators. Some of the operators (such as GO! and inline Kurierdienst) work in large networks. The German courier services market is generally seen to be a saturated and fully segmented market. Courier services mainly operate in the B2B (business to business) segment. Customer demand for same-day delivery of goods bought online is opening up opportunities for courier services to operate in the B2C segment. Express services are provided in Germany by global operators (such as DHL, UPS and FedEx) as well as national operators (medium-sized businesses) that sometimes work in partnership with other operators (such as GEL and GO!). Additional potential for growth is being created by e-commerce and the associated increase in demand for express services in the B2C segment.

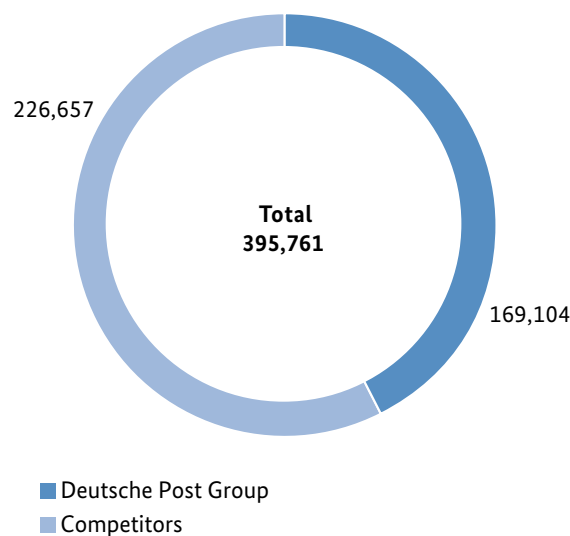
The national parcels market is largely characterised by competition. Although the market has recently recorded particularly high growth rates, from which most of the parcel operators have benefited, there is still a large gap between the market leader and the next biggest competitor in terms of their revenue-based shares in the market.

Alongside the five major operators – Deutsche Post DHL, DPD, GLS, Hermes and UPS – there are a large number of smaller providers in the parcels market with considerably lower volumes and revenues. These companies include those whose main business is in other areas (such as express delivery) or only operating in market niches (for example delivering outbound international parcels to particular countries).

### Employment trends

In 2019 a total of 395,761 people were employed in the postal markets. This figure comprises employees providing services in the postal markets in Germany plus the estimated number of employees at subcontractors. It does not include employees performing tasks other than postal services in the companies or employees in other countries.

### Employees in the postal markets 2019



### Deutsche Post Group employees

#### Competitors' employees

The number of employees is expected to have risen in 2020. Booming online sales – partly due to the Covid-19 crisis – and growth in revenues and volumes are contributing factors.

No distinction is made between employees in the letters and CEP markets. The convergence of letter and parcel delivery services (in particular because of delivery partnerships and smaller goods items that fit through letterboxes) makes it increasingly difficult to distinguish between the employees in the two markets.

## Market access

### Licensing

During the period from 1998 to 2020, the Bundesnetzagentur issued more than 3,200 licences to individual business people, business partnerships and corporations for the conveyance of letters weighing up to 1,000g. The number of new licences issued in 2020 was 39 (2019: 23). A total of 40 licensed operators exited the market because their licences expired or were revoked or returned (2019: 98). The number of new licences issued in 2020 therefore increased again compared to 2019. The number of market exits is still higher than the number of entries, but the gap is considerably smaller compared to the previous year. The total number of valid licences currently stands at 1,115.

### Regulatory offence proceedings

Fines can be imposed for various breaches of the provisions of the German Postal Act (PostG). In practice, by far the most common regulatory offence is failing to give notice of the provision of postal services, followed by conveying letters without a licence. All of the breaches investigated in 2020 involved failing to give notice. These breaches qualify as minor

regulatory offences. The Bundesnetzagentur issued 29 warnings and imposed four fines (in some cases following warnings).

### Bulk mailers and mail consolidators

In view of the importance of partial services in the letters market, the Bundesnetzagentur now publishes a regular report on the conditions and rates for bulk mailers and mail consolidators; the first report was published in 2019. The aim of the report is to increase transparency with respect to the conditions and rates for partial services. The report in particular presents the development in rates, the conditions for Deutsche Post AG's basic products for partial service items, and the structures and players in the business customer segment.

The report published in 2020 provides updated figures as well as more detailed information about the terms and conditions of the partial service contracts offered by DP IHS (Deutsche Post InHaus Services GmbH) and Compador (Compador Dienstleistungs GmbH), the two mail consolidators affiliated with Deutsche Post AG. The latest report also has separate sections for the partial service rates and conditions for DIALOGPOST and for basic products.

### Rates for bulk mailers and consolidators (with maximum refund) 2020

	Postage rate (€)	Refund (%)		Refund for use of own infrastructure (%)	Partial service rate including refund for use of own infrastructure (€)	
		Mail transported to outward mail centre	Mail transported to inward mail centre		Outward mail centre	Inward mail centre
<b>Standard letter</b>	0.800	41	44	5	0.432	0.408
<b>Compact letter</b>	0.950	33	36	5	0.589	0.561
<b>Large letter</b>	1.550	31	34	5	0.992	0.946
<b>Maxi letter</b>	2.700	29	32	5	1.782	1.701

The partial service rate is the difference between the postage rate for the relevant basic product and the refund applicable in the reporting period.

A particular feature of the letters market is the fact that Deutsche Post AG, as the operator of a nationwide postal network, also competes on the postal market as a mail consolidator through a subsidiary and, alongside the affiliated company DP IHS, has a minority interest in Compador, another mail consolidator. Both

companies are covered by Deutsche Post AG's dominant market position – in Compador's case at least until the change in the shareholders' agreement in 2018 – and are therefore required to present their partial service contracts to the regulatory authority.

The partial service contracts show that DP IHS offers two rate options: average consolidation and franking rates (option 1) and fixed rates (option 2).

**DP IHS average rates**

€

	Option 1		Option 1
	Consolidation rate	Franking rate	Fixed rate
Standard letter (outward mail centre)	0.027	0.021	0.530
Compact letter (outward mail centre)	0.029	0.022	0.707
Large letter (outward mail centre)	0.061	0.043	1.154
Maxi letter (outward mail centre)	0.109	0.064	2.258
Postcard (outward mail centre)	0.014	0.041	0.608

**Parcel price comparison**

The Bundesnetzagentur published its first report on parcel prices in Germany and other European countries in November 2020.

The comparison of parcel prices in Germany covers the largest parcel operators on the German market whose standard services include domestic parcel delivery for personal customers (DHL, DPD, GLS, Hermes). The analysis focuses on standard parcel delivery services for personal customers; in the case of DHL these services mainly comprise the universal service products (parcels up to 20kg).

The companies have different definitions for the products covered in the comparison. While DHL has different prices for different combinations of weights

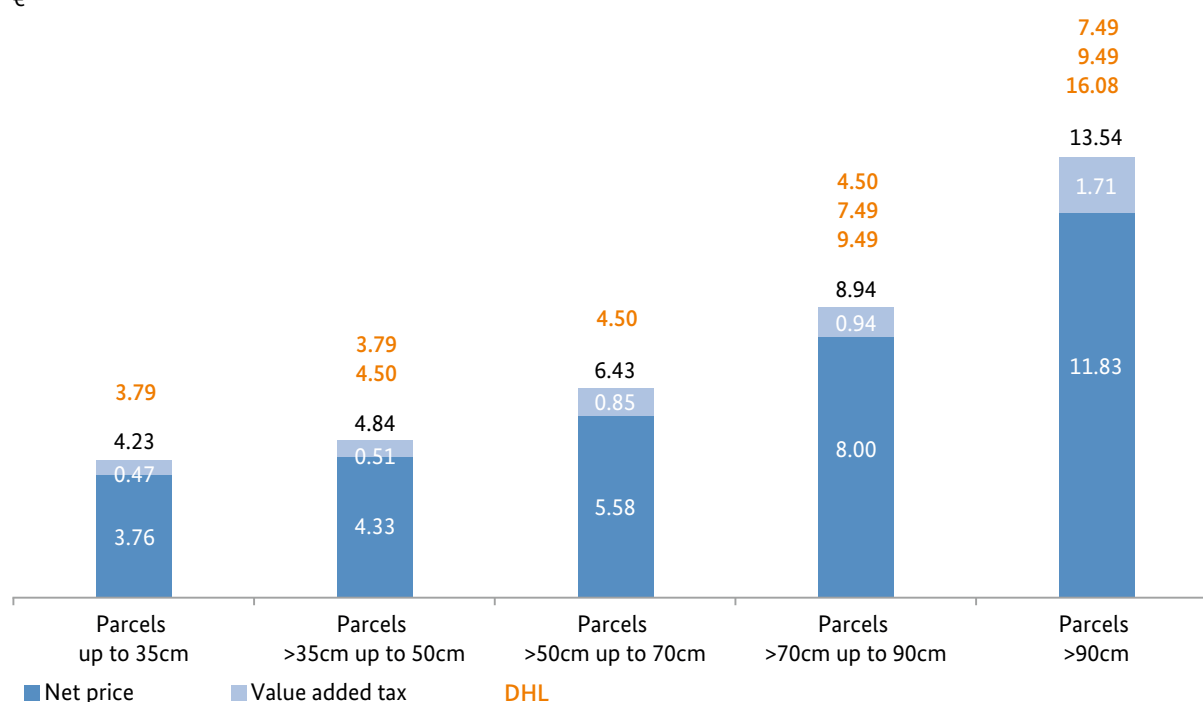
and sizes, the other companies have different prices for different sizes. The prices were compared using the sum of the longest and the shortest size as a criterion.

The international comparison covered the inflation-adjusted over-the-counter prices of the universal service providers in 31 European countries.

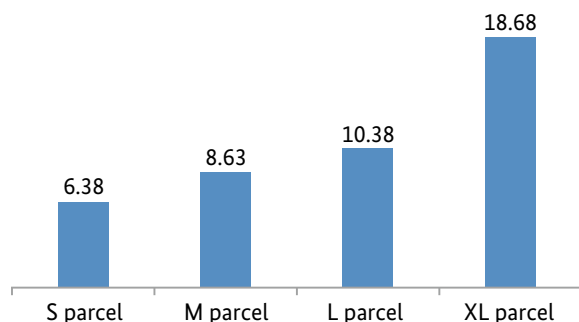
The comparison was based on the German universal service provider's products. Product groups were formed using the products comparable with each of DHL's four parcel products – S, M, L and XL – in each country. Some products in the other countries are comparable to more than one of DHL's products because of differences in size, weight and delivery speed.

**Average over-the-counter prices**

€



### International average prices by product group €



DHL's prices (S: €4.92; M: €7.39; L: €9.36; XL: €15.85) are all lower than the European average.

### Postal secrecy, postal market checks and notification obligation

The Bundesnetzagentur was faced with two major challenges in 2020 with respect to postal market checks and the notification obligation. The first challenge was how to accommodate the Covid-19-related restrictions in its contact-intensive checks. Whenever possible, the Bundesnetzagentur carried out its checks on compliance with the notification obligation and postal secrecy by telephone or in writing.

The second challenge was the significant increase in the demand for postal services as a result of the boom in e-commerce and the consequent rise in the number of companies subject to the notification obligation. These two factors together required a shift away from individual checks to investigating matters by telephone so as to meet the greater demands. The focus of the postal market checks was on haulage, transport and courier services.

The major parcel operators were asked to provide details of their practices for staff delivering parcels. According to the information provided, all the parcel operators instruct their staff to hand over parcels to customers if possible. The parcel operators have different procedures for when a customer is out and has designated a place where their parcel can be left. In some cases, staff are instructed to leave the parcel without checking if the place is suitable; in some cases staff are told to check that the place is weatherproof; and in some cases staff are instructed not to leave the parcel if they think that the place is not secure in terms of postal secrecy. If a parcel cannot be left in the designated place, staff are instructed to leave it with someone else or, if that is not possible, to take the parcel away and let the customer know where they can collect it. None of the delivery instructions

shown to the Bundesnetzagentur had wording that was not compliant with postal secrecy.

With regard to complaints from customers, it should be noted that a postal operator's responsibility in terms of postal secrecy ends when an item has been delivered. An item also qualifies as having been delivered to a customer if the postal operator leaves it in a place agreed with the customer beforehand and if the agreement is not in breach of legislation or any agreements made between the postal operator and the sender.

The Bundesnetzagentur recorded another year-on-year increase in the number of complaints about breaches of secrecy, from 145 in 2019 to 393 in 2020. Customers frequently complained about not receiving mail addressed to them after having their mail redirected from an address previously shared with a partner.

Customers are recommended to check the acknowledgement letter sent to their old address to make sure that the information they gave in their redirection application was correct and complete.

However, most of the complaints (150) received by the Bundesnetzagentur were about wrongly delivered letters. Throughout the year there were complaints from customers about letters that had not been delivered to their address but had been given to them by neighbours or even complete strangers, as well as from customers who had received letters that were not addressed to them. The Bundesnetzagentur regularly contacts the postal operators about these problems.

Operators often say that the reason for letters being delivered to a wrong address is that new staff are unfamiliar with the routine or the area.



## Postal sector mastered challenges in Covid-19 pandemic

The Covid-19 pandemic highlighted the importance of the postal sector for the economy and society. The reliable provision of postal services across the country is essential for communities and the economy.

Access to commerce was restricted because of the safety and hygiene concepts, curfews and lockdown measures in place. The large growth in parcel volumes suggests that many consumers shifted their shopping to online platforms. More people working from home is also likely to have made delivery options easier.

Last year the pandemic not only placed high logistical demands on parcel companies, but forced them to change and expand their work processes as well. The logistics sector responded quickly and flexibly to the special circumstances, developing new concepts and adapting procedures for staff. Extra staff were recruited, more vehicles were used and delivery times were extended or re-structured. Numerous measures to keep both parcel customers and staff safe, such as contactless delivery, are worth a special mention.

The Bundesnetzagentur kept an eye on the impact of the pandemic on the postal sector throughout the year, with regular updates from the postal operators. Companies operating essential postal services were issued with an official confirmation of their activities to ensure that, for example, their staff could still travel to work despite curfews and letters and parcels could still be delivered.

There were only a few instances where operations at key postal infrastructural facilities, such as sorting and distribution centres, were restricted because of the pandemic. Companies were generally able to remedy the problems without any serious setbacks for their customers.

National parcel and letter services were maintained across the country throughout 2020, although there were various restrictions to international services. These were primarily caused by the large reduction in air transport capacities, as well as other countries refusing to accept items, closing borders or introducing border controls. The impact of the pandemic is not expected to fully ease until international air traffic picks up significantly and post can be transported again as additional cargo.



## Consumer protection and advice

The number of complaints was largely unchanged. Many complaints involved more than one issue. Complaints covered all the postal operators. The proportion of parcel complaints about Deutsche Post DHL's competitors was much larger. The number of dispute resolution requests was much higher – especially in the last quarter of 2020.

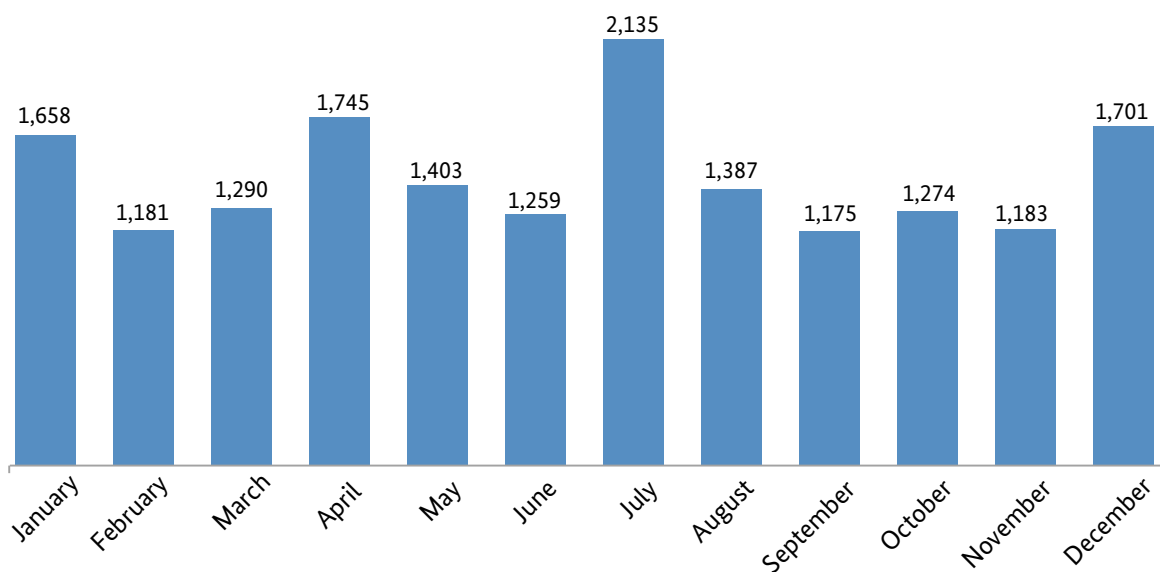
## Consumer advice

In 2020 the Bundesnetzagentur's postal consumer advice team was again a frequent point of contact for customers whose complaints had not met with a satisfactory response or any response from their postal operator. The complaints show that operators do not always adequately deal with customers' questions and criticisms.

