Federal Network Agency

Annual Report 2005

Triple play in Germany

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President's message

The Federal Network Agency is pleased to present its first Annual Report documenting a concept, virtually unique in Europe, of integrated regulation for different network-based industries. Whereas regulation of the telecoms and postal markets can look back on a seven-year history and therefore has access to facts and analyses, our work in the electricity, gas and rail sectors is still in its infancy and is concerned with diverse fundamentals.

It is often asked whether these different sectors are suitably accommodated under one roof, or whether this is not asking too much of one institution.

Certainly, the products and services, the technologies and market structures are different for mail, gas, electricity, railways and telecommunications. That said, there is a common thread running through the Agency's functions and an economic policy mandate guiding our work.

Despite natural and partial network monopolies, our job is to promote competition in these markets which are pivotal to the national economy, and to give customers and consumers greater choice. Whereas the fruits of competition and the opening of the markets – more offers, innovative products and lower prices – are evident in telecommunications in particular, general unease and a climate of suspicion between users and suppliers prevail in the gas and electricity markets.

Responsible for this are not just the large hikes in energy prices, but above all the lack of pricing transparency and the great differences in transport and access costs.

Thus important pioneering work is being done to bring transport costs down to efficient levels and to improve diversity of service by setting clear access conditions.

The Federal Network Agency will not influence worldwide energy price levels, but it can make sure that German consumers get the best deal for their money, that lively competition and a wide range of services become the norm and that customers can switch supplier.

In the rail markets, too, there is still much potential for competition. Our work will help to get more traffic from new providers off the road and onto the rail.

The situation in the postal market has not changed significantly. In principle, fair, workable competition exists in the parcels, express and courier market. In the letter market, by contrast, the emergence of any such competition continues to be stymied by Deutsche Post AG's exclusive licence. Independently of this, however, price levels for letters in Germany have again fallen as a result of regulation.

It is pleasing to note continued growth in the telecommunications market, driving the German economy as a whole. Growth and competition are not mutually exclusive, but mutually beneficial, and have launched a huge wave of innovation and investment.

This growth is due, in the main, to two factors:

- the spread and use of mobile communications,
- use of the Internet and the spread of broadband access.

However, the fixed network, where voice has been challenged by low-cost mobile offers, has experienced a renaissance with DSL and will be a strong engine of growth for some time to come.

There were around 10.4 million DSL lines in use at the end of 2005, and thus an increase of 3.6 million customers in this one year alone.

27 percent of households now have a DSL connection (after 17 percent in 2004). The disproportionately high increase in competitors' market share is thus not surprising, but simply a result of competition. At the time of the last report the competitors provided only 9 percent of the DSL lines, a figure that had more than quadrupled by the end of 2005 to reach 38 percent.

Yet it should not be forgotten that these success stories have been possible only as a result of consistent, competition-oriented regulation.

And so I am concerned about a debate that often lacks nuance, supposedly saying "over-regulation must stop, so that investment and innovation can be promoted". Apart from the fact that such arguments always come from a particular lobby, this report demonstrates exactly the opposite of what the proponents suggest as fundamental changes. Opening up monopoly networks, particularly in the access area, has spurred a new round of investment and dynamic growth in the telecoms market.

The Federal Network Agency is still able to respond to new trends with the necessary flexibility. Both the EU regulatory framework and the German Telecommunications Act (TKG) provide scope – as with international calls, for instance – to withdraw regulation when competition has developed sufficiently.

The continuation and review of the regulatory framework should therefore be discussed objectively as part of the 2006 EU reviews. Creating a single European competition framework is appropriate if only because a large number of telecoms companies operate across Europe and would rightly categorise national "go-it-alone" approaches as a market barrier.

On balance, this report is positive and better for competition than many had predicted.

However, the Agency is always happy to engage in dialogue and to respond to facts- and arguments-based criticism.

After all, our aim is to create planning and investment certainty for the business world, so that opening up and providing access to monopoly networks continues to drive innovation and growth.

Matthias Kurth
President

New responsibilities

The Agency's work in 2005 – besides a number of important activities to do with the continuing duties of the former Regulatory Authority for Telecommunications and Posts – was determined by two main events:

- assuming responsibilities associated with regulating the gas and electricity markets,
- preparing to assume responsibilities for securing non-discriminatory access to railway infrastructure.

Enactment on 13 July 2005 of the Second Energy Statutes Reorganisation Act also amended the Energy Industry Act (EnWG). This gave the Agency responsibility for the legal aspects of gas and electricity supply. Reference is made to the chapter on energy regulation for more details of the Agency's functions and powers in respect of securing access to gas and electricity networks, price regulation included, and supervision of compliance with unbundling and other regulations. At this stage it should just be said that the amended Energy Industry Act has widened the former Regulatory Authority's remit to include two sectors that are very important for the economy overall.

Enactment of the Third Railway Legislation Amendment Act on 28 April 2005 also tasked the Agency with securing non-discriminatory access to railway infrastructure as from 1 January 2006. Previously, this had been the responsibility of the Federal Railway Authority (EBA). Reference is made to the chapter on rail regulation for more on the Agency's functions and powers under the General Railway Act (AEG). Thus another important network-based economic sector has been added to the Agency's remit.

Back in July 2002, in its 14th Report 2000/2001 "Network Competition through Regulation", the Monopoly Commission called for the introduction of ex ante regulation of access to networks and other infrastructure facilities in the energy and rail sectors, recommending that a "general regulatory authority for network-based sectors" be set up, incorporating the existing Regulatory Authority for Telecommunications and Posts. Staff rotation within the new authority should ensure that individuals did not become too associated with any one sector or business.

What seemed highly unlikely then – at least as far as the staff at the former Regulatory Authority were concerned – has now become reality. In his monitoring report on the impact of negotiated network access on energy policy and competition published on 31 August 2003, the then Minister of Economics and Labour proposed that the Regulatory Authority for Telecommunications and Posts be charged with gas and electricity regulation. The lawmakers took up and implemented this pro-

posal in the amended Energy Industry Act. And, during negotiation of the amendment of the General Railway Act, it was decided to widen the Regulatory Authority's remit still further to include access to railway infrastructure, transferring these responsibilities from the Federal Railway Authority.

Consequently, a name change was needed. After considering various proposals, the lawmakers finally decided on "Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway" (Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen), which was put into effect on 13 July 2005.

However, much more radical for the regulator and its staff than the actual name change was creating the organisation for the new energy and rail sectors. An energy start-up team was brought into being in 2004, well in advance of the adoption of the legislation, to address the basic organisation and energy issues. It should not be forgotten that the creation of a wholly new area is a tremendous challenge for any organisation, and one that has to be met by the existing staff on top of their normal duties. Included in the start-up team therefore were staff from various organisational units, performing their normal duties in addition because of staffing constraints.

Meanwhile, the Agency has four more Ruling Chambers, responsible under the Energy Industry Act for most of the decision-making, and a specialist department, Department 6, comprising twelve sections in all. At present, more than one hundred members of staff are employed in these units, and recruitment is still not completed. Staff and resources are deployed where required and further staff taken on and organisational adjustments made in line with the dictates of efficiency.

Yet this should not give the impression that the Agency has not also taken forward the telecoms and postal sectors, both as regards organisation and the issues involved. In the period under review restructuring has taken place here, too. For instance, sections have been concentrated or tasks transferred in order to maximise the efficient use of human resources. The organisation chart reflects the Agency's structure at the end of 2005.

Although not legally bound to do so, the Agency, in building up its energy regulation, has partially implemented the Monopoly Commission's ideas on staff rotation. Vacancies have been advertised both internally and externally, so that at all levels there is a mix of experienced staff from the Agency, experts from the private sector, and job beginners. This guarantees the desired transfer of expertise from the telecoms and postal sectors. The Agency has also drawn on the know-how of established staff in the energy sector. It has filled the resulting telecoms and postal vacancies using available established posts, to prevent the telecoms and postal sectors from suffering a damaging loss of staff.