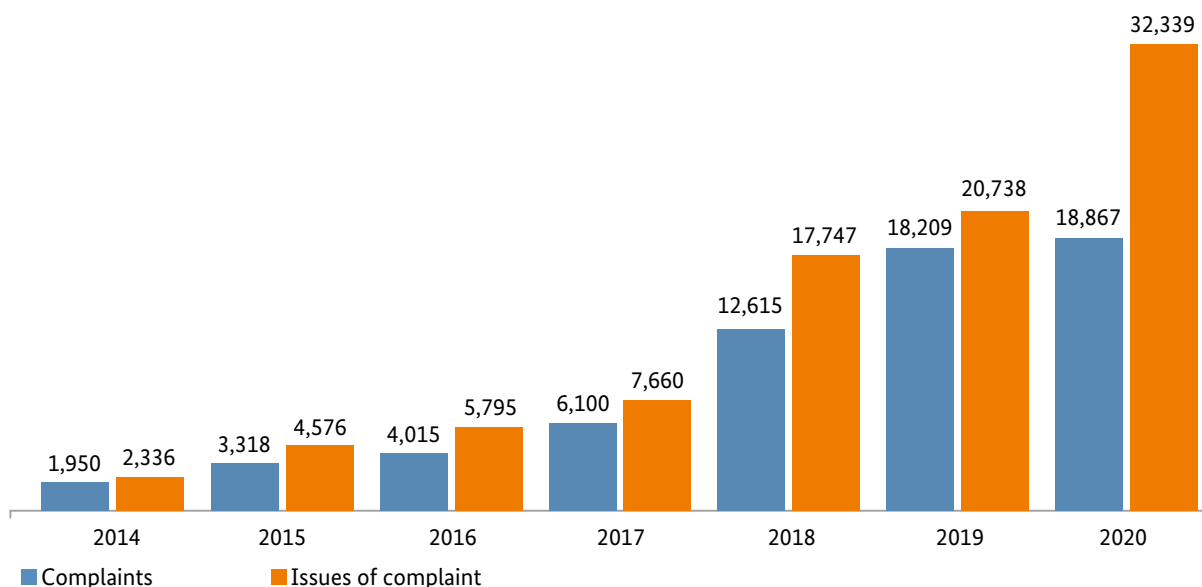
## Complaints

The number of complaints received in 2020 was largely unchanged from the previous year. The Covid-19 pandemic did not have any marked effects on the monthly number of complaints. The only month in which far more than 2,000 complaints were received was July, when Covid-19 restrictions were relaxed.

Complaints per month 2020



## Complaints and issues of complaint 2014-2020



Up to the end of December 2020 the postal consumer advice team received 18,867 complaints, compared to 18,209 in 2019. Many complaints involved more than one issue, and there was an unusually large increase in the number of issues to 32,339 (2019: 20,738 issues). Reasons for this increase include easier use of the online complaints form and wider data collection. In 2020 the majority of the issues related to parcel services and not letter services as in previous years.

The number of complaints made by telephone decreased by about 15% year-on-year from 4,554 in 2019 to 3,859 in 2020.

The most common reason for complaint to the Bundesnetzagentur was problems with letter and parcel deliveries. Postal operators did not always seem capable of consistently implementing and guaranteeing the promised service across Germany. This was the case in particular with Deutsche Post AG.

The Bundesnetzagentur takes complaints about deliveries seriously. As from October 2020 an additional analysis is made each month of the information about delivery problems to break it down into regions and issues and look for any abnormalities (higher number of complaints). If the analysis indicates larger-scale problems in a certain region, a more detailed investigation is made. The Bundesnetzagentur forwards all the complaints about the region to the postal operator concerned and gives the operator a certain amount of time to rectify the problems and report on the action it has taken.

In the reporting period, investigations were made following a large number of complaints relating to three postcode regions: Berlin (13187), Duisburg (47239) and Moers (47445). The complaints were about problems with letter deliveries by Deutsche Post AG. Details of the investigations have been published on the Bundesnetzagentur website.

## Complaint issues

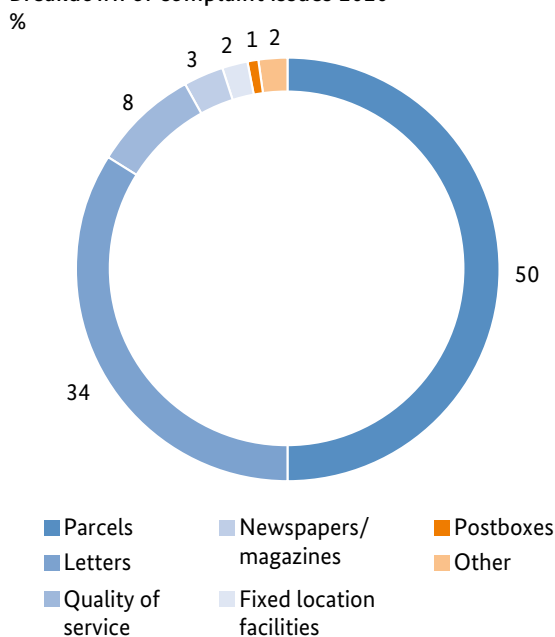
### Letters and parcels

The breakdown of issues of complaint in 2020 is different to that in previous years. For the first time in years just over 50% of issues related to parcel services. A total of 27% of these issues related to Deutsche Post DHL's competitors, compared to 19.5% in 2019. This noticeable increase may be due to the Covid-19 pandemic and the growth in online sales.

Around 34% of all issues related to letter services. A total of 95% of these issues related to Deutsche Post AG. This percentage is slightly lower than in 2019 (around 97%).

All the other issues had single-figure percentages.

Breakdown of complaint issues 2020

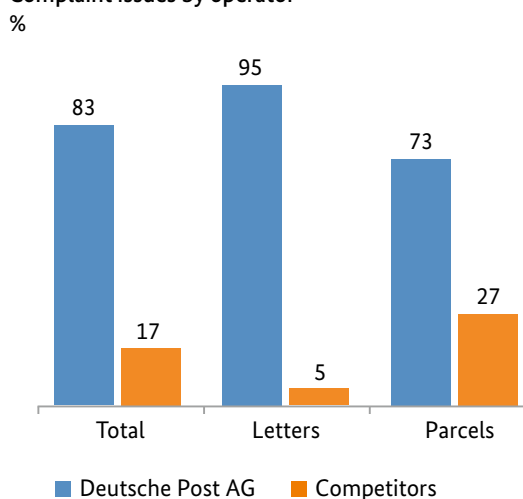


### Parcel complaints

Problems with delivery were – as in recent years – the most common cause of annoyance for consumers. This area of complaint alone accounted for 72% of all parcel complaints in 2020. The main criticism was that often no attempt was made to deliver a parcel to a customer's address. Instead the parcel was left at another address or taken somewhere for collection.

Other causes of complaint were lost, damaged or stolen parcels (14%) and incorrect or inaccurate tracking (5%). The remaining complaints were about parcel stations, parcel boxes and parcel operators' complaints management.

Complaint issues by operator



### Letter complaints

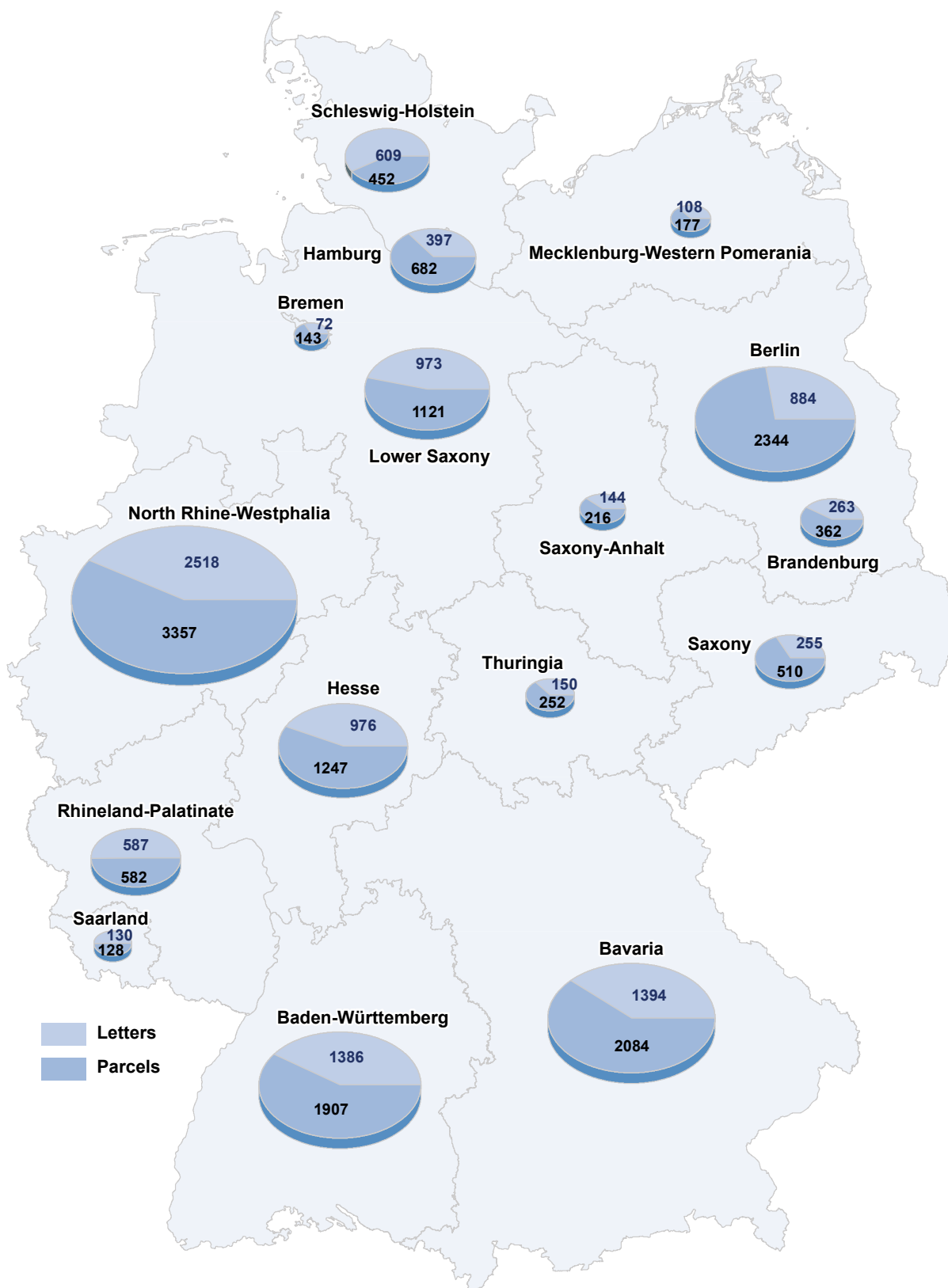
Delivery was also the most common cause of complaints about letter services in 2020 (59%). The main criticisms were delays in delivery and no deliveries over days. Customers also complained about no deliveries on certain days of the week, such as Mondays and Saturdays, over a longer period of time.

Many customers reported a change mostly for a short period following the Bundesnetzagentur's enquiries. Customers often started complaining again about deliveries in certain regions within a few weeks or months.

Other causes of complaint were lost or damaged items (14%) and problems with registered deliveries or special services (9%), as well as prices, redirection services, advertising mail and postage stamps.

### Complaints in federal states and routing regions

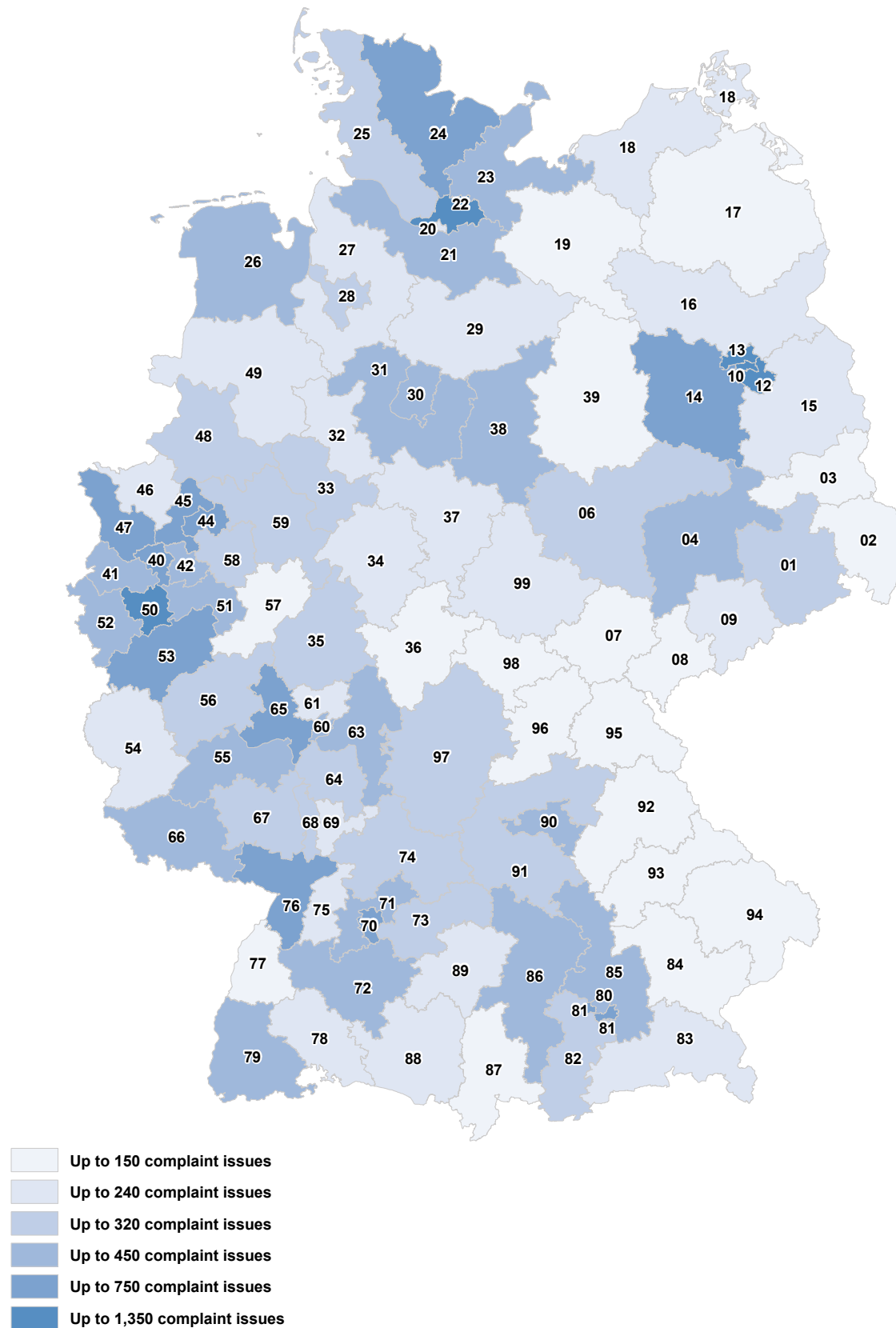
North Rhine-Westphalia was the state with the most complaints about parcel and letter services, followed by Berlin and Bavaria.



The routing regions with the most complaints in 2020 were in and around Berlin, in North Rhine-Westphalia (Cologne and the surrounding area) and

Hamburg and the surrounding area. There is no concentration of complaints in the south of Germany.

#### Complaint issues by routing region 2020



The ten routing regions with the most complaints are in and around Berlin, Hamburg, Cologne and Wiesbaden, followed by Düsseldorf, the Ruhr region and Potsdam. Germany's southern federal states and their routing regions are not in the top ten.

**Top ten regions for complaints 2020**

Routing region	Region	Complaint issues
10	Berlin	1,348
12	Berlin	1,062
13	Berlin	1,048
22	Hamburg and surrounding area	980
50	Cologne (west of the Rhine) and surrounding area	751
65	Wiesbaden and surrounding area	718
40	Düsseldorf and surrounding area	673
47	Duisburg and surrounding area	659
14	Potsdam and surrounding area	604

## Universal service

The Postal Universal Service Ordinance (PUDLV) specifies the content and scope of the basic provision of postal services (universal service). The ordinance also defines certain quality standards for letter and parcel services, and specifies in particular the frequency and modalities of delivery, the number and distribution of post offices or postal retail outlets (fixed location facilities) and postboxes, and the average transit times for letters and parcels. Deutsche Post AG has undertaken to ensure provision of the legally required universal service.

### The Bundesnetzagentur's role

The Bundesnetzagentur checks compliance with the legal requirements for the provision of postal services and for this purpose analyses a vast amount of data on quality criteria (for example transit times, post offices, postboxes) as part of regular monitoring. Selected information is published on the Bundesnetzagentur website.

If the Bundesnetzagentur finds through its quality monitoring and a large number of complaints that there are abnormalities, it will call on the postal operator in question to restore and permanently ensure the legally required quality.

### Letters

Letters must be delivered at least once every working day. Provided no other form of collection has been agreed, letters must be posted through the letterbox or handed to the addressee. If this is not possible, the mail may be left with another person, unless the addressee has issued instructions to the contrary. An annual average of at least 80% of letters posted in Germany must be delivered on the following working day, and 95% must be delivered within two working days. There is no legal right to have a letter delivered within these time limits.