Not yet included on the organisation chart is the rail regulation start-up team established on 1 January 2006. The core of this team is made up by twelve members of the Federal Railway Authority who moved to the Federal Network Agency with the transfer of responsibilities on 1 January 2006. Unlike in the energy field,

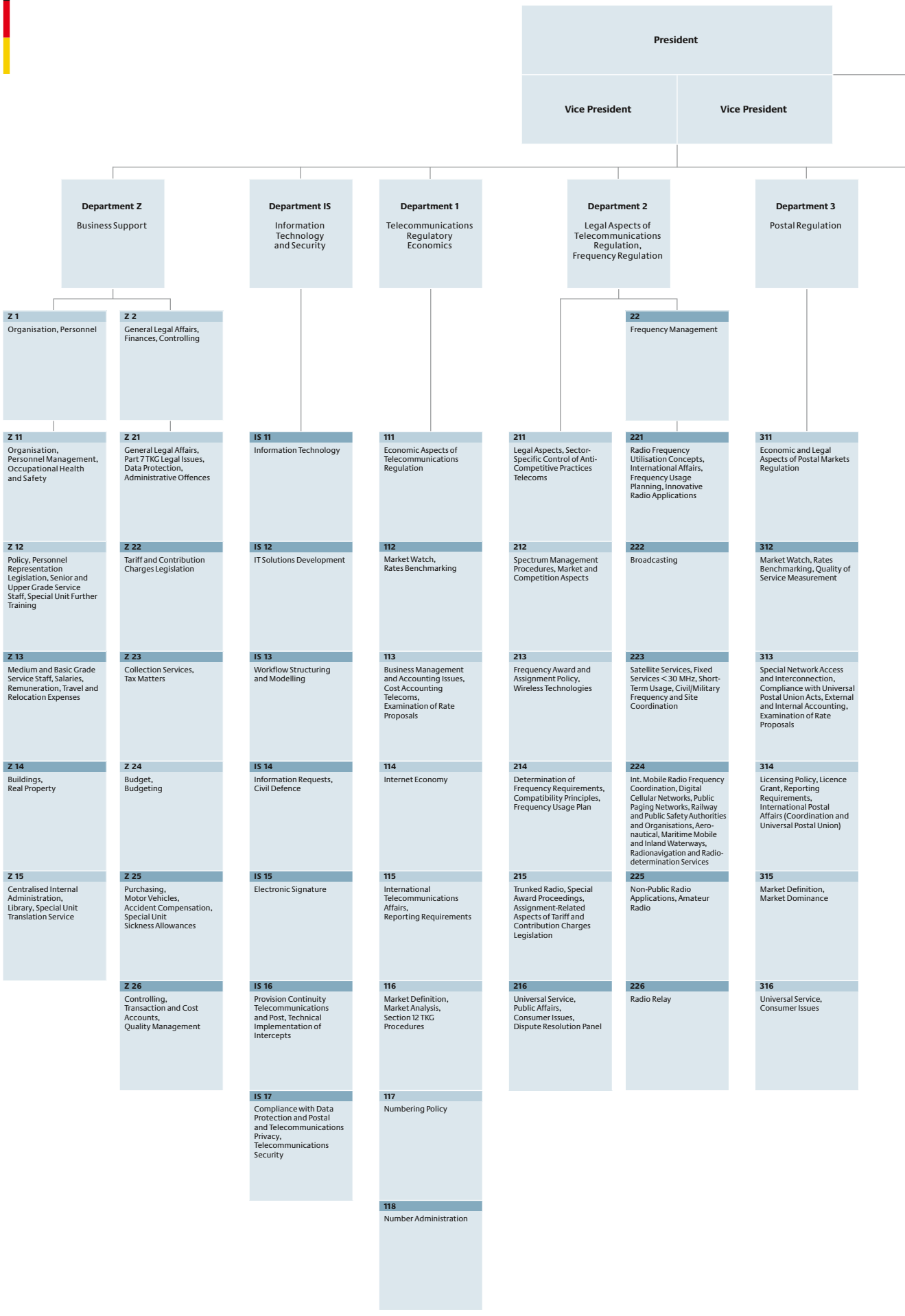
sector-specific railway expertise does not have to be acquired from scratch. Rather, a smooth transition has been possible as a result of taking over experienced staff from the Railway Authority. In all, the Agency has received 21 established posts from the Railway Authority. The vacancies will now be filled without delay. Also, the rail regulation working group set up last year following the energy model has sought to obtain further posts for rail regulation from those responsible for the budget. A decision is still pending, however. The Agency would like to see the creation of a separate department for rail regulation comprising five sections. It is not planned to set up a Ruling Chamber, nor is this envisaged by the legislation. The 2006 organisation chart would then be widened accordingly.

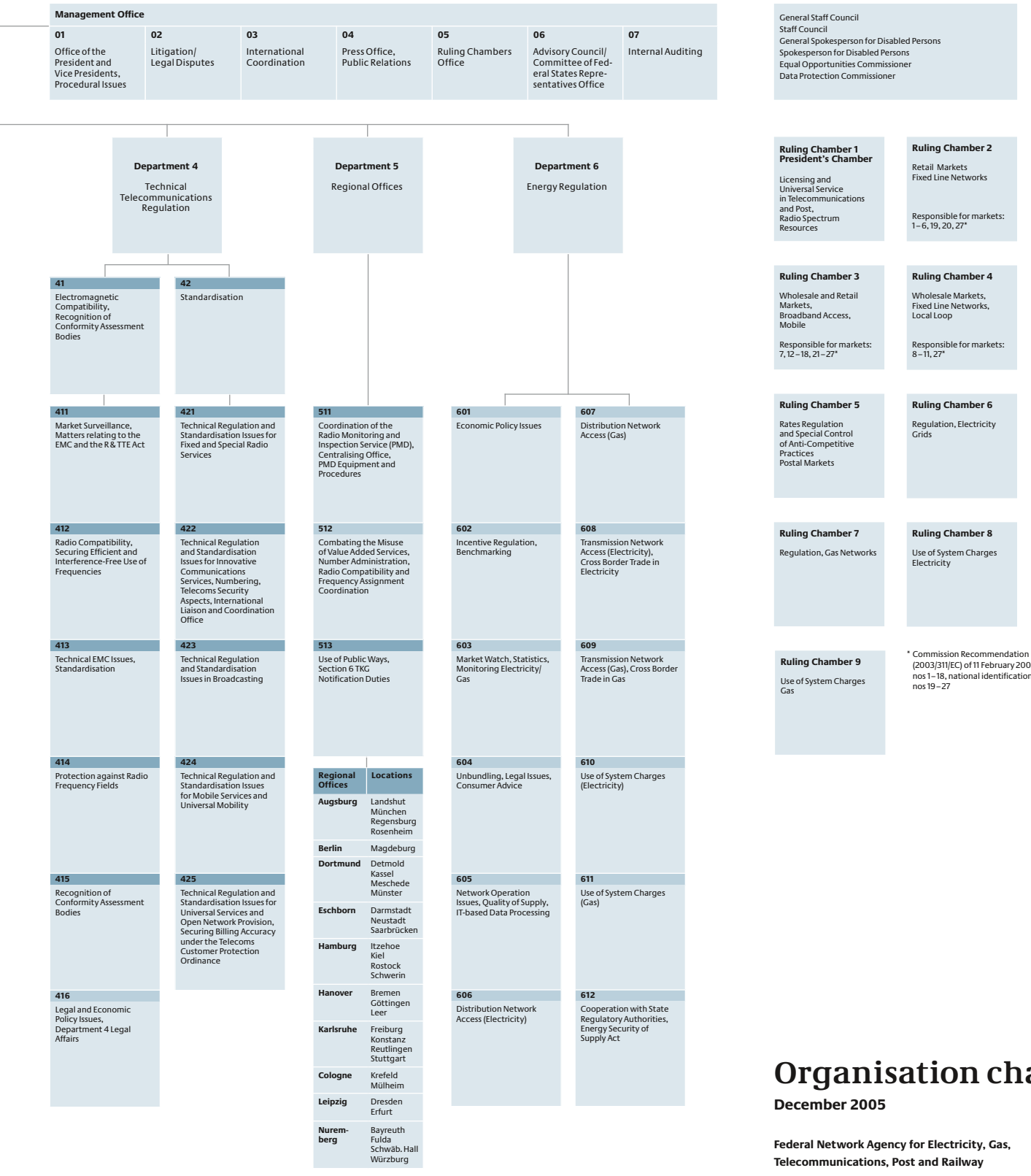
One of the reasons for the assignment of responsibilities in the energy and railway sectors was the experience the Agency had gained in opening up former monopoly markets to competition. Through its regulation of the telecoms and postal sectors the Agency has acquired considerable know-how that is transferable, at least in its fundamentals, to other network-based sectors. In economic terms, network-based sectors in which the networks constitute the bottleneck that requires regulation, follow the same principles. Even if the legal underpinnings differ, many of the basic procedures and regulatory principles are the same. Most of what is new, and thus most of the challenges, lie in the – often technically completely different – framework conditions and the workings of the different network sectors. Here, the Agency, in addition to building up its own expertise, will also avail itself of external help, for instance from other public authorities or from experts in the field, in order to make essential decisions for the competitive development of the markets.

There are also differences, for instance, in the companies primarily affected by regulatory measures. In post and telecoms, core regulation measures generally depend on the presence of significant market power, or dominant position. Because of the former monopolies, one company only, as a rule, is subject to regulatory intervention. In the energy and railway sectors, by contrast, regulation generally extends to all operators of infrastructure. The result is many regulated companies and many rulings. Moreover, in the energy and railway sectors, only part of the value chain, access to the networks, is subject to Agency regulation. In telecommunications, the set of legal instruments extends over the whole of the value chain and thus also covers regulation of retail products and prices, for instance.

The Agency's work in 2006 will focus on completing the energy department and rapidly establishing the rail regulation department. The Agency will make every possible effort to enhance synergies arising from its experience of and parallels in the individual sectors.

Federal Network Agency





Organisation chart

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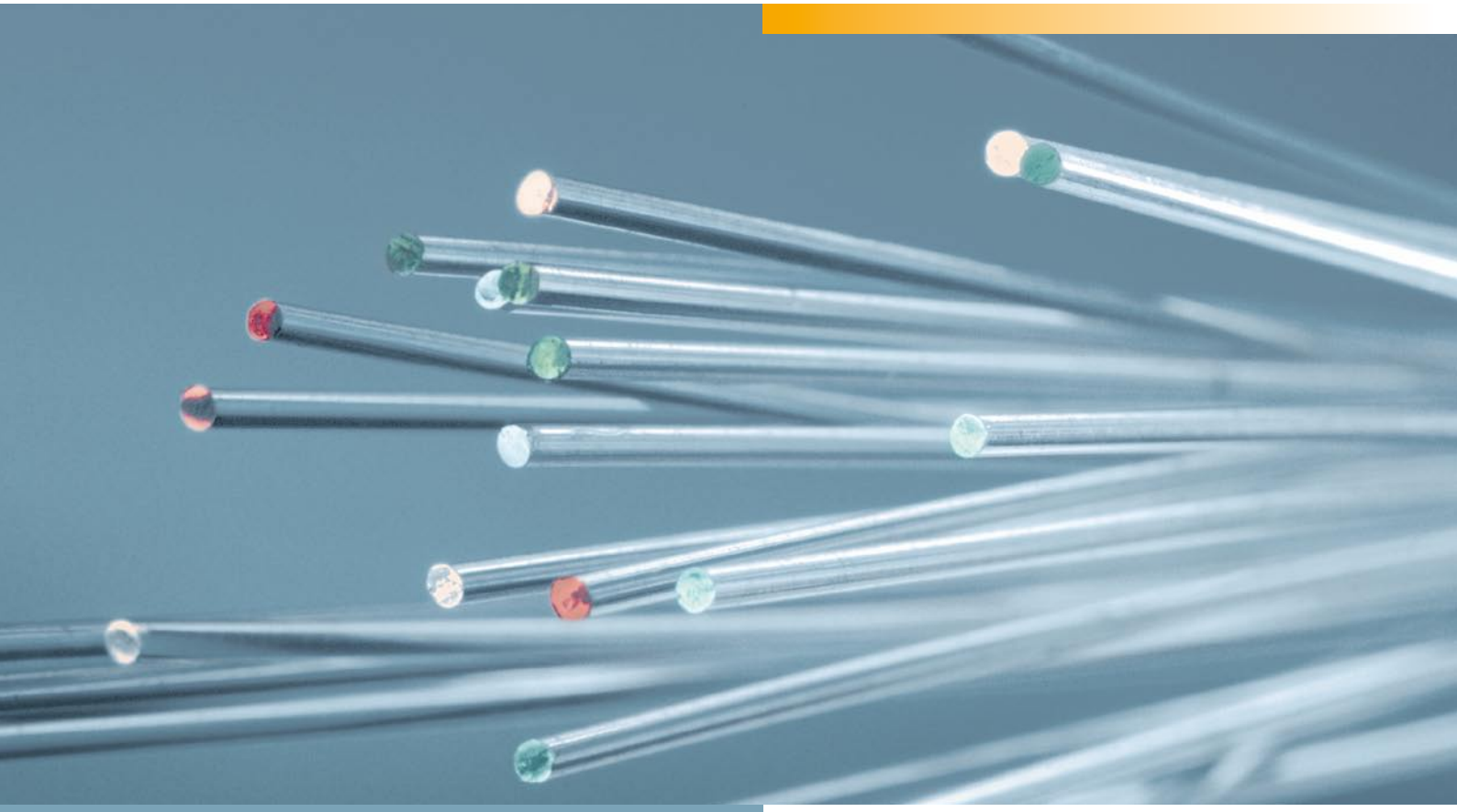
Triple play in Germany



The emergence of triple play

The term "triple play" is increasingly on everyone's lips. It refers to a business model that bundles voice, Internet access, television and video services into a single package for customers with a broadband connection. Triple play has also been the subject of several studies. According to a survey carried out by Insight Express in 2005, 81 percent of ADSL (Asymmetric Digital Subscriber Line) subscribers in Europe were interested in the possibility of obtaining triple-play services from a single provider, while the figure for Germany was even higher at 96 percent. In Germany, Steria Mummert Consulting estimates that the market for triple-play services will grow to three million households by 2010, generating revenue of around €1 billion. Some 60 percent of the companies surveyed indicate that they are willing to invest in the launch of triple-play services in the next three years. In fact, providers are planning to invest around €4 billion in new broadband structures. And 2006 will see a further step towards a triple-play future with the launch of Internet-based television (IPTV) and other services.

Triple play is attracting growing attention, which is why this section is devoted to a brief overview of the topic. Triple play benefits the consumer by combining separate bills for TV, Internet and telephone, not to mention customer service, into one. The service gains are often accompanied by price savings: if triple-play services are all provided through the same technological platform, the customer no longer has to pay for multiple connections, such as DSL and cable TV. In order to deliver triple play, companies need technologies that are able to supply telephony, Internet and video services. And whatever the platform, it is essential that it provide an extremely reliable, high-bandwidth connection to the end customer, one that is capable of carrying phone calls, TV channels and Internet traffic simultaneously. In terms of marketing, triple play can serve to tweak customers' interest, strengthen customer loyalty and further boost the growing market for broadband.