### Transit times and quality measurements

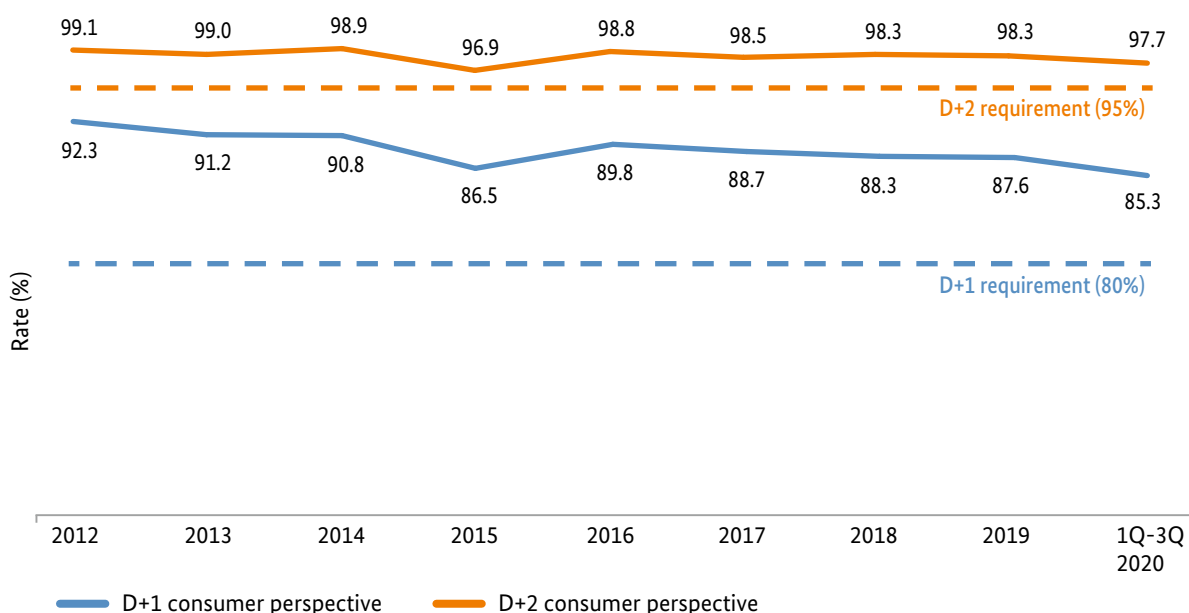
Deutsche Post AG commissions an external independent quality and market research institute certified by TÜV Rheinland to measure its letter mail transit times. The results are presented to the Bundesnetzagentur on a regular basis. The measurements include transit times from a consumer perspective, meaning transit times for all items posted in a postbox or handed over at a post office by 5pm on a working day, measured from that working day.

The statutory transit time requirements for D+1 and D+2 were again met in 2020 (as at the third quarter), with a rate of 85.3% and 97.7% respectively – from a consumer perspective.

There has been a decrease in both rates since 2012.



### Deutsche Post AG letter mail transit times from a consumer perspective



#### Parcels

Parcels must be delivered at least once every working day. Parcels are to be delivered to the addressee personally or handed to someone from the same household or a neighbour, unless the sender or addressee has issued instructions to the contrary. On average over the year, at least 80% of parcels mailed in Germany must be delivered by the second working day.

#### Newspapers and periodicals

Newspapers and periodicals are to be delivered once every working day. Delivery should be made on the day of publication.

#### Post offices and postal retail outlets

There must be at least 12,000 post offices throughout Germany. A post office can also be operated as a postal retail outlet within a retail store. There must be at least one post office in municipalities with more than 2,000 inhabitants. A post office must be located within 2,000 metres in any urban area with more than 4,000 inhabitants. The requirement for the number of post offices was met in the year under review. In 2020 Deutsche Post AG alone operated a total of 12,820 post offices for letter and parcel services.

#### Postboxes

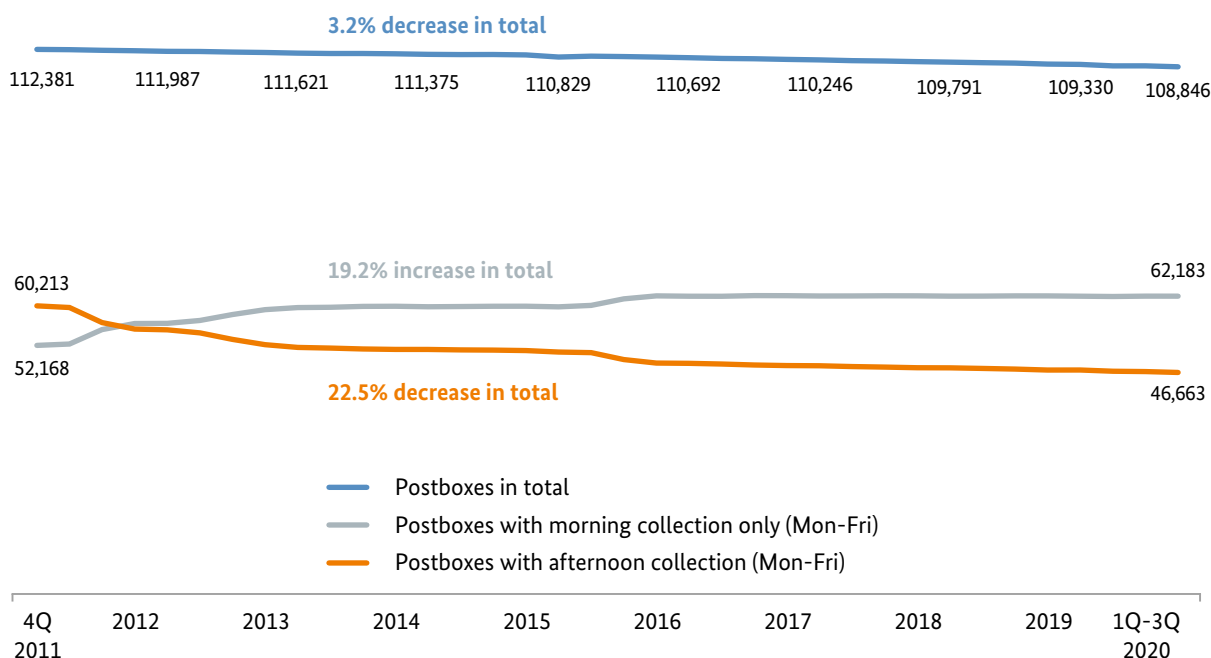
In residential urban areas, a postbox may not be farther than 1,000 metres away. Mail must be collected from postboxes every working day. Collection times must take business and economic needs into account. Mail collection must take place as needed on Sundays and holidays.

In 2020 (as at the third quarter) Deutsche Post AG had 108,846 postboxes located across the country. As there has been a steady but only small decrease in the number of postboxes, the requirements of the ordinance are still met.

As postbox collection times are still important today for many personal customers, as well as for small and medium-size enterprises, the Bundesnetzagentur examined changes to collection times.

Postbox collection times in the morning only are becoming more frequent.

## Deutsche Post AG postbox collection times

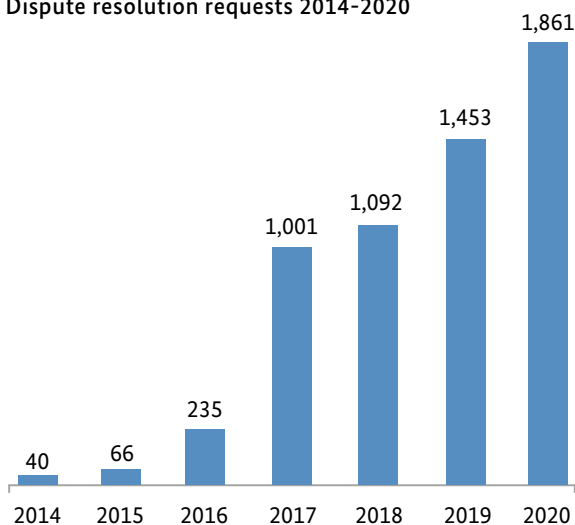


## Postal dispute resolution panel

### Statutory mandate

The postal dispute resolution panel at the Bundesnetzagentur conducts dispute resolution procedures to resolve disputes between postal operators and their customers. It is an official dispute resolution entity within the EEA (European Economic Area) and is recognised by the European Commission as such.

### Dispute resolution requests 2014-2020

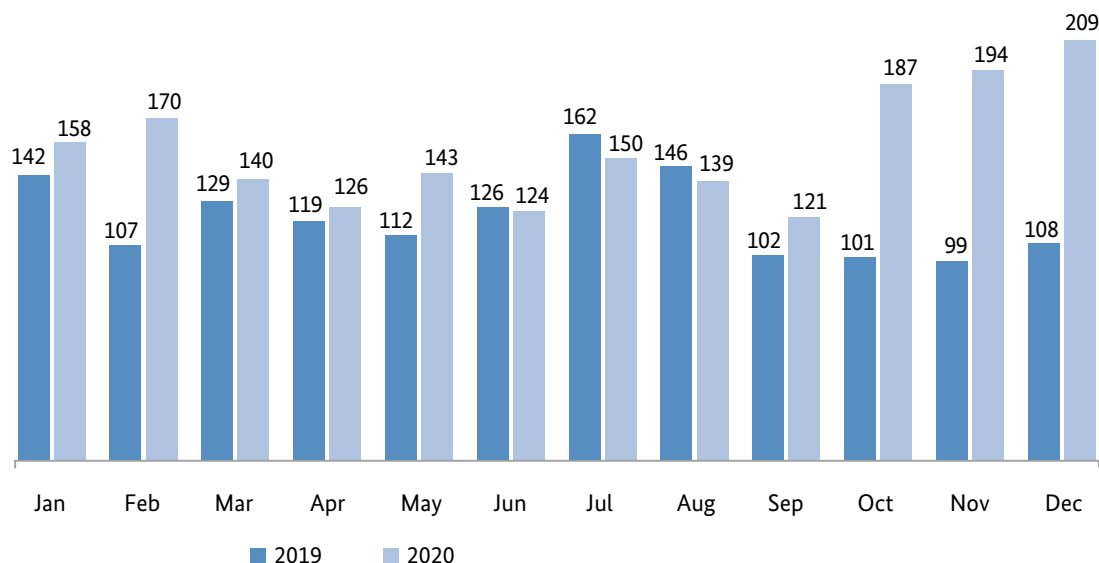


### Dispute resolution requests and procedures

In 2020 there was a marked increase in the number of requests for dispute resolution. By the end of the year the Bundesnetzagentur's postal dispute resolution panel had received 1,861 requests, an increase of around 28% on the previous year (1,453).

A monthly breakdown of requests and a comparison with the previous year both show a noticeable increase in the number of requests in the last quarter of 2020. The Covid-19-related restrictions and retail closures resulted in another increase in online sales. This may have led to more problems with transport and delivery, but it is not possible to tell from many of the requests whether they involve items ordered online.

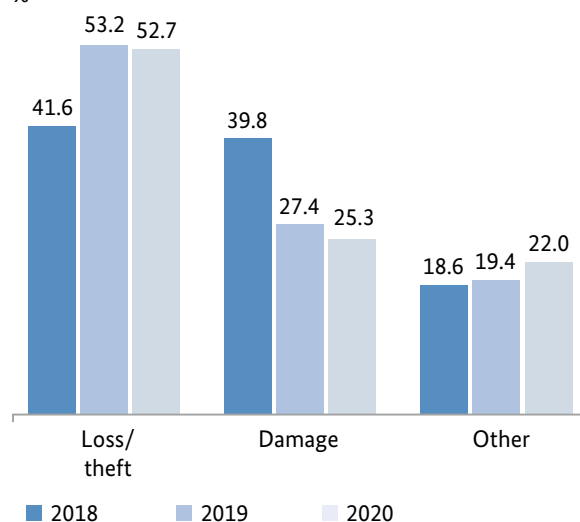
### Requests received 2019 and 2020 by month



### Reasons for dispute resolution requests

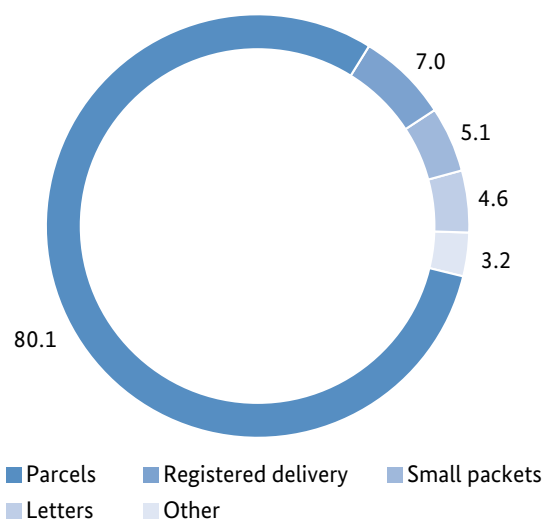
Last year the majority of the disputes (52.7%) referred to the dispute resolution panel concerned lost or stolen items. The next largest proportion of requests (25.3%) concerned damaged items. The remaining requests (22.0%) concerned matters including long transit times and delivery irregularities. The spread of reasons for requests was therefore similar to that in the previous year.

### Reasons for requests 2018-2020 %



In 2020 a total of 80.1% of requests for dispute resolution concerned problems with parcel delivery services. Far fewer involved registered deliveries (7.0%), small packets (5.1%) and letters (4.6%).

### Breakdown of dispute resolution requests by item type 2020 %

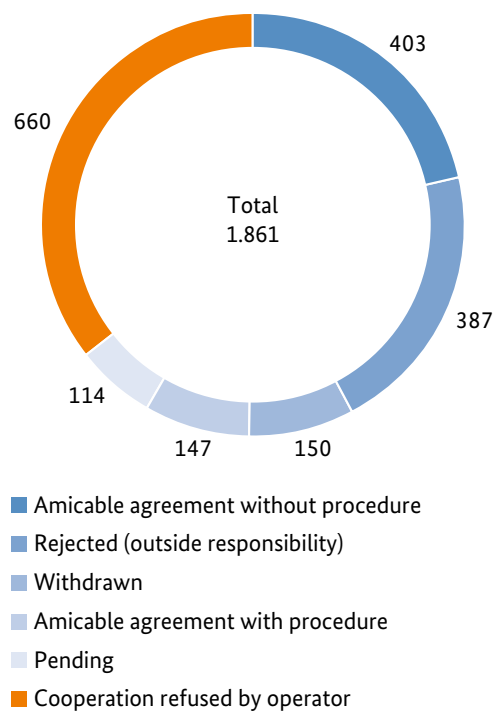


### Dispute resolution cases

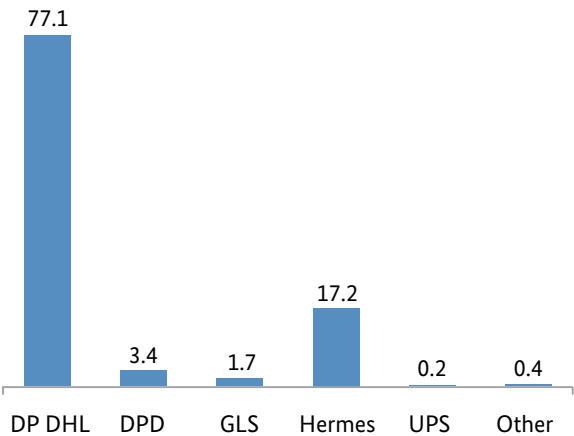
In 2020 an agreement was reached in all 147 of the cases in which a conciliation procedure was initiated. An amicable agreement without resorting to a conciliation procedure was reached in 403 cases. Requests for mediation were refused in 387 cases where none of the rights set out in the German Postal Services Ordinance (PDLV) had been violated, for instance where customers had merely complained about long transit times or items being returned without the postage being refunded.

A total of 150 requests were withdrawn, and postal operators refused to cooperate in mediation in 660 cases. At the end of the year, a total of 114 cases were still ongoing.

Dispute resolution cases 2020



Accepted requests by operator %



The majority of the requests accepted in 2020 (77.1%) concerned Deutsche Post DHL, followed by Hermes (17.2%), DPD (3.4%) and GLS (1.7%). This breakdown reflects the fact, among other things, that Deutsche Post DHL and Hermes are more active than the other parcel operators in the personal customer segment.

## Rulings, activities and proceedings

In 2020 a ruling by Germany's Federal Administrative Court turned the regulatory spotlight on letter prices again. The Court ruled the statutory profit regulations, one of the bases for approving prices, to be unlawful. Restricting the DIALOGPOST service to advertising mail triggered a large number of enquiries both from customers claiming their mail was promotional and should qualify for the service and from competitors claiming that mailings that did not qualify were still being given the cheaper rates.

## Ruling chamber decisions

### Price-cap benchmarking

The last price-cap procedure lasted nearly two years because of unforeseen circumstances. The two-step process involves setting the prices for the standard letter products (including standard, compact, large and maxi-size letters, postcards, outbound international letters, as well as special services such as registered delivery and cash-on-delivery). The ruling chamber issued two interim rulings providing for transitional periods and could not make a final decision until 12 December 2019 on the prices effective from 1 January 2019.

### Federal Administrative Court

The Federal Administrative Court then ruled on 27 May 2020 that the previous price-cap price approvals (prices for 2016 to 2018) were unlawful. One reason is that the provisions from 2015 in the German Postal Rates Regulation Ordinance (PEntgV) on determining corporate gain using benchmarking are invalid. They are not covered by a power to issue an ordinance in the German Postal Act.

The Court also restricted the Bundesnetzagentur's previous administrative practice for taking adequate account of costs inherited and costs incurred by staff pension payments from Deutsche Bundespost times and costs incurred by the provision of the universal service – subject to the possibility of a statutory regulation as specifically mentioned by the Court – by ruling that in future the

- costs of compliance with the basic working conditions common in the licensed sector,
- costs of providing postal services throughout Germany, and
- costs incurred by staff pension payments ensuing from legal succession to Deutsche Bundespost may only be used to mark up prices to the extent that the costs are related in terms of cause or attribution to the services in the price-cap procedure.

The Court's ruling equally applies to the prices approved in the price-cap procedure for the period up to the end of 2021, which could be found to be unlawful for the same reasons. The Bundesnetzagentur now needs to decide whether the price approval as it currently stands is valid. It asked Deutsche Post AG for new cost data at the beginning of August 2021 to help it make its decision.

The decision on whether it needs to withdraw the current approval will also take account of the fact that a legislative procedure has already been initiated to rectify the shortcomings identified by the Court in the legal bases. The price approval will expire at the end of 2021 and so a new decision on prices will be needed by then.

### **Cologne Administrative Court**

Following the Federal Administrative Court's above-mentioned ruling, the German Parcel and Express Association (Bundesverband Paket und Expresslogistik e. V. – BIEK) requested Ruling Chamber 5 to withdraw the price-cap price approval applicable until the end of 2020 and re-decide on the matter. The request was rejected on 26 November 2020.

One reason for rejecting the request was that the BIEK was already adequately protected because it had appealed against the price approval and did not need to make the request to be legally protected. Another reason was that it was not possible to make an own-initiative decision on withdrawing the approval because the necessary cost data had not yet been submitted and so the matter was not yet ready for decision. The BIEK also appealed to Cologne Administrative Court for an order establishing the suspensory effect of its appeal against the price approval and for a new, provisional determination of the prices. The Court's ruling of 4 January 2021 partly upheld the urgent appeal lodged by the BIEK. The Court ordered that the BIEK's appeal against the Bundesnetzagentur's price-cap price approval had suspensory effect with regard to the approval of the prices for national standard, compact, large and maxi-size letters. The order is an "inter-partes" order, so it only applies to the BIEK. It means that for the time being the BIEK does not have to pay for postage and Deutsche Post AG has to transport letters for the BIEK free of charge. Deutsche Post AG will be able to charge the BIEK for the letters it has transported once the prices have been re-approved.

The Court stressed that the order only applies to BIEK: "The price approval is still legally effective for contracts concluded with other customers during its period of validity; these contracts remain valid with the approved prices."

The Court ruled that the BIEK's appeal to require the Bundesnetzagentur to re-approve the prices within three months was inadmissible. The requirement under the Postal Act to have prices approved is not tied to any subjective rights enjoyed by postal service users.

Postal users' interests are rather "part of the (objective) general interest in the existence of competition in the postal sector". Customers cannot therefore demand that the dominant company's prices be approved. Only the company itself can request approval of its prices. The BIEK has appealed against the Court's rejection.

Five other appeals against the price approval are pending. All of the appeals – including the appeal lodged with Cologne Administrative Court in connection with the temporary order – are "most very" likely to have "chances of success".

### **DIALOGPOST**

Deutsche Post AG discontinued its cheaper-rate *DIALOGPOST* service for transactional mail with (non-promotional) identical content as from 1 January 2020. This led to problems in the market with how to classify items.

In September 2019, the ruling chamber had requested Deutsche Post AG to change the conditions for its service so that items with non-promotional identical content could no longer be sent at a cheaper rate as *DIALOGPOST* items as from 1 January 2020.

The ruling chamber was prompted by a final and absolute ruling issued by Cologne Administrative Court that only items with promotional content could be sent as cheaper-rate *INFOPOST/DIALOGPOST* items. The Court ruled that offering cheaper rates for transactional mail with identical content discriminated against transactional mail with non-identical content and therefore contravened postal legislation. Deutsche Post AG responded to the request by restricting its *DIALOGPOST* service to advertising mail as from 1 January 2020.

This raised questions when Deutsche Post AG refused to accept some mailings because they did not qualify for *DIALOGPOST*. Competitors also feared that Deutsche Post AG could build "bridges" for some customers so that it would not lose them to the competition. The BBD (Bundesverband Briefdienste e. V.), an association of private mail service providers, therefore set up a body to supervise compliance with the *DIALOGPOST* conditions, collect cases of doubt and forward selected cases to the ruling chamber for it to assess.

The Bundesnetzagentur looked at Deutsche Post AG's procedures. There were no indications that Deutsche Post AG was deliberately circumventing the regulations restricting which items qualify for *DIALOGPOST*.

Deutsche Post AG produced decision-making guidance in response to the request to design its revenue protection procedures to be workable and non-discriminatory in cases of doubt as well. The revenue protection staff receive training and regularly updated, detailed information about which types of item qualify and do not qualify for *DIALOGPOST*.

#### **Personal customer parcel price control**

Deutsche Post AG increased its parcel prices for personal customers with effect from 1 January 2020. The price increases varied significantly between the different products.

Parcel prices do not need to be approved in advance, unlike letter prices, but they must not include any mark-ups that the operator is only able to charge because of its dominant position in the market. It is possible for the Bundesnetzagentur to look into breaches of this rule in an ex post price control because Deutsche Post AG's share of over 70% of the personal customer market gives it a dominant position.

The Bundesnetzagentur launched an ex post price control of Deutsche Post AG's prices on 28 January 2020. There were clear indications that the company had increased parcel prices for personal customers unfairly.

Deutsche Post AG then announced on 4 February 2020 that it would be withdrawing the price increases with effect from 1 May 2020. The ruling chamber subsequently closed the case. It was not possible for technical reasons for Deutsche Post AG to withdraw the increases immediately because, for instance, it involved changing customer information and till and IT systems across all the 28,000 service points.

#### **E-POST letters with traditional delivery**

The approval for the prices for *E-POST* letters with traditional delivery expired on 31 December 2020. Deutsche Post E-Post Solutions GmbH, which offers the service, did not apply for a follow-up approval by the statutory ten-week deadline.

It informed the Bundesnetzagentur that it would not be putting in an application. This means that it will not be possible to offer the service – with prices that

need to be approved – after the approval expires from January 2021 onwards. Under the German Postal Act any contracts for conveyance services without the required price approval are invalid. The regulatory authority can prohibit a contract from being carried out if it contains a price other than that approved or if it is invalid.

However Deutsche Post DHL still intends to offer its service for *E-POST* letters with traditional delivery. It plans to change the contractual terms and conditions with effect from 1 January 2021 to include prices for conveying the physical letter that no longer need to be approved or that have already been approved. From 1 January 2021 onwards Deutsche Post E-Post Solutions GmbH and Deutsche Post InHaus Services GmbH only intend to offer the service to business customers. The minimum volume for the physical conveyance service will be 50 letters per mailing. Under the Postal Act the prices for the physical conveyance service do not need to be approved because of the minimum mailing volume.

Customers sending fewer than 50 items (including smaller businesses and personal customers) will need to use the service offered by Deutsche Post AG as from 1 January 2021. The prices that Deutsche Post AG intends to charge for the service are the prices for the basic products approved in the price-cap procedure. The Bundesnetzagentur is investigating whether the change to the service is compatible with the provisions of the Postal Act. Deutsche Post AG has been asked to provide further information. The investigations were still ongoing at the time this report went to press.

The change to the service was prompted by the above-mentioned ruling by the Federal Administrative Court that the standard prices, which are the basis for the *E-POST* letter prices, are unlawful.

#### **Deutsche Post AG's digitalisation strategy**

Deutsche Post AG informed the ruling chamber at the end of February 2020 about a comprehensive digitalisation programme in the letters and parcels sector that was set to begin in March 2020. The core element of the strategy is – alongside the use of extra innovative franking methods (mobile labels for letters and parcels) that make it possible for customers to buy postage whenever and wherever they want using an app – the introduction in 2021 of a tracking service for letters with a matrix code. The new tracking service will give consumers more transparency about delivery speeds. In addition, stamps with a matrix code cannot be counterfeited and can make tracing easier, for instance for customers claiming compensation for lost items.



New hybrid products are also helping the transformation process towards a digital world. At the end of July 2020 Deutsche Post AG introduced a new postal mail notification service together with GMX and WEB.DE. A total of 34 million GMX and WEB.DE users can activate the notification service directly in the settings for their email accounts to keep up-to-date via the internet and smartphone apps and so via a digital mailbox about the letters that are on their way to them. The new service, which is currently free of charge, includes a photo – so a "digital copy" – of the envelope, which is designed to awaken the user's interest and provide information about the contents.

A new option is planned for February 2021 that will enable registered users to have a digital copy of the contents of their letters sent to their email accounts. They will then receive a digital copy of the contents by (secure) email before the letters are actually delivered to their letterboxes. This option will require the user's explicit consent as well as the sender's participation in the service.

The service notifying users about letters by email or app is designed to make digital letters more attractive and as a bridge to using digital copies. At the same time Deutsche Post AG is trying to attract customers, and in particular bulk mailers, for its digital copy service. Customers with a PO box address can also use the new notification service. They will find out which letters are waiting for them in their PO boxes and so can make decisions relating to their postal mail and plan for collecting mail that requires proof of delivery.

There are no regulatory concerns about the new digital services and components for letter products in their current form.

## International cooperation

The Bundesnetzagentur was active at international level within the European Regulators Group for Postal Services (ERGP), the Universal Postal Union (UPU) and the European Committee for Postal Regulation (CERP). The focus of ERGP's work was on the possible revision of the Postal Services Directive and the first-time implementation and possible impact of the EU Parcel Regulation.

## ERGP

ERGP, which was established ten years ago, held plenary meetings on 25 June 2020 and 27 November 2020 in virtual format under the chair of the Greek regulatory authority EETT. At the first meeting, two reports and the ERGP Work Programme 2021 were approved for public consultation. At the second meeting, the following documents were finally approved:

- ERGP PL II (20) 7 – Report on postal definitions;
- ERGP PL II (20) 26 – Report on the consequences of COVID-19 on the postal sector;
- ERGP PL II (20) 22 – Report on the quality of service, consumer protection and complaint handling 2019;
- ERGP PL II (20) 23 – Report on core indicators for monitoring the European postal market;
- ERGP PL II (20) 8 – Report on key consumer issues;
- ERGP PL II (20) 24 – Report on the evaluation of cross-border parcel delivery services;
- ERGP PL II (20) 25 – Report on the suitability of regulatory tools to promote competition;
- ERGP PL II (20) 28 – Report on interconnection models and access to international postal networks.

The first report worth a special mention is the "Report on postal definitions", which addresses the need to revise and update the definitions in the Postal Services Directive (PSD) in light of the profound changes in the postal sector. The PSD was last amended in 2008 and therefore does not accommodate more recent developments such as the decline in letter volumes and growth in parcel volumes (determined by the spread of digital technology and changing consumer needs), technological progress or e-commerce. The report addresses in particular how to define postal services and the boundaries with other services (such as electronic communications, transport and logistics). It also looks at the role of (online) platforms.

ERGP submitted a response to the European Commission's public consultation on the evaluation of the PSD with a view to shaping the future postal regulatory framework (ERGP PL (20) 27). In its response, ERGP advocates an approach that focuses more on competition and the needs of the recipients of postal items compared to the current regulatory approach that focuses on the universal service. ERGP considers such an approach to be necessary in light of the changes in the postal sector itself as well as a blurring of the boundaries with other sectors. In view of the latter, ERGP also submitted a response to the Commission's Digital Services Act (DSA) public consultation and the plan to revise the E-commerce Directive (2000/31/EC). In its response (ERGP (20) 16), ERGP

addresses the question of a level playing field between postal operators and platforms such as Amazon. These documents were produced by ERGP's Regulatory Framework Work Group, which also compiled the "Report on the consequences of COVID-19 on the postal sector".

The "Report on key consumer issues" under the responsibility of the Consumers and Market Indicators Work Group also relates to the changes in the postal sector. The report addresses the change in the relationship between the roles of the end-users, with postal services becoming less sender-oriented and more receiver-oriented.

The Cross Border Parcel Delivery Work Group made a detailed analysis of the EU Parcels Regulation (2018/644/EU), which entered into force in 2018. ERGP produced two reports relating to the first-time application of the regulation and summarising the experiences of the national regulatory authorities with the provision of information and assessment of tariffs (Articles 4 to 6 of the Parcels Regulation).

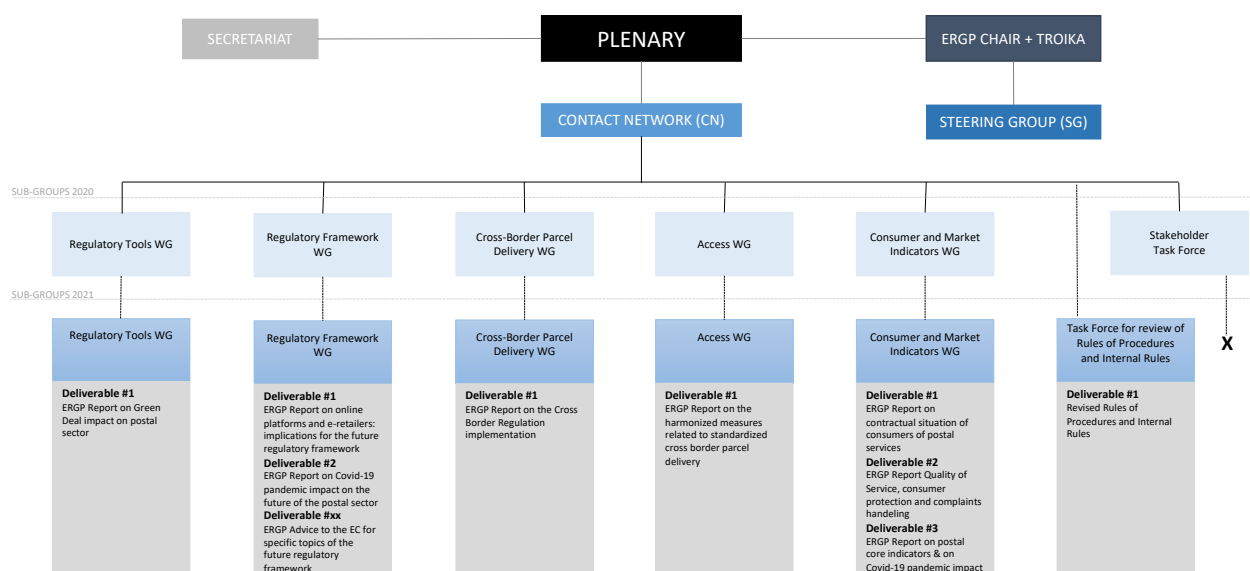
Another key report is the "Report on the evaluation of cross-border parcel delivery services", which was

produced in response to a request from the European Commission; the report deals with the implementation and possible initial impact of the transparency and tariff assessment measures set out in the EU Parcels Regulation and looks at difficulties experienced in implementing the regulation in its first two years of application. The three reports serve as ERGP's contribution to the evaluation to be made by the Commission in accordance with Article 11 of the Parcels Regulation.

Finally, the "Report on the consequences of COVID-19 on the postal sector" is also worth a mention; the report makes an initial analysis of the measures adopted by governments, regulatory authorities and postal providers in response to the Covid-19 pandemic. ERGP has been publishing regular reports on these measures since the start of the pandemic.

Apart from the three work groups mentioned above, two other groups with different areas of focus were active within ERGP in 2020: the Access Work Group and the Regulatory Tools Work Group. In addition, the ERGP Stakeholders Task Force worked on a concept for interaction with the various market players. ERGP's structure is illustrated below:

## ERGP SUB-GROUPS STRUCTURE 2021



All the ERGP documents have been published on the internet at <https://ec.europa.eu/ergp>.

The focus of the ERGP Work Programme 2021 is on providing input on the possible future postal regulatory framework, analysing the consequences of the

Covid-19 pandemic on the postal sector, and further activities relating to the EU Parcels Regulation.

The programme is based on three strategic pillars: revisiting the postal sector, promoting a competitive EU postal single market, and empowering end-users.

## European and international standardisation

The European Committee for Standardization (CEN – Comité Européen de Normalisation) is responsible for developing European standards for the postal sector. CEN's 34 national members are the national standardisation bodies from the 28 EU countries (in 2020), three EFTA countries and Serbia, Turkey and North Macedonia. The Technical Committee for postal services (CEN/TC 331) currently comprises four working groups, which are mirrored within the German Institute for Standardization (DIN) and its "Postal services" committee. The working groups consist of representatives of postal and logistic operators, courier, express and parcel operators, online traders, industry, regulatory authorities, ministries, trade associations and consumer organisations. Around 60 experts work permanently within CEN/TC 331.

The Bundesnetzagentur is actively involved in the work of these bodies with the aim of promoting open standards and thus fair competition in the relevant markets.

The European Commission's standardisation request M/548 was a key factor in postal standardisation activities from 2016 to 2020. A total of 11 projects were successfully completed on issues such as product and weight silos, the differentiation between postal items containing documents and goods, the interoperability of parcel-delivery operations to promote a digital single market for the EU, and customs clearance interfaces. Input was given for initial considerations about a new mandate from the Commission.

Customs clearance standards are a good example of the cooperation between CEN/TC 331 and the standardisation body at the Universal Postal Union (UPU), the "Standards Board". As from 1 January 2021 postal operators within the UPU are required to collect and exchange electronic item-related data in advance. The electronic advance data (EAD) are designed to meet customs and security requirements. EAD are of key importance for the importation of goods into the EU. It is, for instance, planned to use the data in conjunction with the new rules applicable from 1 July 2021 abolishing the VAT exemption for goods with a value not exceeding €22. Mutual cooperation between the standardising bodies means that the EAD developed by the bodies are based on similar principles.

The special circumstances in 2020 also affected standardisation activities. Standards are expected to

provide certainty over longer periods of time with respect to technical requirements and regulations. They therefore need to be developed very carefully to ensure the required level of quality. However, the time needed is not always available during a pandemic. This generated interest in tools to speed up individual standardisation work, such as the involvement of a Standardization Request Ad-Hoc Group.

## Universal Postal Union (UPU)

The Bundesnetzagentur is active within the UPU under the leadership of the Federal Ministry for Economic Affairs and Energy. The UPU today has 192 member countries. Its meetings are attended by governments, regulatory authorities and postal operators specially nominated by the member countries, known as "designated operators". The designated operators are tasked with the rights and obligations arising from the UPU Constitution.

Every four years, a Universal Postal Congress sets the UPU's strategic and financial course. A new director general and deputy director general are elected by the member countries in a secret ballot during Congress. The members of the Council of Administration (CA) (40 member countries plus the country hosting the Congress) and the Postal Operations Council (POC) (48 member countries) are also newly elected.

The Congress was due to be held in August 2020 in Abidjan, the capital of Côte d'Ivoire, to set the course for the next four years. The three-week event with a four-figure number of participants from all over the world had to be postponed for a year to August 2021 because of the pandemic. It is still due to take place in Abidjan. Switzerland has been chosen as an alternative host in September 2021 because of the uncertainties about the pandemic.