Customers can currently choose from three triple-play platforms, the first of which are the cable TV networks. The core business of the network operators, which was previously confined to transmitting television and radio signals, has now extended into the realm of broadband data services and voice telephony. This became possible once the cable networks were upgraded to offer return channel capability right into the home.

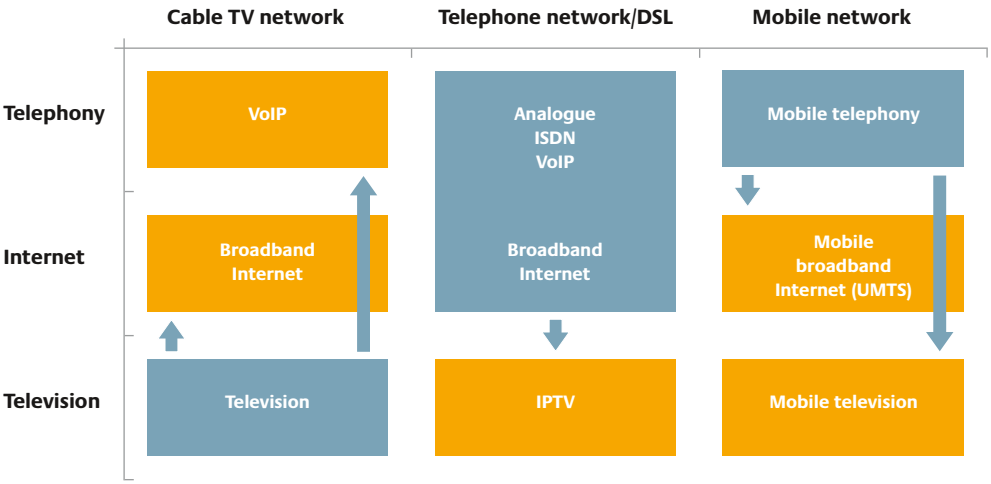
Conventional telephone networks that have been upgraded to provide DSL access constitute a second platform. Telecoms network operators are now adding broadband Internet access, video-on-demand and Internet TV to their traditional core business of telephony.

Mobile wireless networks are in the process of becoming a third platform. Wireless providers – originally confined to voice transmission – are increasingly branching out into data and video services. UMTS opens the door to broadband Internet services, video communication and TV entertainment. And the arrival of technology that allows mobile phones to receive digital broadcasts will enable users to enjoy inexpensive, unlimited mobile TV and radio. Mobile operators are restricted by their limited bandwidth, however, and in the near future will not be in a position to offer a mass-market product to replace the home television set.[1]

It is also possible to combine triple-play services on different platforms: customers may, for example, obtain DSL and mobile phone services from a single provider. At present, however, true triple play is only offered by cable TV networks.

1 Source: Solon Management Consulting GmbH & Co. KG

Triple-play platforms



Triple play on the cable TV network

Cable network operators intending to offer Internet and telephone services have to upgrade their existing networks, which were designed for TV transmission only, to offer return channel capability. This requires increased bandwidth, which in turn opens the door to multimedia services. By employing data compression techniques, the transmission of digital video then becomes economically viable. The modernisation of Germany's cable TV networks began sluggishly. This was due primarily to the high cost of upgrading the networks, as well as the fact that cable companies often had no direct relationship with end users (network level 4). Subsequent advances in technology have reduced the upgrade costs and since 2003 the cable TV operators have been pushing ahead strongly with the modernisation of their networks.

After the telephone network, the cable TV network is the largest communications grid offering direct access to customers. At present, 53.5 percent of all German households are connected to this network and there is the potential for this figure to grow to around 68 percent. Upgraded cable networks use fibre-optic cables between the head-end and the last distribution point. Broadband coaxial cable is then used to bring the signals into the home. Some cable networks already offer bandwidth of 20 Mbit/s for Internet use, which makes it possible to transmit two high-definition television channels (HDTV) at the same time.[2]

In order to take advantage of triple-play services, all that customers need is a modem installed between the cable box and the TV set, PC and telephone. A special decoder and an HDTV-capable TV set are required in order to receive HDTV signals.

According to cable TV operators, by the end of 2005 the number of households that could be connected to networks with return channel capability totalled some six million (18 percent). In reality, however, at the end of 2005 there were only 240,000 customers who accessed the Internet via a cable modem. By the end of 2007, approximately 45 percent of all the households that constitute the potential market could be in a position to receive Internet and telephone services via cable.[3]

2 Using IPTV technology
3 Source: Solon Management Consulting GmbH & Co. KG

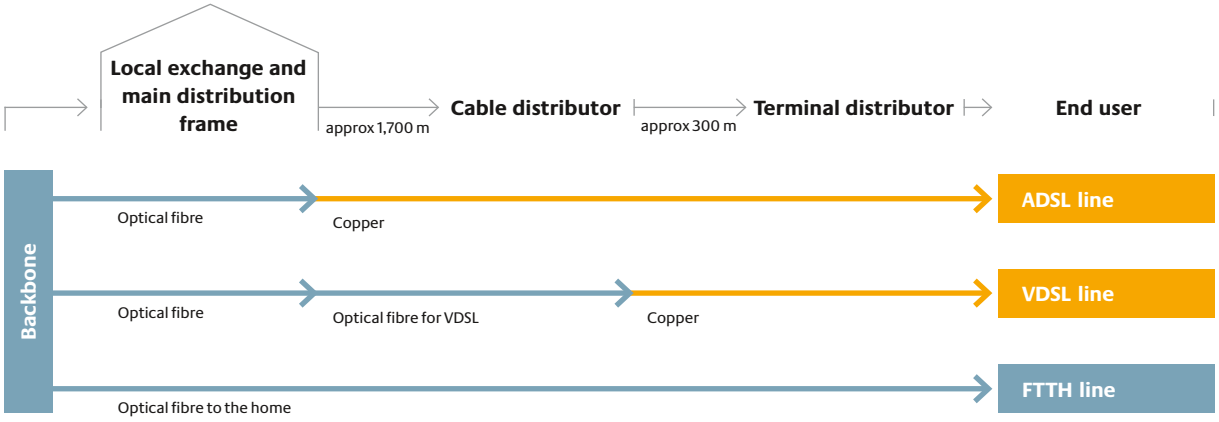
Triple play on the telephone network/ using a DSL platform

Traditional two-wire telephone access networks have been upgraded for digital broadband transmission. Digital subscriber lines are available in a number of variants, which transport data at different bit rates depending on the distances involved. ADSL2+ technology allows data to be transmitted at up to 24 Mbit/s, while the latest variant – VDSL or very high bit-rate DSL – promises speeds of up to 50 Mbit/s. VDSL technology is in the process of being introduced and requires hybrid network structures that employ fibre-optic cable as far as the cable distributor. This means that two-wire lines need only be used between the exchange and the end user, thereby opening up the possibility of higher bit rates. Investment in fibre-optic network upgrades is therefore required in order to achieve very high bit rates. After this, the next step is to bring fibre to the home (FTTH): this would entail an extension of the fibre-optic cable all the way to the end user.

Broadband Internet access is the best-known application of DSL technology. It is possible to surf the Internet using the broadband connection and, at the same time, make telephone calls over the subscriber line and conventional telephone network. Telephone calls can also be made over the DSL line itself thanks to voice over IP (VoIP). Furthermore, DSL lines can be used to watch films (video on demand) and IPTV. Very high bit-rate DSL lines are able to carry very high definition video transmissions as well as several TV channels (HDTV) in parallel. This makes it possible for individual end users to customise the service they receive, which includes content from all over the world transmitted at top quality.

DSL providers who wish to add Internet-based television to their product portfolio must upgrade their networks to deliver the high bandwidths needed to transmit films. Video data can in fact be transmitted at speeds well below 1 Mbit/s using streaming technology, yet this method is only viable for small images and the quality is often inadequate. Only the latest digital compression and transmission technology can deliver the high-quality, full-screen images demanded by many users. Using MPEG-2 (Motion Pictures Expert Group 2) compression technology, it is possible to transmit PAL (Phase Alternate Line[4]) TV pictures at a reduced bandwidth of 3 – 4 Mbit/s. With the more advanced MPEG-4 and WMV9 (Windows Media Video 9) technologies, it is possible to reduce bandwidth still further, to around 2 Mbit/s. HDTV, which is set to become the standard for the future, requires over 20 Mbit/s bandwidth for MPEG-2 transmission

Use of fibre-optic and copper cables in DSL networks



and approximately 10 Mbit/s in the case of MPEG-4 and WMV9.

Taking account of the maximum bit rates that can be achieved with the network technology available, the scenario in Germany looks like this: ADSL lines, which currently predominate, are capable of transmitting up to 6 Mbit/s. This means that, if older compression techniques are used, two PAL channels can be carried at the same time. If either of the newer compression techniques is used, it becomes possible to carry up to three channels. However, the reliable transmission of HDTV signals is only possible with ADSL2+ technology, where the maximum bit rate is 24 Mbit/s, or the even faster VDSL and VDSL2 standards.

Consumers can choose from a range of devices for viewing IPTV. End users who want to keep their television separate from their PC can fit any television set with a set-top box capable of receiving IPTV. And if the PC is to be used to watch television, users simply need a media PC with suitable specifications. Future products may combine the set-top box with a games console, and in the medium term it is expected that the boundaries between different types of device will become more fluid as multimedia services expand their reach throughout the household.

Triple play on the mobile phone network

The third triple play platform that needs to be mentioned consists of mobile phone networks, operating either in an independent capacity or in conjunction with broadcasting networks. Such constellations can deliver telephony, Internet and television services to mobile phones and other handheld devices and are included here for the sake of completeness. The mobile user profile, terminal equipment, price level and restricted transmission rates mean that this platform occupies a special niche with regard to triple play.

There are two mobile TV broadcasting standards: DVB-H (Digital Video Broadcasting-Handheld) and DMB (Digital Multimedia Broadcasting). Although not compatible with each other, the two are similar in terms of the quality of images they deliver. DVB-H was developed from DVB-T (Digital Video Broadcasting-Terrestrial) and uses the same spectrum, which has become available thanks to the switch from analogue to digital television. DMB is based on the DAB (Digital Audio Broadcasting) radio standard. It was developed in Germany and has already been used with success in Asia. Both DVB-H and DMB are currently being tested in Germany in order to identify their respective advantages and disadvantages. In some countries[5], these transmission technologies are already in regular use.

Today's UMTS mobile phones are already able to receive television signals, although UMTS technology is not suitable for simultaneous reception by large numbers of people. The arrival of HSDPA (High-Speed Downlink Packet Access) technology in 2006 will boost the performance of UMTS networks from 384 kbit/s at present to around 1.8 Mbit/s and, in a few years time, to as much as 7.2 Mbit/s in the downstream link. If, however, thousands of mobile phone users were to access television services at the same time, UMTS cells would be unable to cope. By contrast, in the case of DVB-H and DMB the number of simultaneous users is not a significant factor: DVB-H and DBM are broadcasting standards and individual customers therefore do not use up capacity.

Booz Allen Hamilton estimates that this market will be worth €200 – 300 million by 2007. Various consumer studies have uncovered a relatively large interest in mobile TV on the part of end users. Market research as well as the experience of other countries suggests that customers would be willing to pay approximately €10 a month for such a service.

4 The current TV transmission standard in Germany
5 USA, South Korea

Events with mass appeal, such as football games, the World Cup, the Olympic Games, international exhibitions, major concerts and big political occasions present excellent opportunities to showcase mobile television and the kind of content it can deliver. It is not yet clear when the German market for mobile television will finally reach maturity.

Supply and demand at the end of 2005

At the end of 2005, there were over twenty providers of triple-play services in Germany, although some of them only offered their services to a local audience. Most of these companies were originally cable network operators. It needs to be emphasised that at least eight companies offer triple-play services on **two** platforms, namely telephone/DSL and cable TV. Although this approach presents end users with a one-stop shop for triple-play services, there are fewer network synergies for companies to reap. More than ten companies offer triple-play services on a **single** platform, in this case cable TV. This group includes Germany's three main cable operators: Kabel Deutschland, Kabel Baden-Württemberg and Unity Media, with their subsidiaries iesy, ish and Tele Columbus. In addition to the aforementioned operators, the German market also included a number of regional cable TV providers at the end of 2005.

As of the end of 2005, the telephone network/DSL platform had not been used to provide Internet TV as part of a triple-play portfolio. The video-on-demand services offered by several companies via DSL lines are deemed to fall short of true IPTV. Various press reports indicate that a number of fixed network operators and DSL providers, including DTAG, Arcor, HanseNet and Versatel, are thinking about entering the TV market and plan to launch TV services via DSL ahead of the 2006 World Cup. It is even possible that Internet service providers without their own network will enter the triple-play market in the future.

In view of the large number of DSL providers, the number of companies offering triple-play services via DSL is likely to grow, although this will depend on the availability of attractive content. The fact that, as of the end of 2005, DSL technology had not yet been used to provide triple-play services means that triple-play users are to be found predominantly among the ranks of cable customers. They are joined by customers of companies that offer cable TV and a telephone/DSL service either separately or in combination. At the end of 2005, the number of such consumers was estimated to be around 150,000, up from approximately 60,000 in 2004.

Opportunities and risks

By the end of 2005, only a small proportion of the broadband connections in operation were being used for triple-play services. A survey of DSL providers found that the demand for high-speed DSL lines (faster than 3 Mbit/s) had slowed in 2005[6]. It is estimated that, at the end of 2005, some 90 percent of all the private broadband connections in operation delivered less than 6 Mbit/s bandwidth. It will therefore be interesting to see if the increasing availability of triple-play services leads to a growing demand for higher-bandwidth connections.

The arrival of faster ADSL2+ and VDSL lines and the modernisation of cable TV networks may lead to increasing competition between cable TV operators and DSL providers. At present, the greater size of its customer base would seem to give DSL the competitive edge over cable TV. However, it is not yet apparent how intense the competition will be between these two platforms. For instance, the cable network operators have limited scope to expand into the Internet and telephony markets, at least in the medium term, owing to the fact that large parts of their networks have yet to be upgraded. On the other hand, the DSL providers will be hampered by the structure of Germany's television market,

6 Source: DSL-Magazin.de

which includes numerous free TV channels. This makes it unlikely that there will be a wholesale switch from conventional television services to DSL providers. It is instead expected that DSL providers will expand into high-value pay TV or on-demand services in the medium term. There are also certain legal questions to resolve with regard to broadcasting.