The Congress will be key to the UPU's future. Many international organisations, including the UPU as a specialised agency of the United Nations (UN), are facing rising costs and stagnating (sometimes voluntary) member contributions.

This has an impact on the UPU's internal organisational structure as well as on the number and scope of the projects to be undertaken on behalf of the member countries. The focus of the strategic discussions is therefore on how to increase revenues from contributions or other sources and how to stabilise expenditure.

In this connection, opening up the UPU for wider postal sector stakeholders has been discussed as an option. At present the designated operators represent the operational rights and obligations under the Convention as well as the economic interests of the postal sector. The designated operators are nominated by their countries and, depending on national circumstances, cover the whole spectrum from state postal administrations to fully privatised postal operators.

By integrating other undertakings/organisations that also represent the postal sector's interests into the UPU's processes, it is hoped to generate additional resources that will safeguard the existence of the UPU and the global single postal territory.

Germany presented a relevant proposal for discussion at international level, with input from the Bundesnetzagentur drawn from its regulatory experience.



RAIL

Through numerous individual proceedings the Bundesnetzagentur safeguards competition in the rail sector. The Bundesnetzagentur provides important momentum and thereby improves access for market entrants in the long-distance passenger rail transport segment.

By publishing important information about amending infrastructure managers' conditions of use, the Bundesnetzagentur contributes to more intermodal competition and more climate protection.



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The share of active undertakings in the railway transport market has remained constant. The coronavirus pandemic put an end to the upward trend in operational and transport performance in the railway market. Passenger rail transport in particular has been severely affected by the pandemic. In the first half of 2020 transport performance in the regional passenger segment fell by 36% and in the long-distance passenger segment by 47%. Rail freight transport performance declined by around 9%. Railway line infrastructure operators reported a train-kilometre decrease of around 5% from 2019.

The Bundesnetzagentur estimates economic losses for the German railway market due to the pandemic to be around €2.5bn for the whole of 2020.



## Market watch

As of October 2020, 447 railway undertakings were licensed to provide transport services for the public.

Rail freight transport performance declined slightly in 2019 compared to the previous year, whereas there was a moderate increase in the share held by the competitors to Deutsche Bahn AG.

Transport performance in the regional passenger rail transport segment increased from 57bn to 58bn passenger kilometres. As in previous years long-distance passenger rail transport performance saw growth, increasing from 43bn passenger kilometres to 45bn.

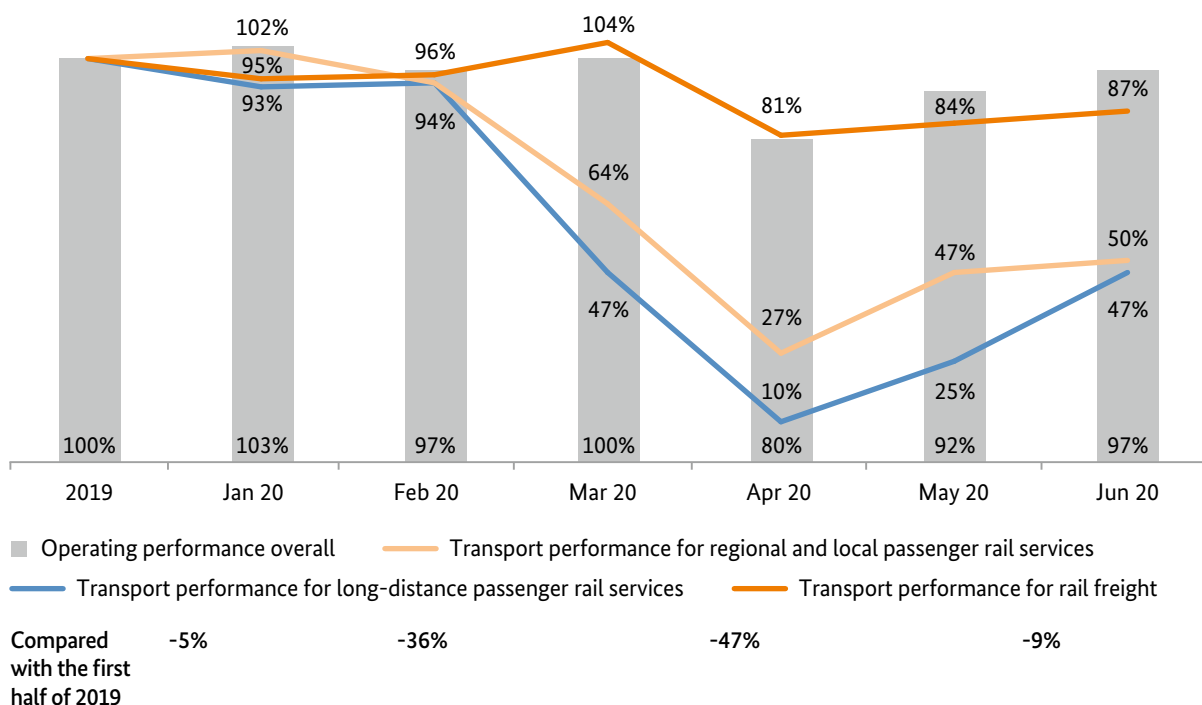
## Effects of the Covid-19 pandemic on the railway market

The Bundesnetzagentur surveyed around 100 railway undertakings about the effects of the Covid-19 pandemic on the number of kilometres travelled, transport performance, revenue and expenditure in the first half of 2020.

Passenger rail transport in particular has been severely affected by the pandemic. In the first half of 2020 transport performance in regional passenger rail transport fell by 36% and in long-distance passenger rail transport by 47%. The decline in rail freight transport performance in the first half of 2020 was around 9%. Railway line infrastructure operators reported a train-kilometre decrease of around 5% from 2019.

The Bundesnetzagentur made a forecast for the second half of 2020 based on official data, estimating economic losses for the German railway market due to the pandemic to be around €2.5bn for the whole of 2020. Around 58% of the losses fell on undertakings in long-distance passenger rail transport, around 27% on undertakings in regional passenger rail transport, around 10% on undertakings in rail freight transport, and around 5% on railway line infrastructure operators.

### RUs transport and operating performance Passenger/tonne/train-kilometres in %



### Support for the undertakings

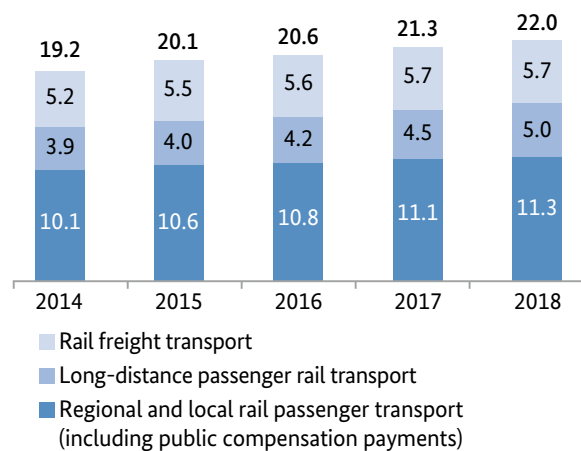
The Bundesnetzagentur supported the infrastructure managers in the implementation of urgent and temporary measures intended to underpin the operational and human resources efficiency of those affected during the Covid-19 pandemic or to help soften the economic impact for the railway undertakings.

At the request of DB Netz AG the regulatory authority temporarily suspended, for example, the approval of the incentive system for passenger rail service to ease

the burden on traffic controllers and administrative schedulers. The Bundesnetzagentur also refrained from sending out notifications about changes in the conditions of use and changes in charges that are not subject to approval. This enabled the infrastructure managers to implement the necessary measures without undue delay. To prevent restrictions on competition and to limit regulatory exemption to measures related to combating the Covid-19 pandemic, the measures were limited in substance and set to expire on 30 September 2020.

## Key trends

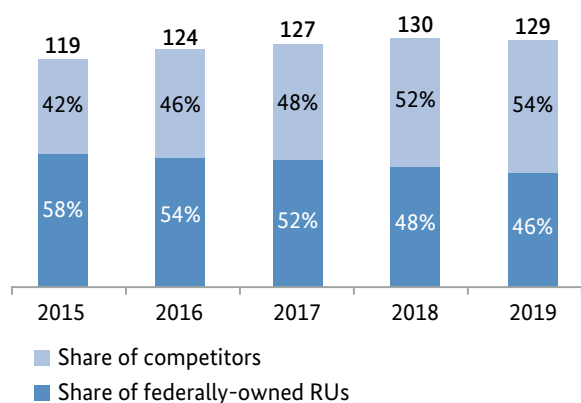
Revenue in the rail market by type of transport  
€bn



As in previous years the passenger rail services segment of the rail market reported revenue growth in 2019. Railway undertakings generated €22bn in revenue in 2019. Revenue in the regional and local rail passenger transport services segment increased from €11.1bn to €11.3bn. Revenue in the long-distance passenger rail transport segment increased as well by 11%, from €4.5bn to €5bn. In rail freight transport, revenue stagnated and remained unchanged from the previous year (€5.7bn).

### Competition in rail freight transport

By traffic volume in billions of tonne-kilometres, shares in percent<sup>1</sup>

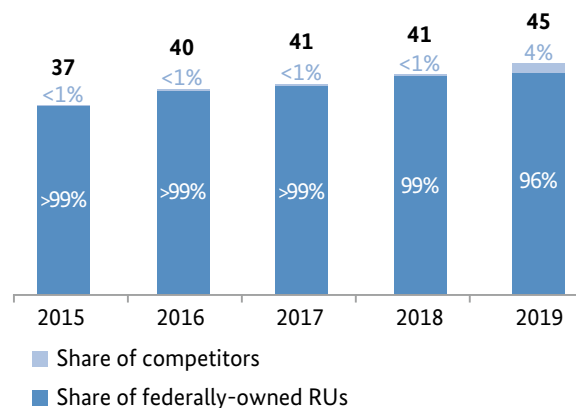


The volume of rail freight moved in 2019 reached 129bn tonne-kilometres (tkm). This represents a slight decrease compared to the level reported for 2018. The market share of competitors continued to increase and now stands at 54%.

From 2015 to 2019 rail freight transport increased its share of the modal split<sup>2</sup> from 18.6% to 18.8%.

### Competition in long-distance passenger rail transport

By traffic volume in billions of passenger kilometres, shares in percent<sup>3</sup>



Long-distance passenger rail transport performance grew. In 2019 there was a total of 45bn passenger kilometres. Deutsche Bahn AG undertakings provide 96% of the transport services. Competitors constitute around a 4% share in the segment. It was the first increase in the competitors' market share for years.

The reason for this increase is the addition of new train services by Flixtrain and Österreichische Bundesbahnen (ÖBB).

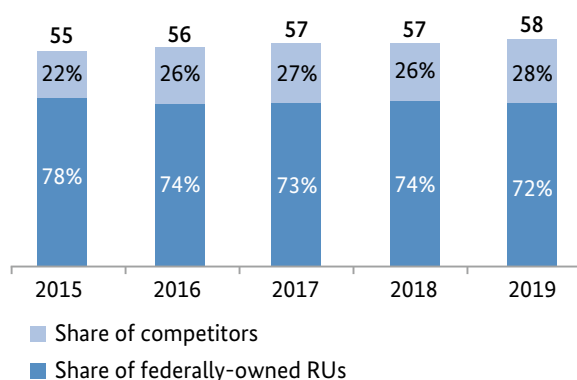
<sup>1</sup>There is no data available yet for 2020.

<sup>2</sup>Transport volume, broken down by mode of transport

<sup>3</sup>There is no data available yet for 2020.

### Competition in regional passenger rail transport

By traffic volume in billions of passenger kilometres, shares in percent\*



Transport performance in the regional passenger rail transport segment increased between 2018 and 2019 and reached 58bn passenger kilometres. The share held by the competitors increased again after having declined somewhat between 2017 and 2018.

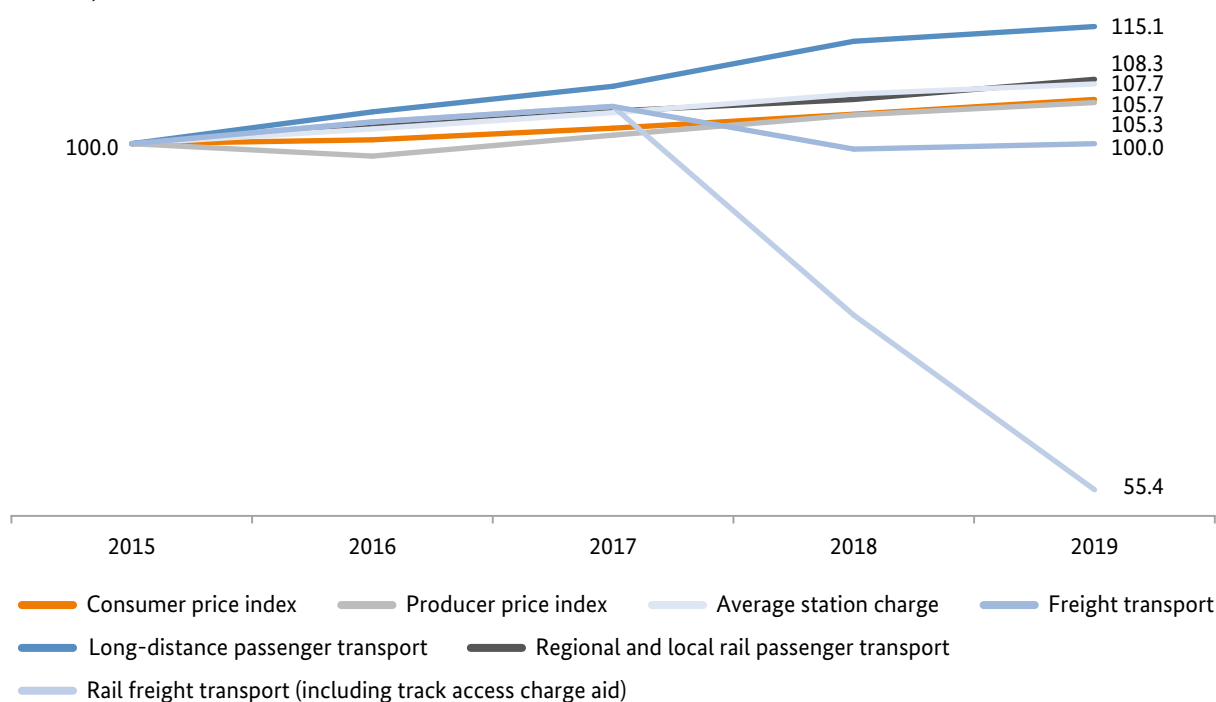
Between 2015 and 2019, regional and long-distance passenger rail service saw its share of the modal split increase from 8.1% to 9.1%.

### Infrastructure charges

Between 2015 and 2019, track access charges increased by more than 15% in the long-distance passenger rail transport segment and by more than 8% in the regional passenger rail transport segment. Using 2015 as a base year, track access charges in the rail freight segment have stagnated. Taking the track access charge aid into account in the rail freight transport segment in 2019, there was a decrease of around 45%. The average charge for using passenger stations increased by more than 5%.

The consumer price index and the producer price index for industrial products over the same time period increased by between 5% and 6%.

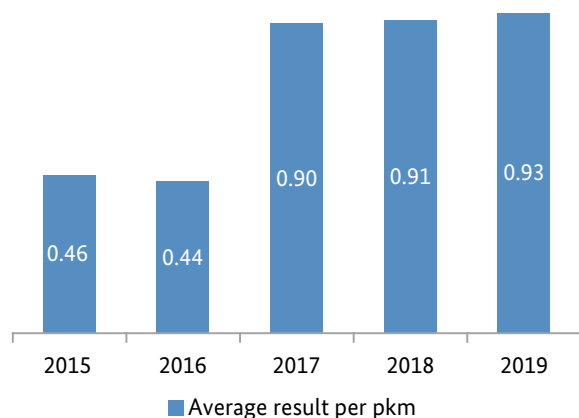
### Infrastructure managers' average infrastructure charges indexed; 2015=100



\*There is no data available yet for 2020.

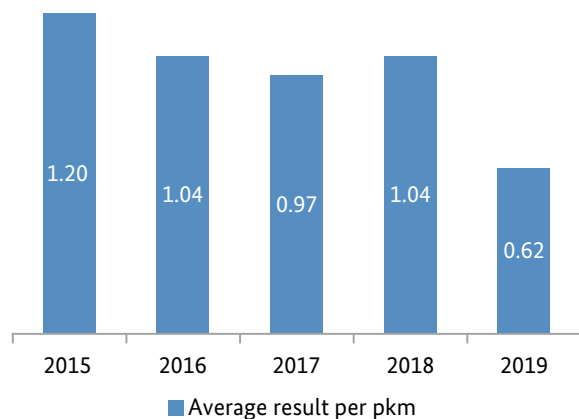
## Operating results of the railway undertakings

Specific results of RUs in long-distance passenger transport  
in euro cents per passenger kilometre



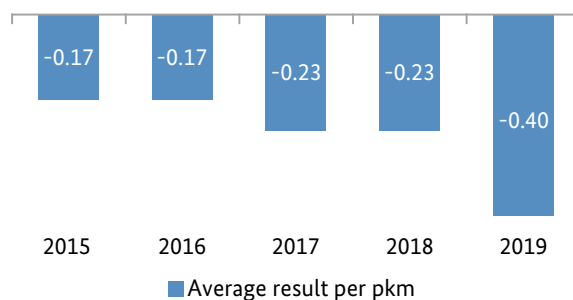
The profit in the long-distance passenger transport segment increased from 0.91 cents per passenger kilometre in 2018 to 0.93 cents per passenger kilometre in 2019.