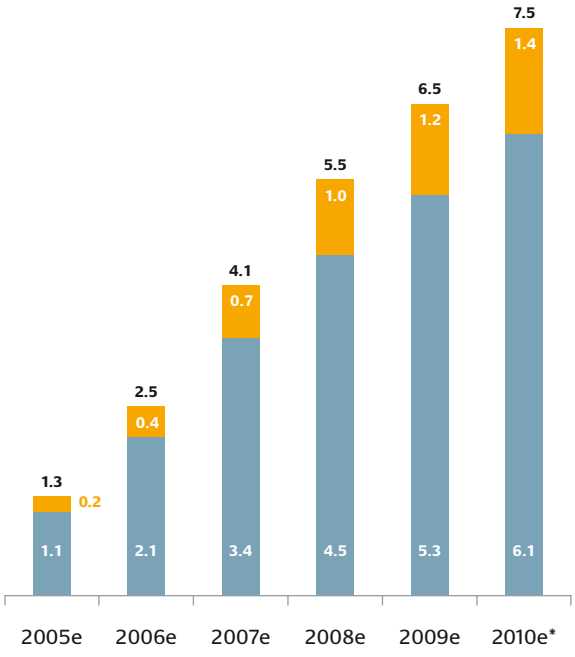
In western Europe, the triple-play market is expected to continue growing to around € 7.5 billion by 2010. The DSL infrastructure will probably account for most of this revenue.[7]

The experience of other countries, such as France, shows that triple play has strong potential. However, even though some triple-play services are already available in Germany, there remains the basic question of whether the strong growth seen in other countries can be replicated here. There are indeed some problems that need to be solved before Germany's dual-play services can be transformed successfully into a triple-play market. For instance, the wide range of free TV channels available – Germany has more than any other country in Europe[8] – is likely to prove a particular obstacle to the provision of television services via DSL, while there is also the issue of broadcasting rights to consider. Only if the content is sufficiently attractive will there be significant consumer interest in new TV services. Potential customers will also be drawn to triple play by the prospect of the price savings that can be achieved by purchasing products in a bundle instead of individually.

In light of these factors, DSL and cable TV providers will seek to undercut each other in order to win customers. However, it is not yet apparent how intense the competition will be between the two platforms.

The triple-play platforms described all have one feature in common: they are aimed in the first instance at urban areas. It is well known that there are generally few or no high-speed connections in rural areas, via either cable TV networks or telephone networks/DSL lines. UMTS coverage is similarly sparse at present. It will, however, be possible to improve access as further technological advances are made. Wireless technologies such as WIMAX (Worldwide Interoperability for Microwave Access), may open up the possibility of triple-play delivery in areas where the distances involved rule out high-speed physical connections. The geographical reach of broadband platforms can be extended by using wireless links to bridge the gap between the dial-in node and the subscriber. At the end of 2005, the Federal Network Agency began distributing spectrum for such services, thereby paving the way for the spread of these technologies.

Market for triple-play services in western Europe[7] (€ billion)



7 Source: Solon Management Consulting GmbH & Co. KG
8 Source: A.T. Kearney GmbH

Telecoms

Market watch

This section addresses the current situation and developments in the telecoms market by examining selected market data. A review of companies, investments, infrastructure and jobs is followed by an analysis of the various services, focusing on the number of customers, quantity of traffic and volume of revenue.

TOTAL MARKET FOR TELECOMS SERVICES

Revenues

Revenues in the telecoms services market rose by 4 percent to € 66.8 billion in 2004, up from € 64.2 billion in 2003.[1] Total revenues for 2005 are expected to be approximately € 68.3 billion.[2] This means that total telecoms revenues have risen continuously from € 44.2 billion in 1998, when the first steps were taken to liberalise the market, to € 66.8 billion in 2004. However, the growth has not been constant across the whole market. The fixed line services segment (comprising line rental and call charges) is the largest in terms of revenue. After several years of decline, this segment has been experiencing a significant upturn since 2002. This is due in particular to a stronger inflow of revenue from broadband services. Revenues in the second-largest segment – mobile telephone services – have enjoyed uninterrupted growth since 1998. These services continue to account for a large part of the overall revenue growth in 2005.

Investment

The volume of real investment in the German telecoms market totalled € 5.7 billion in 2004. After rising continuously in the first years following liberalisation, investment peaked at € 11.5 billion in 2001. Within the next two years, investment had halved to € 5.5 billion in 2003. This downward trend stopped in 2004. Since the 2001 peak, the decline in investment has reflected the decision of Deutsche Telekom AG (DTAG) to slash capital expenditure from € 6.3 billion in 2001 to € 2.6 billion in 2003. The decline stopped in 2004, when the company invested approximately the same amount as the previous year. Capital expenditure by competitors peaked in 2000 before dropping to € 2.9 billion in 2003. There was a slight upturn to € 3.1 billion in 2004, of which € 0.3 billion was allocated to the cable

1 Cumulative revenues comprising revenues of Deutsche Telekom AG and its competitors in Germany.

2 Definitive figures for 2005 are not yet available. The 2005 figures cited here are estimates (shown in tables with "e").

TV network. Capital expenditure by DTAG was therefore lower than the investments made by its competitors. The decline in investment since 2001 is largely confined to the fixed network, an area in which expenditure has fallen from € 8.4 billion in 2001 to € 3.0 billion in 2003, thereby reaching a new low since liberalisation began. In the mobile market, investment has been climbing again since 2002, rising to € 2.5 billion in 2003 and € 2.6 billion in 2004. Compared to the period between 1998 and 2000, however, the pace of growth remains modest at € 0.1 billion per year.

Infrastructure

In 2003, DTAG's competitors stepped up efforts to expand their fixed network coverage. This reduces the distance for the origination and termination of calls through the DTAG network to the networks of alternative providers. By the end of the first quarter of 2005, five companies had interconnected their networks with all DTAG exchanges that offer an interworking function, while a further four carriers were almost in the same position. DTAG has set up 474 interconnection sites throughout Germany, at which DTAG's interconnection partners can interconnect with its fixed network.

Optical fibre technology makes it possible to transport an almost limitless volume of data across great distances and is highly resistant to external interference. Modern transmission techniques offer a maximum capacity of several Tbit/s in each fibre. Signals can be transported over 100 km without the use of an amplifier. These characteristics make optical fibre the obvious choice for the network backbone as well as the numerous local sub-networks. At the end of the first quarter of 2005, telcos in Germany had almost 310,000 km[3] of optical fibre links at their disposal, 199,000 km of which was owned by DTAG. This leaves DTAG's competitors with a share of 36 percent.

Microwave links are used in situations where, for economic or other reasons, it does not make sense to use a physical connection. Such links are able to bridge distances of up to 100 km, depending on the spectrum used. In 2005, there were over 65,000 microwave links in operation in Germany, covering a total of 538,000 km.

Free Space Optics (FSO) is a cost-effective way of creating a network between buildings in urban areas. FSO systems are easy to install and use highly concentrated infrared beams to transmit data at speeds of over 1 Gbit/s and up to a maximum distance of two kilometres.

In addition to the fixed network, Germany also possesses a mobile infrastructure that offers nationwide coverage. As of the end of the first quarter of 2005, this comprised 64,000 GSM and 22,000 UMTS radio base stations. Optical fibre transmission systems, as well as point to point and point to multipoint links are employed in the backbones of the mobile networks. In fact, the boundaries in the backbone between fixed and mobile networks are somewhat fluid.[4]

Major steps are being taken to expand the broadcasting infrastructure. The growth of digital terrestrial broadcasting (DVB-T) is proceeding apace. Digital television is replacing analogue technology in urban areas before gradually spreading throughout the whole of Germany. Berlin, northern Germany, North Rhine-Westphalia, the Rhine-Main area, Bavaria, central Germany and Mecklenburg-Western Pomerania have already gone digital, with other key regions set to follow in 2006. The goal is to roll out this new technology to the largest possible audience in the shortest

3 Different cables contain different numbers of fibres. It is therefore impossible to draw any conclusion about the quantity of fibres available on the basis of these figures.

4 The figures for the optical fibre infrastructure and for point to point and point to multipoint links also include elements used by mobile networks.

possible time. Last but not least there is the cable TV infrastructure. After a critical period in which investment in modernisation was halted, the existing cable networks are now being upgraded in many places to provide digital TV, Internet access and telephony in addition to the current analogue services.

Employment

At the end of 2004, there were 225,100 people employed by telcos in the German market. This constitutes a decline of 5,500 (2.4 percent) from the previous year. The DTAG Group reduced its workforce in Germany by 2,500 (1.4 percent) during 2004, after cutting 4,500 jobs (2.5 percent of the workforce) in 2003. This strategy has been observed since market opening began. In 2004, 60 percent of the cuts were made in the company's fixed network division, while in 2003 this division accounted for all of the job losses.

At the end of 2004, DTAG's competitors employed 3,000 fewer people than they had done the previous year, a fall of 5.2 percent. This reduction was confined almost entirely to the fixed network. The level of employment in the mobile market remained approximately stable in 2004, following a decline in 2002 and 2003. The overall picture reveals that the downsizing begun by DTAG's competitors in 2002 is now slowing.

The number of people working in the telecoms services market can be divided along different lines: between DTAG (within Germany) and its competitors on the one hand, and between the fixed and mobile networks on the other:

- At the end of 2004, DTAG's workforce in Germany numbered 170,800 people (compared to 173,300 the year before). Approximately 8,100 of these were employed in the mobile market, down from 9,100 in 2003.

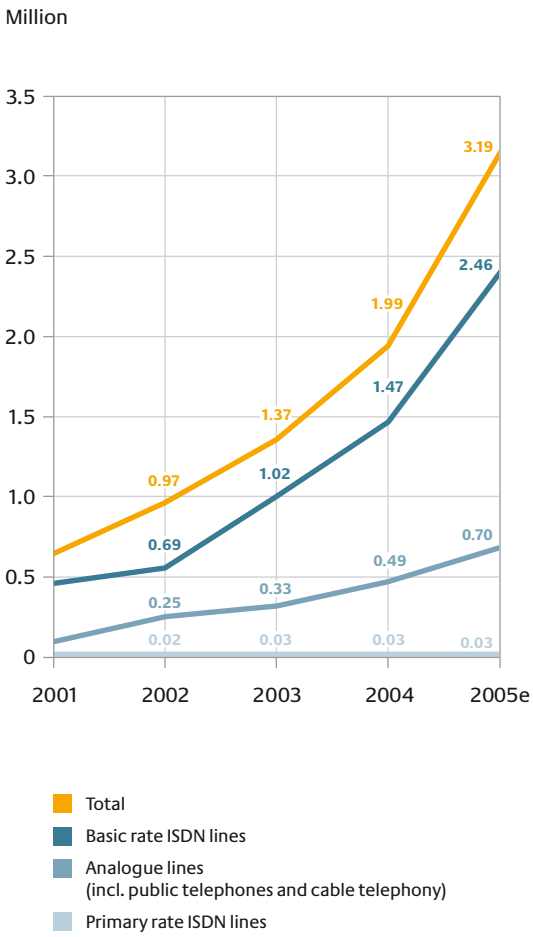
- DTAG's competitors employed a total of 54,300 people in 2004, compared to 57,300 in 2003. Of these, 33,400 worked in the fixed network market (including cable TV), down from 36,100 in 2003. The remaining 20,900 were employed in the mobile market (compared to 21,200 in 2003). Within the mobile market, network operators provided 15,800 jobs and service providers 4,900. The figures for 2003 were 15,800 and 5,200 respectively. The remaining 200 jobs in 2004 were in other segments of the mobile market.

FIXED NETWORK SERVICES

Narrowband access

At the end of the first quarter of 2005, there were 26.8 million analogue lines (public telephones and cable telephony included), 12.1 million basic rate ISDN lines and 125,000

Growth in competitors' telephone lines



primary rate ISDN lines in operation. This produces a combined total of approximately 54.8 million telephone channels at the end of the first quarter, which can be extrapolated into a year-end figure of more than 55.1 million. The total number of telephone channels is arrived at by counting one channel for an analogue line, two for a basic rate ISDN line and 30 for a primary rate ISDN line. At the end of the first quarter of 2005, there was a total of around 7.6 million DSL lines in operation, most of which were used in combination with an ISDN line. Alternative operators had increased their market share to 8.8 percent by the end of the first quarter, providing 4.82 million telephone channels in total. Their market share is expected to have risen to around 11.8 percent by the end of 2005. Across the country, alternative operators accounted for 2.0 percent of analogue lines (excluding public telephones but including cable telephony), 14.1 percent of basic rate ISDN lines and 22.7 percent of primary rate ISDN lines at the end of the first quarter of 2005. There is a general trend on the part of customers to upgrade their telephone lines. This is reflected in the declining number of analogue lines, which are being replaced by ISDN lines or augmented by DSL lines.

The growth in the number of mobile phone users has resulted in a further drop in the total number of payphones and cardphones, with their numbers falling to 106,000 at the end of 2004 and 105,000 by the end of the first quarter of 2005. The competitors' share of this market rose from 3.6 to 3.8 percent. There has recently been a renewed upturn in the use of public telephones, notably by travellers from within the euro zone who use payphones.

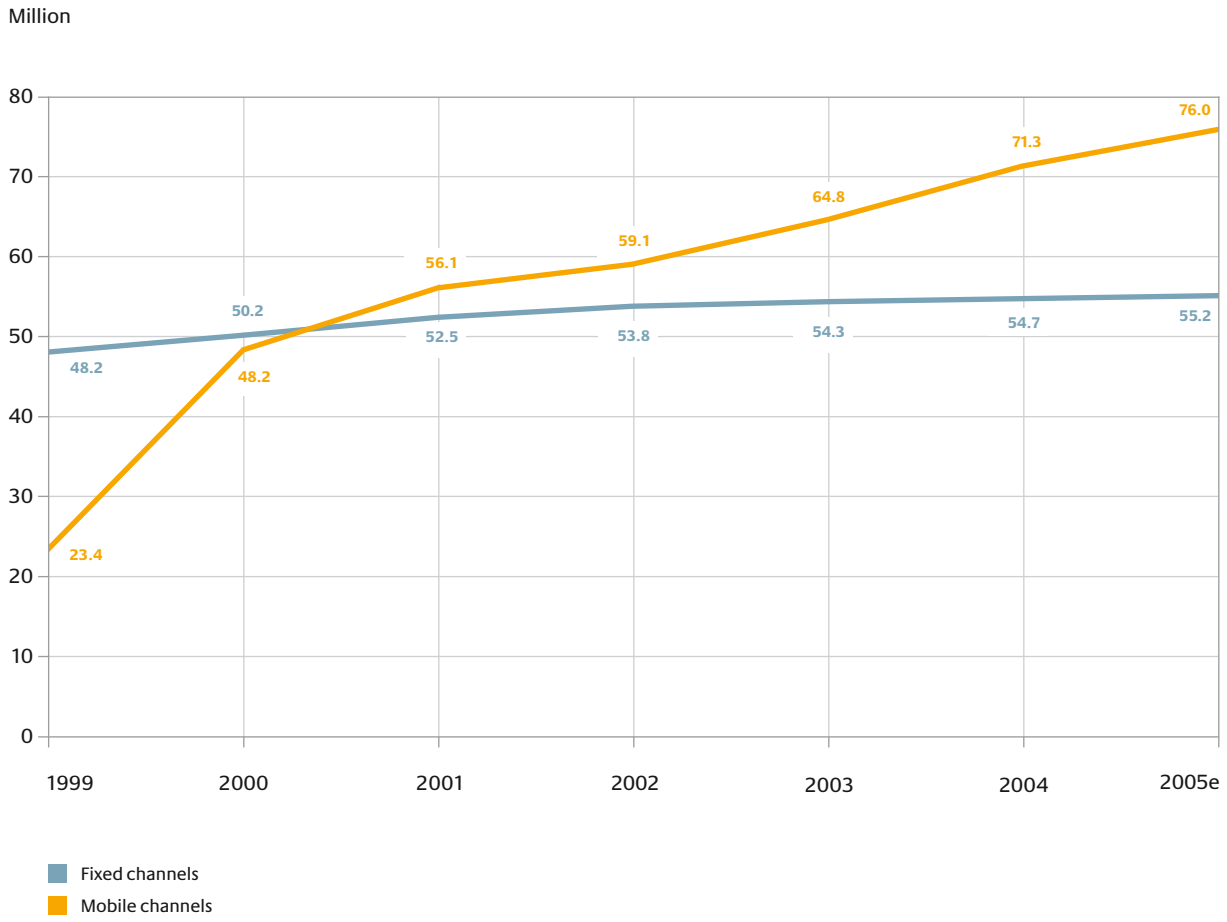
Between 2001 and 2004, the total number of competitors' lines tripled to approximately two million. In the year under review, this figure is likely to have increased to 3.2 million, reflecting a growth rate of 60 percent. Around three quarters of all competitors' telephone lines are basic rate ISDN lines. Growth in the number of analogue lines and basic rate ISDN lines, which are mainly used by residential customers, has far outstripped the spread of primary rate ISDN lines, which are used only by businesses. The latter now account for less than 2 percent of the market.