Specific results of RUs in regional passenger transport  
in euro cents per passenger kilometre



In the regional passenger rail transport segment, profit decreased to 0.62 cents per passenger kilometre travelled, significantly lower than in 2018 when it was 1.04 cents per passenger kilometre travelled. One reason for this is that numerous undertakings are commencing operations, which entails start-up costs.

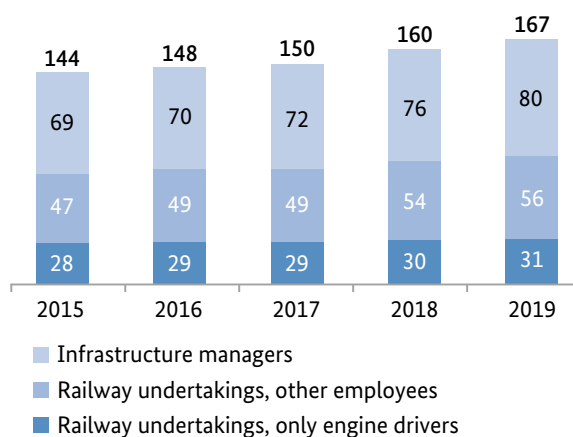
Specific results of RUs in rail freight transport  
in euro cents per passenger kilometre



The railway undertakings (RUs) reported an average loss of 0.40 cents per tonne-kilometre in the rail freight transport segment in 2019. This represents a further increase over the average loss in 2018. The negative operating result of federally-owned DB Cargo played a significant role in this development.

## Employment trend

Employment in the railway market  
thousands of full-time equivalents

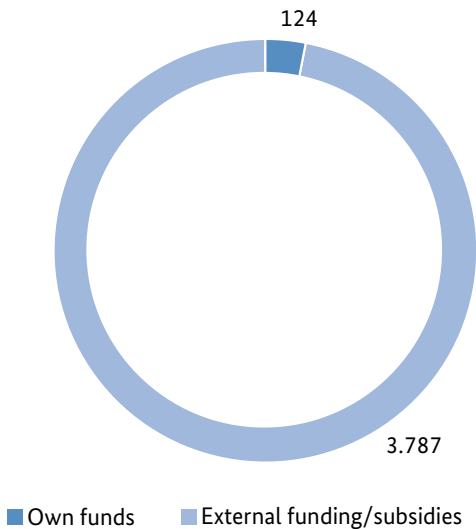


In 2019 there was a rise in the number of employees at infrastructure managers and railway undertakings. A total of 167,000 full-time positions<sup>5</sup> were filled. The number of employees in the railway market increased in the period from 2015 to 2019 by around 16%.

<sup>5</sup>For calculating the number of full-time equivalents, the hours worked in a part-time position are counted toward a full-time position.

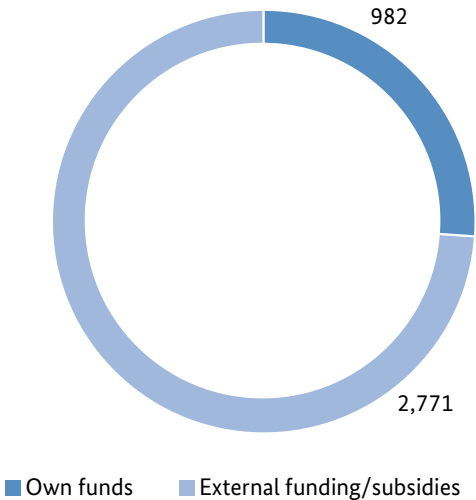
Financing of investments

Existing network infrastructure investment  
€m



In 2019, the railway line infrastructure operators received more than €3.7bn in external funding to invest in the existing railway network. In the same time frame they invested €124m of their own funds in the existing railway network.

Construction and expansion of infrastructure  
€m



In 2019 more than €2.7bn of external funding and more than €0.9bn of railway line infrastructure operators' own funds were spent on new construction or expansion of already existing infrastructures.

## Rulings, activities and proceedings

The Bundesnetzagentur improved access to railway infrastructure in 2020 in a number of individual proceedings. For example, it approved an incentive system for the rail freight transport segment. The charges for use of the railway infrastructure of DB Netz AG were also approved for the 2020/2021 timetable period.

The Bundesnetzagentur also conducted a passenger rail service market consultation. Representative associations were surveyed about topics such as "Deutschlandtakt und -tarif" as well as safety and security, in particular in view of the coronavirus pandemic.

## Access to railway infrastructure

### DB Netz AG Network Statement 2022 (NBN)

Infrastructure managers must prepare and publish network statements for the railway infrastructure and service facilities they operate.

For the first time, DB Netz AG merged its network statements for the railway network and for service facilities into a single Network Statement (NBN) for the 2021/2022 working timetable period. The aim is to adapt to the Network Statement Common Structure (NSCS), which is a template for the structuring of network statements. It was developed by the association of European railway infrastructure managers (RailNetEurope) as part of harmonisation efforts at European level.

The Bundesnetzagentur rejected three intended modifications because they were not compatible with legal requirements in railway law. The intended modifications concerned a new way of calculating the standard charge as a decision criterion for conflicting train path requests, priority criteria for the congested railway line Wunstorf to Minden, and the expansion of the requirement for mixed types of traffic on routes only indirectly affected by construction work.

The modified way of calculating the standard charge that was presented aimed at considering only the time periods actually in conflict instead of considering the charges for the entire working timetable period ("in total"). In the event of path conflicts where path requests only cover a subperiod, this would have led to an applicant's single request being divided into several parts. The Bundesnetzagentur rejected this intended modification on account of its violation of section 52(8) of the Rail Regulation Act (ERegG), so the way of calculating the standard charge that has been used for many years is to remain in place.

When there is a capacity restriction due to construction work, the remaining capacity is distributed among the three segments of regional and local rail passenger transport, long-distance passenger rail transport and rail freight transport. This special procedure for awarding train paths on the working timetable on infrastructure limited by construction work requires greater leeway. An exception to the provisions of the standard allocation process in the working timetable under section 52 of the ERegG is only possible in the cases of point 17 of Annex VII of Directive 2012/34/EU and section 44(1) sentences 2 to 6 of the ERegG. Because these exceptions apply only to routes directly affected



by construction work, the plan to extend them to indirectly affected routes had to be rejected.

#### **Train path rejections/partial rejections of the working timetable**

The working timetable is compiled once a year. It is based on the DB Netz AG's network statement (SNB) or, in the future, the merged network statement (NBN). In an initial phase from mid-March to the second Monday in April, applicants place train path requests for the working timetable of the next working timetable period. DB Netz AG then designs these train paths and tries to settle disputes arising between applicants in the coordination procedure. Disputes that cannot be resolved are decided by the network operator using priority criteria.

Following this, the provisional working timetable is published. After processing any justified objections by applicants, DB Netz AG informs the Bundesnetzagentur of its intention to reject train paths, if any. The Bundesnetzagentur examines and can object to a DB Netz AG decision.

In compiling the 2020/2021 working timetable, DB Netz AG submitted more than 90 intended rejections of working timetable train paths to the Bundesnetzagentur. The rejections were primarily based on disputes in long-distance passenger rail transport where competitors were planning to expand their operations.

There were also partial rejections. For a long time DB Netz AG was of the opinion that if the route of a requested path could not be fully allocated, DB Netz AG could fully reject the path request and thus end the procedure. According to the decision by the Bundesnetzagentur and the subsequent confirmation in summary proceedings by the higher administrative court of the federal state of North-Rhine Westphalia, DB Netz AG must, among other things, examine in such cases whether there is interest in the remaining partial route and if a partial allocation is possible.

The Bundesnetzagentur objected to five train path rejections and required DB Netz AG to repeat the dispute settlement procedure. By contrast, in the newly introduced second working timetable processing phase, which made it possible to request additional train paths until the end of September, there were no further objections to train path rejections.

#### **Congestion and capacity management**

DB Netz AG declared three further sections of line as congested. As a result DB Netz AG first had to create a capacity analysis and then draft a plan to increase rail infrastructure capacity (PEK) based on the capacity analysis. Applicants have one month to respond to this draft before the PEK is finalised. This procedure was implemented three times in 2020 in consultation with the Federal Railway Authority and the Bundesnetzagentur. The hubs concerned were Aachen, Hamburg and Berlin (north-south line).

However, this congestion procedure has thus far not brought about the desired capacity-increasing effect since vital "minor" infrastructural improvements currently have hardly any chance of being made due to a lack of funding. For this reason DB Netz AG favours operational usage guidelines of a relatively preventative nature. The introduction of such guidelines failed in part due to poor implementation of legal provisions in the network statement process. Economically DB Netz AG was not able to justify the respective priority.

This problem also arose with a request placed by the Verkehrsverbund Rhein-Ruhr (VRR) regarding planned stop cancellations in the 2021 working timetable in Essen-Kray Süd and Wattenscheid. VRR wanted regional transport trains to have priority over the new regular interval long-distance train line. The conceivable solution of moving RegionalBahn departures to later times was, however, rejected by VRR because that would have meant giving up connections. After considering traffic-related and various other arguments, the Bundesnetzagentur ultimately decided against the VRR's request to adopt priority rules and rejected the request in a decision.

In the past very high traffic loads and impending congestion have frequently led to reduced and sometimes inadequate quality of service. If this occurs on long lines, possibly worsened by ongoing construction work, there will be considerably more delays because in highly congested parts of networks there are no line sections where delays can be reduced again. In June 2019 DB Netz AG led the launching of the Capacity round table together with major industry associations and the Bundesnetzagentur. It seeks to identify solutions on various issues. To date there has been no significant progress in finding the best way to timetable traffic loads so that they are economically optimised.

The discussion focuses instead on the best long-term way to secure capacities for the three segments of rail transport services after most of the framework agreements have expired.

### **Deutschlandtakt**

With active participation by the Bundesnetzagentur, the first section of the Rail Transport Masterplan titled "Deutschlandtakt - our guiding principle" was prepared by the Deutschlandtakt working group, which has three sub-groups and is part of the Federal Ministry of Transport and Digital Infrastructure's Alliance for the Future of Rail. Legal experts from the Bundesnetzagentur provided legal guidance to the regulatory framework sub-group.

At the core of Deutschlandtakt is a target timetable with which train paths that have been timetabled precisely for the type of traffic on the track should make considerable increases possible in the rail transport of passengers and goods. In passenger transport, connections in Germany are to be comprehensively optimised by implementing an integrated regular interval timetable throughout the country. In order for the target timetable to work, however, large infrastructural projects will have to be completed and numerous congested railway lines must be expanded. For the moment it remains unclear in which time frame these measures are to be implemented, though work on a plan to gradually introduce Deutschlandtakt is already underway.

It was not possible to satisfy the request of several major industry associations (BAG, SPNV, mofair and NEE) to take Deutschlandtakt into account in the upcoming 2021 evaluation of the ERegG because numerous organisational and legal questions were still unanswered. It was therefore proposed to insert at least one "piloting clause" into the ERegG to enable railway line infrastructure operators in the coming years to test new forms of capacity allocation on designated lines, including for the purposes of Deutschlandtakt.

The Deutschlandtakt working groups' activities should be continued in the coming years.

## **Access to service facilities**

As part of its activities to regulate access to service facilities and services, the Bundesnetzagentur monitors access to important hubs in the railway system such as marshalling yards, interfaces with other modes of transport such as (container) terminals or passenger stations or railway workshops and other services pertaining to railway transport. More than 100 investigations and proceedings relating to this issue were conducted in 2020.

### **Implementation of European Court of Justice (ECJ) case law on passenger platforms**

On 10 July 2019 the ECJ ruled that passenger platforms are part of the railway structure (referred to in Germany as railway infrastructure) and are thus part of the minimum access package. The question was how to define passenger platforms and how to distinguish them from the other furnishings and fixtures of a passenger station service facility.

DB Station&Service AG was first asked this question when it was revising the description of its services and seeking approval of its station charges. The Bundesnetzagentur required DB Station&Service AG to modify its Infrastructure Usage Conditions Passenger Stations (INBP) to align with the distinction made by the ECJ. The modification included a definition of a passenger platform, according to which the passenger platform comprises the building structure, the tactile guidance system, access paths to the platform and the lighting on those access paths. Access paths include, among other things, passenger elevators, ramps and escalators.

DB Station&Service AG originally intended to provide a substantially narrower definition of passenger platforms in its INBP, in particular not classifying passenger elevators as part of access paths. There are still differing opinions between DB Station&Service AG and the Bundesnetzagentur concerning the implementation of the ECJ case law. Legal proceedings before the Cologne Administrative Court are pending.

### **Integration of the new implementing Regulation rules in the market and the Network Statement for Service Facilities (NBS) initiative as an active response**

In regard to access to service facilities, the new Commission Implementing Regulation rules on access to service facilities and rail-related services, (EU) 2017/2177, have been in effect since June 2019. Because of this, the NBS must be significantly edited and in some cases also expanded in addition to the requirement already in place for operators to prepare a network statement. This is not yet being practised consistently throughout the market.

Even where a service facility operator is exempt from the obligation to publish a network statement, the Commission Implementing Regulation now requires operators of service facilities to provide at least minimal information in the network statement. This was new especially for operators of maintenance facilities, most of which were previously exempt from the NBS requirement. The minimum requirements include, among other things, providing a detailed description of the infrastructure, a comprehensive description of service and a list of charges.

For this reason the Bundesnetzagentur called on numerous undertakings to provide or make adjustments to their NBS. Undertakings with market significance were selected first. Beyond the primary goal of a comprehensive set of NBS in the market, a further objective is sensitising the market to the new rules. At the same time the Bundesnetzagentur can be a competent and trustworthy point of contact for the undertakings. In the future the Bundesnetzagentur will call on more undertakings to provide an NBS.

### **Capacity constraints spread significantly – rejections now also in Aachen and Cologne**

In 2020 the number of intended usage refusals of requests to use service facilities rose significantly from last year's figure of 15 refusals. The regulatory authority was notified of a total of 35 intended refusals of requests for the 2020/2021 working timetable. All of the intended refusals concerned DB Netz AG storage sidings, mainly in the greater Berlin area but also for the first time in Cologne and Aachen.

Undertakings that were below other applicants under the DB Netz AG priority rules were rejected. The priority rules also include an auction as a final measure, known as the highest bidder procedure. DB Netz AG conducted this type of auction in five cases in 2020. Applicants were willing to bid up to five times the actual standard charge for the use of a track. All

highest bidder procedures have since been concluded without any objections from the Bundesnetzagentur.

The reasons for capacity constraints and the difficulties associated with them are similar to those of previous years. Most of the capacity in the requested operating locations is allocated through long-term contracts. The tracks for which these contracts are concluded are available for a period of up to five years only to the contract holder. If the contract holder does not allow shared use of the track during the contract period, then the capacity is not available for the other market participants. Additionally, the demand for storage siding capacity near metropolitan train stations is rising sharply. Even if shared use were fully utilised, the existing infrastructure cannot adequately meet demand over the long-term. Furthermore, construction projects are leading to a shortage of available capacity. Various market participants have recognised this development and initiated the first joint projects to expand storage siding capacity.

Undertakings whose applications are refused in the event of a conflict between two or more requests to use a service facility can file a complaint with the Bundesnetzagentur appealing for the allocation of an appropriate portion of the capacity. The Bundesnetzagentur received several such complaints again in 2020. As part of this appeals procedure the Bundesnetzagentur examines whether the conflict decision in an individual case is to be changed in favour of the respective complainant from the point of view of reasonableness. If, however, the refused request for use conflicts with the capacity that has already been allocated, for example due to a long-term contract, the applicant may file a complaint, but on the basis of the rulings by the Higher Administrative Court of North Rhine-Westphalia of 19 September 2019 (13 B 1261/19 and 13 B 1262/19) the Bundesnetzagentur has no authority to intervene. The legal basis in question is not sufficient to justify intervention in contracts concluded under private law.

### **Long-term contracts for use must not have a foreclosing effect in the market**

According to a ruling by the Higher Administrative Court of North Rhine-Westphalia the Bundesnetzagentur may not intervene to the benefit of a complainant in capacity that is already bound by contract. Thus the use of service facilities for new traffic is sometimes virtually impossible, especially where there is a high level of competition.

In response to one applicant's complaint the Bundesnetzagentur determined that existing long-term contracts for use do not in principle violate railway law. If the majority of a service facility's capacity, however, will not be available to the competition for an extended period of time due to such contracts, this can have a foreclosing effect in the market. With regard to comparable situations the Bundesnetzagentur assumes that a long-term contractual commitment of more than 80% of capacity is a clear indication of an unlawful foreclosing effect in the market. To be able to take regional differences into account, however, competitive intensity in the respective operating location should also be considered. For this reason the Bundesnetzagentur upheld the aforementioned complaint to the effect that DB Netz AG may not enter any more long-term contracts for use on certain storage siding in Berlin, Frankfurt am Main and Dortmund.

## Infrastructure charges

### DB Station&Service AG's station charges for 2021

The Bundesnetzagentur approved DB Station&Service AG's station charges for the 2021 calendar year, broken down into charges for the use of passenger platforms and charges for all other uses of passenger stations. The ECJ affirmed in a ruling that EU legal requirements make the separate pricing necessary.

When reviewing the station charges the Bundesnetzagentur made cuts to various items, which led to a slight reduction of the charges submitted for approval. As a result the charges for use of the approximately 5,400 stations increased by an average of 2.19% compared with 2020 station charges (from 2019 to 2020 there was a 2.18% increase).

### Proceedings to set the upper limit on total costs and recognise the Performance and Financing Agreement (LuFV) III as a qualified regulatory agreement

Since the ERegG came into force, all operators of standard-gauge railway line infrastructure require approval of their charges.

They are to include incentives in their pricing system unless an exception has been made or an exemption has been granted. This applies to DB Netz AG and seven other undertakings. Prior to the start of the first regulatory period, which runs from 2019 to 2023 for most of the undertakings, the base level of total costs for each undertaking concerned was determined on a one-off basis in a ruling. Using this base level, an upper limit on the total costs was set for each undertaking concerned for the 2021/2022 working timetable period.

Each year train path prices are approved once the upper limit on railway line infrastructure operators' total costs is set. The annual determination of the upper limit on total costs takes into account the general inflation rate and the general productivity growth rate. The upper limit on total costs is important because it restricts the train path price level in the framework of the incentive system.

The Bundesnetzagentur set the DB Netz AG's 2022 upper limit on total costs to €5.494bn, which is €34m (around 0.6%) more than the 2021 limit.

Determination of the upper limit of total costs takes into account LuFV I, II and III. In March 2020 the Bundesnetzagentur recognised LuFV III as a qualified regulatory agreement. This recognition directly increased the 2022 upper limit of total costs in accordance with ERegG provisions because the federal government had made an agreement with DB Netz AG in LuFV III that DB Netz AG will commit more resources to maintenance and replacement investments. To the extent designated in the qualified regulatory agreement, this increased expenditure is furthermore not subject to the incentive system.

### DB Netz AG's 2021 train path price system

The Bundesnetzagentur initially approved the charges for use of the railway infrastructure of DB Netz AG for the 2020/2021 timetable period (2021 train path price system) with a decision from 31 March 2020. However, a revocation proviso was attached to the approval due to an ongoing legislative procedure to amend the ERegG. The procedure concerned changes in the area of regionalisation funds and the disproportionate train path price increases they triggered in regional and local rail passenger transport service.

After the ERegG was amended the Bundesnetzagentur re-approved the train path prices by decision of 21 September 2020, partially revoking the decision of 31 March 2020. Compared to the previous year the new approval led to a 1.8% train path charge increase in the regional and local rail passenger transport segment in the 2021 train path price system. For the long-distance passenger transport and the rail freight transport segments in total the average train path charge increase was around 2.4% compared to the approved charges in the 2020 train path price system.

### **Charge approval procedure for other railway line infrastructure operators**

Besides DB Netz AG there are currently seven other railway line infrastructure operators undergoing the regular charge approval procedure. By the end of 2020, most of these companies had submitted a request for the approval of their charges.

A "simplified" charge approval procedure can be submitted if the conditions for exceptions or exemptions have been fulfilled. These railway line infrastructure operators' charges are to be approved when they are calculated so that they are reasonable, non-discriminatory, transparent and do not exceed the cost of providing the services plus a reasonable profit. For this purpose, the Bundesnetzagentur wrote to approximately 78 railway line infrastructure operators in summer 2020 and informed them about the legal basis for this and the steps involved in the procedure.

For the approval of the charges, the Bundesnetzagentur placed greater focus in 2020 on further improvements through simplifications, standardisations, and more services for the regulated companies. The objective was to minimise the administrative burden of the affected railway line infrastructure operators and to support the companies throughout the administrative proceedings.

The Bundesnetzagentur also informed the railway line infrastructure operators about the possibility of an exemption. That possibility allowed the Bundesnetzagentur to accommodate requests from 10 of the 78 aforementioned operators, who operate their railway infrastructure exclusively for the purpose of use as a museum, to be largely exempt from ERegG obligations.

The Bundesnetzagentur assumes that all charge approval proceedings can be finalised by spring 2021 at the latest.

### **DB Netz AG incentive system**

In 2019 the Bundesnetzagentur approved for the first time a DB Netz AG incentive system for passenger rail service. An incentive system for rail freight transport was approved in 2020.

Charging arrangements for using rail infrastructure must offer railway undertakings and the respective infrastructure managers incentives through performance-based elements to minimise disruptions and increase the efficiency of the railway network. The approved incentive systems are designed in such a way that train delays lead to the payment of contractual penalties. The delay is assigned to the event that caused

it and, based on this, to the ambit of the respective infrastructure manager, the ambit of the respective railway undertaking, or neither of the two.

Delays that are assigned using this method trigger reciprocal payment obligations.

In a fast track procedure the Cologne Administrative Court questioned the enforceability of the approval for the rail freight transport incentive system, citing that the agreement on key elements required by law for such an incentive system was missing and that the impression of such an agreement should not have been feigned. The Bundesnetzagentur and DB Netz AG appealed to the Higher Administrative Court of North Rhine-Westphalia against the Cologne Administrative Court ruling. The Higher Administrative Court upheld the complaint on the grounds that a clarification of the legal issues is not possible in a fast track appeal and that the matter should be clarified in principal proceedings. The Court added that the Bundesnetzagentur's approval of the incentive system is not fundamentally flawed, so the incentive system may enter into force for all transport enterprises.

## **Other issues**

### **Exemptions for infrastructure managers**

The ERegG contains various legal exceptions and possibilities for RUs' exemption from scope of certain regulations. Since the law entered into force in 2016, around 250 companies have taken the opportunity to apply for exemption. The Bundesnetzagentur approved most of the applications.

In 2020 there were two special developments related to the exemptions. The first such development was that national legislators created a far-reaching possibility of exemption for railway line infrastructure operators that operate their railway infrastructure exclusively as a museum. Under the new legislation, heritage railways may now be exempt from all ERegG provisions except for the requirement to participate in the market survey. Among other things, they are no longer required to submit their train path prices to the Bundesnetzagentur for approval. By the end of 2020 the Bundesnetzagentur had exempted a total of 14 undertakings on this legal basis.

The second development related to exemptions was the Bundesnetzagentur's review of around 40 requests for exemption from the Commission Implementing Regulation that has been in force since June 2019 to regulate access to service facilities and the goods or services provided in those facilities. Operators of

service facilities can be exempted from certain provisions of the Commission Implementing Regulation when the conditions for exemption are met. The Commission Implementing Regulation has priority over conflicting national law, which is why several ERegG standards are no longer applied. For an exception or exemption with maximum reach, operators of service facilities must also submit a request under the Commission Implementing Regulation.

#### **Market consultation pursuant to section 67(3) of the ERegG**

The ERegG provides that the Bundesnetzagentur consult at least every two years with representatives of the users of services in the rail freight and passenger rail transport segments. The Bundesnetzagentur conducted a market survey with representative associations in the field of passenger rail transport in 2020. The survey offered participants an opportunity to comment on topics such as "Deutschlandtakt und -tarif" as well as safety and security, in particular in view of the coronavirus pandemic. The results of the consultation have been published in German on the Bundesnetzagentur's website at <https://www.bundesnetzagentur.de/Endkundenbefragung>.

#### **Railway Law Research Days 2020**

Due to Covid-19 restrictions, Railway Law Research Days took place for the first time in its 26-year history as a webinar. Jointly organised by the Bundesnetzagentur and the Universität Regensburg, the event provided an exchange opportunity for railway legal experts along with experts from the fields of science and law. Central topics of the event were the consequences of the pandemic in the transport sector, efforts to improve capacity management, considerations about the Railway Noise Mitigation Act, consequences of the ECJ ruling on passenger platforms, the level of charges, thoughts about return on investment and the incentive system, and the need for clarification of regulation and the anti-trust monitoring of charges.

The symposium will be held in Berlin in 2021.

#### **Report on the results of the competitiveness review in the markets for maintenance facilities**

The Bundesnetzagentur created a report for the federal government on the competitive conditions in the markets for maintenance facilities and evaluated the regulation of maintenance facility operators. Using market survey data the Bundesnetzagentur examined decision-making behaviour of suppliers and users of maintenance services to analyse the business relationships in the market and obstacles to effective maintenance.

Six markets for maintenance facilities exhibit stable conditions of competition and seven show moderate conditions. Two markets show no signs of competition. In regional passenger rail transport, on-site maintenance with unfavourable general conditions can prove to be a significant obstacle to transport service tendering. The Bundesnetzagentur has suggested measures for improving the situation.

One important criterion for competition in the transport markets is appropriate, transparent and non-discriminatory access to maintenance facilities. Taking competitive conditions, responses from market participants and the European legal framework into account, the Bundesnetzagentur has spoken in favour of not continuing the general exception that was to expire at the end of the year for maintenance facilities from parts of the regulation and instead applying existing regulatory law for service facilities. As a result most of the operators of maintenance facilities would be eligible for exemption from key parts of the regulation.

The report has been published in German on the Bundesnetzagentur's website at <https://www.bundesnetzagentur.de/Endkundenbefragung>.

The Bundesnetzagentur will continue to monitor the market situation for maintenance facilities to ensure reasonable, transparent and non-discriminatory access.



# Approval of DB Netz AG's charges for the use of train paths in the 2020/2021 working timetable period

A new approval of the train path prices was necessary because the charges in the regional passenger rail transport segment were coupled with the development of regionalisation funds at the time the original prices were approved. Charges in the regional passenger rail transport segment have also risen significantly as a side effect from the substantial increase in the federal government's climate package funds. Charges in the long-distance passenger rail transport and rail freight transport segments are correspondingly lower.

For that reason legislators redesigned the statutory coupling to remove the climate package's one-off effect from the coupling. As a result the Bundesnetzagentur revoked the originally approved charges and approved newly adjusted charges that factored in the amended legislative framework.

Charges in the long-distance passenger rail transport segment increase by an average of around 2.4% compared with 2020, even though as in recent years the Bundesnetzagentur reduced charges in the Point-to-Point market segment, which is used especially by market entrants and competitors to Deutsche Bahn in long-distance transport, by around 23% compared to the amount DB Netz AG proposed.

In the rail freight transport segment the Bundesnetzagentur agreed to DB Netz AG's proposed charges. Charges in the rail freight transport segment increase for 2021 by an average of around 2.3% compared with the charges currently in effect.

The approved charges were taken as a basis for the working timetable that began on 13 December 2020 and is valid for one year. Until then prices were based on the current train path price system.

The charges that were approved in September 2020 are more compatible with the development of charges over recent years and avoid price jumps.

Charges in the regional passenger rail transport segment increase in 2021 by 1.8% compared with the charges currently in effect. This charge increase is compatible with the development of charges over recent years.





**International cooperation**  
**International cooperation remains crucial to railway regulation. Compilation of the international market report has become a firmly established activity. The Bundesnetzagentur analyses railway market data from 30 countries with a combined railway network of 230,000 kilometres.**

### **Working groups at IRG-Rail and ENRRB**

The year 2020 was largely characterised by observing and dealing with the effects of the Covid-19 pandemic on the European railway market and asking constructive questions about the continued development of the European railway area. The latter could be seen in ongoing work to revise the EU rail freight corridor Regulation concerning a European rail network for competitive freight. In the years ahead the development of this regulation could prepare the way for innovative models of European capacity management.

The focus of the European Network of Rail Regulatory Bodies (ENRRB) was the application of the Commission Implementing Regulation on access to service facilities, (EU) 2017/2177, which has been in effect since June 2019. It contains, for example, arrangements for capacity allocation when there are conflicting requests. The Bundesnetzagentur provided information about legal proceedings concerning a conflict between a capacity allocation request and an already-existing contract with another transport enterprise. Contracts such as this one with a long period of validity pose a challenge for new market participants that have not yet been conclusively clarified in European law.

In a joint workshop of the ENRRB, the European Competition Network and the EU Commission Directorate-Generals for Competition and Mobility and Transport, anti-competitive and discriminatory practices in the rail sector were examined from the perspectives of the regulatory and anti-trust authorities.

IRG-Rail, the European independent regulators' group for the railway sector, addressed the effects of the Covid-19 crisis in the railway market and publicly affirmed that to support the railway as a mode of transport, a balance must be found between emergency measures and the protection of well-functioning competition in order to secure the future of the railway sector as a driving force behind a sustainable recovery. IRG-Rail analysed the charges for international rail passenger transport and the pricing procedures for the minimum access package.

Prompted by an inquiry concerning the European seaports as to whether tracks in harbours are considered part of a service facility or as railway infrastructure, IRG-Rail began to examine this topic in the Member States. Initial findings provide a complex picture. Because the classification of the tracks as railway infrastructure or as a service facility has financial, security-relevant and right-of-access consequences, IRG-Rail will broaden its examination

in 2021 to analyse the reasoning behind each country's classification in the respective national regulatory framework.

## Access issues and rail freight corridors

The multi-year process to redesign harmonised capacity planning and timetabling throughout all of Europe (TTR) was an essential part of the Bundesnetzagentur's international work in the rail sector in 2020. The Bundesnetzagentur worked in a leading role within IRG-Rail to continue the dialogue with European stakeholders. At various functions organised by the European Commission and RailNetEurope, a professional association of European infrastructure managers, the Bundesnetzagentur constructively promoted understanding for the fundamental changes taking place in the railway market. In 2020 the focus of the TTR project underwent a significant shift. Until then the project was being conducted as a pilot project limited to a few selected freight lines. At the end of 2020 RailNetEurope initiated the process to introduce the TTR project harmoniously throughout Europe. In addition to the testing of methods for continuous planning at multiple levels, general preliminary planning of capacity is now being done as well. The goal is to implement the redesigned timetabling beginning with the 2025 timetable.

The project will also require modification to the European legal framework. The European Commission initiated an evaluation of Regulation (EU) 913/10 concerning the creation of a European rail network for the competitive transport of freight. Since implementation of the Regulation began, it has become clear that "mentally separating" cross-border rail freight transport from all other rail freight transport has not strengthened the rail as a mode of transport to its full potential. Over the course of the next year the Commission will make proposals for focusing on all types of rail transport services. These proposals can form the foundation for TTR.

As part of the evaluation of the Regulation, the current institutional design of the rail freight corridors can be further developed to better react to existing market needs. It is important that future decision-making processes are transparent for all market participants. Many open questions and challenges remain for redesigning the European railway area, but there are also enormous possibilities for designing a sustainable transport sector. The Bundesnetzagentur will work together with the European regulatory authorities to ensure that this project adequately takes all relevant market interests into account.

Cooperation among the infrastructure managers on construction work affecting cross-border routes in European rail freight transport was an important topic. To this end the European Commission has begun surveying the regulatory authorities in order to get a clear picture of the situation in the different Member States. The Bundesnetzagentur expects to hear the Commission's conclusions in the coming year.

## Market monitoring at the European level

The Bundesnetzagentur plays an active role in market monitoring at the European level in its capacity as a member of IRG-Rail, the European independent rail regulators' group. In the market monitoring working group, railway market data is now consolidated from 31 countries, with Serbia and Ireland having joined the group last year.

The Bundesnetzagentur collects, inspects and prepares all country data, thereby assuming a decisive role in the group.

The result is IRG-Rail's annually published Market Monitoring Report, which contains analyses on the rail passenger and freight markets, infrastructure, charges and developments in competition in the European railway market. One topic of focus in the Eighth IRG-Rail Market Monitoring Report (2020) is the concentration level in the individual countries. The report also discusses the monopoly structures still predominant in many countries.

Another topic of focus is a compilation of the most common market entry barriers that may hinder potential new competitors from entering individual national markets.

The Ninth IRG-Rail Market Monitoring Report will analyse the impact of the Covid-19 crisis on the European railway market. IRG-Rail Market Monitoring group reports can be downloaded from <https://www.irg-rail.eu/irg/documents/market-monitoring>.

# The Bundesnetzagentur's core tasks and organisation

## Tasks 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 Post and Telecommunications and the Federal Office for Post and Telecommunications. In 2005, on being assigned responsibilities under the Energy Industry Act and the General Railway Act, the Regulatory Authority for Telecommunications and Post was renamed the Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen.

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 federal state borders in the context of the energy transition. 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 diverse. They range from cases addressed in quasi judicial proceedings in regulation areas, reporting requirements and planning authority responsibilities, consumer protection and information activities in the regulated sectors, to the nationwide investigation and processing of frequency interference complaints.

Below the management level the Bundesnetzagentur comprises ruling chambers and departments. The President's Chamber takes decisions in specific cases, in particular on award proceedings for scarce radio spectrum resources and on 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 chambers then decide on the regulatory measures to be imposed on companies with significant market power. This is how decisions are reached on details of the obligations in respect of, for example, network access conditions or ex ante and ex post price controls. 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 ruling chambers have decision-making powers on general and individual issues regarding access to electricity and gas networks and network charges.

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 resulting from electricity and gas 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 is to give ruling chambers specialist assistance in their decision-making.

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 activities are mostly concentrated and dealt with in one department.

In the telecommunications sector the Bundesnetzagentur is mainly responsible for the key decisions and objectives that promote investment, innovation and competition for the benefit of all citizens. In the context of Industry 4.0, ideas are being developed to promote the spread of digital technology and internetworking in key future-oriented fields; at the same time economic opportunities offered by the digital revolution and internetworking are being assessed with respect to growth, employment and competitiveness in the national economy.

Consumer protection remains another key focus area in the telecommunications sector. In this regard, particular emphasis is placed on investigating problems that hinder a smooth change of supplier. Furthermore, the Bundesnetzagentur continues to vigorously combat misuse as regards the unlawful use of telephone numbers, anti-competitive behaviour and cold calling. 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, especially 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 interference, the dispute resolution procedure and general consumer services. Moreover, the Bundesnetzagentur

plays an essential 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. This is done in particular through unbundling and regulating non-discriminatory access to the energy networks, including rates regulation. In addition, the statutory decision in 2011 to phase out nuclear power as part of the *Energiewende* and the continued expansion of renewable energy require state measures with respect to the various market players, including monitoring the electricity and gas wholesale markets and intervening where necessary to safeguard security of supply. 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 energy transition 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 approving network expansion measures. This 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 part of the statutory planning process, 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. A core task here is to ensure non-discriminatory use of the rail infrastructure by 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 the examination of the level 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. To ensure consistency the Bundesnetzagentur's regional offices, the contact point with consumers and industry, are managed and coordinated centrally by a single department.

The regional offices are mainly responsible for technical matters. They provide information, for example, on compliance with regulations on electromagnetic environmental compatibility and telecommunications. 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 generally and carrying out radio monitoring and inspection tasks.

Additional executive tasks are carried out by specific regional offices. In particular, this involves activities in number administration, number misuse and cold calling, consumer protection and information, the core energy market data register and the registration of railway infrastructure. They also carry out some human resources 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 proactive, 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 excellent specialist knowledge as well as 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 3,000 specialists, including legal experts, economists, engineers and scientists from various fields, to ensure the efficient, proper performance of tasks in all areas.

Retirements and posts created as a result of new tasks have opened up numerous opportunities for new recruits in the fields mentioned above, providing interesting career prospects for new arrivals. The Bundesnetzagentur follows a sustainable human resources development policy that helps to recognise staff members' potential to perform and develop, to maintain that potential while taking into account constantly changing demands, and to foster potential by including individual staff members' career goals. Bundesnetzagentur employees have a wide range of options for obtaining advanced training and advancement qualifications as well as for active involvement in international institutions.

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. In 2020, a total of 179 trainees and students were trained at the Bundesnetzagentur in various vocational training and study programmes. Vocational training is available for office management trainees, electronic equipment and systems trainees, and for IT trainees in applications development and system integration. Since 2011 the Bundesnetzagentur has also offered a dual study programme, now available at five locations, for students to gain a Bachelor of Engineering/Electrical Engineering or Bachelor of Science to qualify them to work as technicians for electronic equipment and systems at the Bundesnetzagentur. In 2016, the Bundesnetzagentur introduced a similar programme with further places for computer science students (Bachelor of Science) in combination with posts as IT trainees. Moreover, each year since 2012 civil servants preparing for the rank of Regierungsinspektor have been selected to take a university degree in IT in public administration. Vocational training courses are offered at a total of nine Bundesnetzagentur locations, in particular at the regional offices.

## Budget

The Bundesnetzagentur's income and expenditure is budgeted for in the federal budget as part of the departmental budget of the Federal Ministry for Economic Affairs and Energy.

The table below shows the income for 2020 (target and performance) and 2021 (target).

Type of income	Target 2020 €'000	Perfor- mance 2020 €'000	Target 2021 €'000
Fees, contributions and other charges in the telecoms sector	25,588	39,086	35,607
Fees and other charges in the postal sector	30	27	17
Fees and other charges in the rail sector	0	-1	0
Fees and other charges in the energy sector (electricity, gas, EEG)	2,550	20,282	5,763
Fees and other charges under the Grid Expansion Acceleration Act	53,420	35,460	22,560
Other administrative income, eg fines and rental and sale income	2,762	4,557	23,158
<b>Administrative income</b>	<b>84,350</b>	<b>99,976</b>	<b>87,105</b>

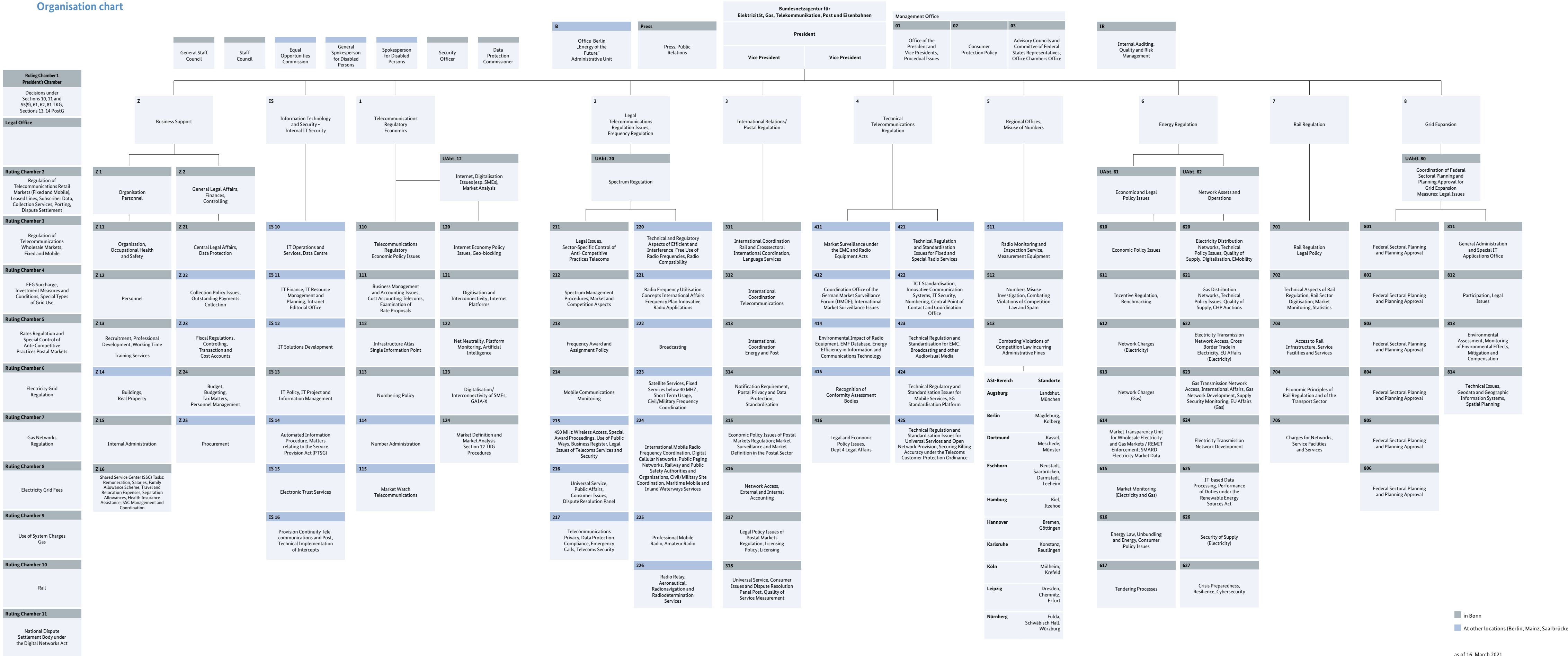
The higher than expected income generated in the telecommunications sector is mainly due to the resolution of legal disputes and associated contributions subsequently collected for the protection of interference-free frequency usage. Once again the energy sector has seen an increase in income as well. Collection of revenue in the rail sector was still not possible in 2020 due to the lack of a fee ordinance. The difference with regard to grid expansion is related to the progress in planning and procedures for power line projects. Delays in expanding the grid thus also lead to a deferral in revenues in the Bundesnetzagentur's budget.

The table below shows the expenditure for 2020 (target and performance) and 2021 (target).

Type of expenditure	Target 2020 €'000	Perfor- mance 2020 €'000	Target 2021 €'000
Staff costs	170,805	148,190	185,736
General administrative expenditure, appropriations and special financing expenditure	61,350	53,576	62,484
Investment	15,486	16,057	14,441

Mobile working has been expanded as a result of the coronavirus pandemic. Acquisitions relating to the pandemic led to increased investment expenditure in 2020. The increase in budgeted expenditure for 2021 is attributable to building up and extending the human and material resources in locations and organisational units in response to the assignment of new tasks.

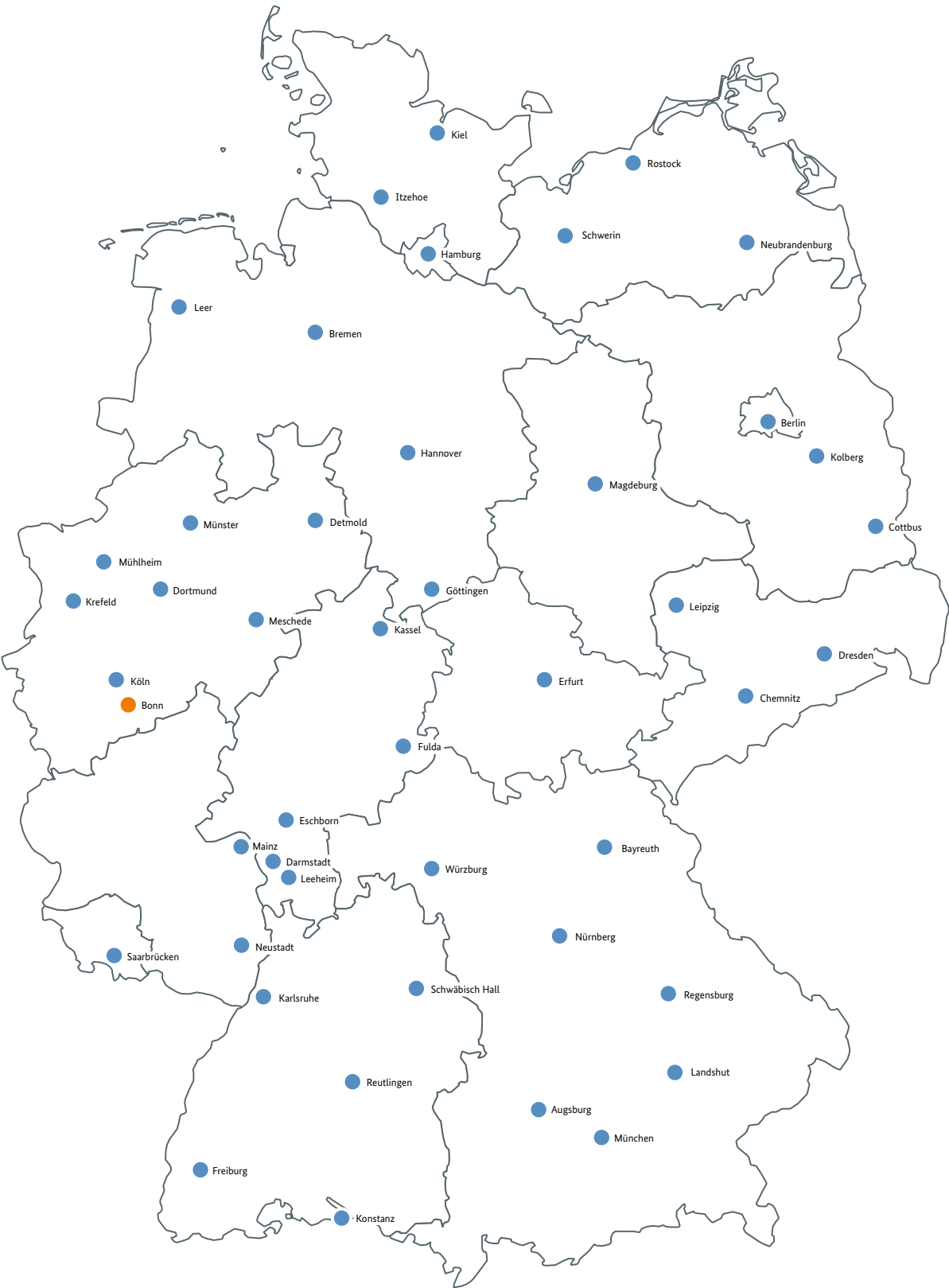
Organisation chart



■ in Bonn  
■ At other locations (Berlin, Mainz, Saarbrücken)



Locations



# List of abbreviations

**3GPP** 3rd Generation Partnership Project

**4MMC** 4M market coupling

## A

**AC** alternating current

**ACER** Agency for the Cooperation of Energy Regulators

**aFRR** automatic frequency restoration reserves

**ARegV** Incentive Regulation Ordinance

**ASIDI** Average System Interruption Duration Index

## B

**BBD** Bundesverband Briefdienste e.V.

**BBK** Federal Office of Civil Protection and Disaster Assistance

**BBPIG** Federal Requirements Plan Act

**BDEW** federal association of the energy and water industry

**BEREC** Body of European Regulators for Electronic Communications

**BEUC** European Consumer Organisation

**BfG** Federal Institute of Hydrology

**BGH** Federal Court of Justice

**BIEK** Bundesverband Paket und Expresslogistik e.V.

**BMVI** Federal Ministry of Transport and Digital Infrastructure

**BMWi** Federal Ministry for Economic Affairs and Energy

**bn** billion

**B2C** business to consumer

**BSH** Federal Maritime and Hydrographic Agency

**BSI** Federal Office for Information Security

**BWA** broadband wireless access

## C

**CA** Council of Administration (UPU)

**CEER** Council of European Energy Regulators

**CEN** European Committee for Standardization

**CEP** courier, express and parcels

**CEPT** European Conference of Postal and Telecommunications Administrations

**CERP** European Committee for Postal Regulation

**CFV** carrier leased line

**CHP** combined heat and power

**CLL** carrier leased line

**CO<sub>2</sub>** carbon dioxide

**ct/kWh** cents per kilowatt hour

## D

**DAkkS** national accreditation body of the Federal Republic of Germany

**DC** direct current

**DAS** Digital Services Act

**DSL** digital subscriber line

**DSO** distribution system operator

**DTAG** Deutsche Telekom AG

**DVGW** standardisation body for the gas and water industry

**DWD** German meteorological service

## E

**EAD** electronic advance data

**ECJ** European Court of Justice

**EEA** European Economic Area

**EEG** Renewable Energy Sources Act

**EFTA** European Free Trade Association

**EnLAG** Power Grid Expansion Act

**ENRRB** European Network of Rail Regulatory Bodies

**EnSaG** Omnibus Energy Act

**ENTSO-E** European Network of Transmission System Operators for Electricity

**EnVR** reference for energy-related legal matters at the BGH

**EnWG** Energy Industry Act

**ERegG** Rail Regulation Act

**ERGP** European Regulators Group for Postal Services

**EU** European Union

## F

**FTTB** fibre-to-the-building

**FTTH** fibre-to-the-home

## G

**GB** gigabyte

**Gbps** gigabits per second

**GG** Basic Law

**GHz** gigahertz

**GIS** geographic information system

**GSM** Global System for Mobile Communications

**GW** gigawatt

**GWh** gigawatt hour

## H

**HFC** hybrid fibre-coax

## I

**IMSI** International Mobile Subscription Identities

**INBP** Infrastructure Usage Conditions for Passenger Stations

**IoT** Internet of Things

**IP** Internet Protocol

**ISDN** integrated services digital network

**IT** information technology

**ITU** International Telecommunication Union

**K****km** kilometre**KSG** Federal Climate Change Act**kWh** kilowatt hour**kV** kilovolt**KVBG** Act to Reduce and End Coal-Fired Power Generation**KWKG** Combined Heat and Power Act**m** million**L****LNG** liquefied natural gas**LTE** Long Term Evolution**LuFV** Performance and Financing Agreement**LV, no IM** low voltage without interval metering**M****m** million**MaStR** core energy market data register**M2M** machine-to-machine**MBI** market-based instrument**Mbps** megabits per second**MFCN** mobile fixed communications network**MHz** megahertz**MRC** multi-regional coupling**MsbG** Metering Act**MV >CP** medium voltage, greater than cut-off point**MW** megawatt**MWh** megawatt hour**N****NABEG** Grid Expansion Acceleration Act**NBN** network statement**NBS** Network statement for Service Facilities**NC TAR** network code on harmonised transmission tariff structures for gas**NDP** network development plan**NEMoG** Network Charges Modernisation Act**NSCS** Network Statement Common Structure**O****ÖBB** Österreichische Bundesbahnen**OLG** Higher Regional Court**OTT** over-the-top**P****PC** personal computer**PDLV** Postal Services Ordinance**PEK** plan to increase rail infrastructure capacity (PEK)**PEntgV** Postal Rates Regulation Ordinance**pkm** passenger kilometre**PlanSiG** Act to safeguard planning procedures**POC** Postal Operations Council (UPU)**PostG** Postal Act**PSD** Postal Services Directive**PSTN** public switched telephone network**PUDLV** Postal Universal Service Ordinance**R****reBAP** uniform imbalance price applicable to all control areas**REMIT** Regulation on wholesale energy market integrity and transparency**RU** railway undertaking**S****SARS-CoV-2** severe acute respiratory syndrome coronavirus 2

**SAIDI** System Average Interruption Duration Index

**SDH** Synchronous Digital Hierarchy

**SigG** Electronic Signatures Act

**SIM** subscriber identity module

**SMS** short message service

**SNB** network statement

**SRAN** single radio access network

**StromNEV** Electricity Network Charges Ordinance

## T

**TEN-E Regulation** Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure

**TKG** Telecommunications Act

**tkm** tonne-kilometres

**TSO** transmission system operator

**TTR** timetabling redesign

**TWh** terawatt hour

## U

**UMTS** Universal Mobile Telecommunications System

**UN** United Nations

**UPU** Universal Postal Union

## V

**VAT** value added tax

**VDSL** very high speed digital subscriber line

**VKU** Verband kommunaler Unternehmen e.V.

**VoIP** Voice over Internet Protocol

**VoLTE** voice over LTE (Long Term Evolution)

## W

**WRC** World Radiocommunication Conference

# Contacting the Bundesnetzagentur

The Bundesnetzagentur provides reliable information and advice to anyone who wants help or has a complaint

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# Publisher's details

## **Publisher**

Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen  
Press and Public Relations  
Tulpenfeld 4, 53113 Bonn  
Phone: +49 228 14-9921  
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## **Editing**

Press and Public Relations  
Responsible for content: Fiete Wulff

## **Design**

Orca Affairs GmbH

## **Title, panorama, timeline, spotlight topics**

Bundesnetzagentur

## **Print**

Druck- und Verlagshaus  
Zarbock GmbH & Co. KG  
Sontraer Straße 6  
60386 Frankfurt am Main

## **Photo credits**

Title page: [gettyimages.de](http://gettyimages.de) / Westend61 (top left)  
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Pictograms, maps and screenshots: Bundesnetzagentur

## **Press reviews**

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## **Editorial deadline**

31 December 2020

Bundesnetzagentur Annual Report 2020 in accordance with section 122 of the Telecommunications Act



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