At the end of the first quarter of 2005, there were 70 companies, besides DTAG, that offered analogue and ISDN lines on the basis of either local loop access agreements with DTAG or their own facilities. Thus there was a choice of access provider for over half the population. DTAG's competitors have enjoyed varying degrees of success in increasing their share of regional markets in recent years. At the end of the first quarter of 2005, their market share in some parts of Germany – measured by the number of telephone channels – was far in excess of the national average of 8.8 percent, and even exceeded 20 percent in some local networks. The success of the regional phone companies can be traced to a combination of wholesale services supplied by DTAG, use of their own infrastructure, broad-based marketing strategies and low pricing.

A comparison of fixed and mobile telephone channels shows that there are now far more mobile voice channels available than there are fixed.

In recent years the number of fixed channels has barely changed while the number of mobile voice channels increased by 10 percent between the end of 2003 and the end of 2004. In the course of 2005, the number of mobile voice channels is likely to have grown by a further 7 percent to approximately 76 million. This clearly shows that wireless technology is in a position to seriously challenge fixed networks. At first glance, these figures seem to emphasise in particular how fixed and mobile lines complement each other. It must be remembered, however, that the only reason for the slight rise in the number of

Growth in fixed and mobile channels



fixed channels is the switch from analogue to ISDN lines; although the number of households in Germany is rising, the total number of fixed lines is actually falling. This indicates a growing trend on the part of consumers to substitute mobile phones for fixed lines, a trend that is made readily apparent by the increasing proportion of households that can only be contacted by mobile phone. According to the market research institute IPSOS, the proportion of mobile-only households in Germany rose from 4 percent in 2003 to 7 percent in 2004.

Broadband access technologies

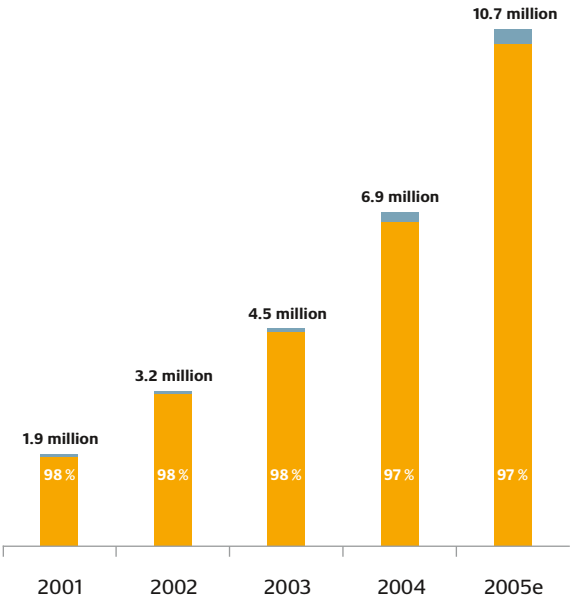
In Germany, fixed-network broadband access is usually provided via digital subscriber lines (DSL), cable TV (cable modem), powerline and satellite. An estimated total of around 10.7 million broadband Internet connections were operational in Germany at year's end. Of these, approximately 10.4 million were DSL lines, 240,000 relied on cable modems, 9,600 used powerline technology and around 57,000 were satellite-delivered. Unlike Internet access via satellite, which is also available from DTAG, powerline and cable modems are only offered by competitors. DSL accounts for approximately 97 percent of all broadband connections and therefore remains the dominant access technology in Germany by some margin.

At the end of 2005, DTAG's competitors had an estimated share of around 40 percent of all broadband connections – double the figure for the previous year.

DSL lines

The DSL market continues to grow at a fast pace. This is partly due to the decision of DTAG to begin reselling its T-DSL lines in mid-2004. Resale has presented competitors with an alternative means of gaining customers, making it no longer necessary for them to operate their own lines. The resale business model allows alternative providers to sell DTAG's DSL lines under their own name. Although DTAG retains responsibility for the actual provision of the line, competitors are now able to offer a one-stop service covering connection and access charges[5] in areas where they do not have their own access network. Competitors that wish to pursue this option must first sign a contractual agreement with DTAG. Interest in reselling DTAG's DSL lines has been seen from companies that also provide direct access themselves as well as from pure Internet Service Providers (ISPs) without an access network of their own. It is estimated that the latter group accounted for some 80 percent of all resold lines in operation at the end of the first quarter of 2005.

Total number of broadband connections and relative share of DSL



In addition to DTAG, there were over 60 companies offering DSL lines in 2005, either through resale or self-operated infrastructure. Most of these providers are companies that have set up their own access networks in particular cities or regions and therefore only offer services at a local level. In addition to these regional operators, there are a small number of companies who offer DSL lines throughout Germany. The introduction of resale is expected to lead to an increase in the number of providers offering their services nationwide. However, due to the limitations of the technology, DSL coverage does not yet extend to all households.

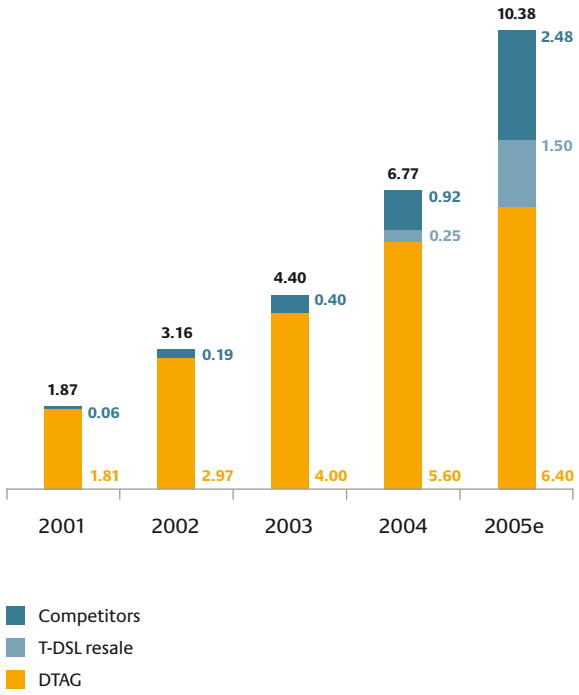
With an estimated total of around 10.4 million DSL lines in operation at the end of 2005 – an increase of 3.6 million in the space of a year – it appears that competition is hotting up. In addition to strong growth in the resale segment, significant gains have also been made by alternative network operators – both regional and national – that provide their end customers with DSL lines either via their own infrastructure or by leasing loops from DTAG. These providers were believed to account for almost 2.5 million lines at the end of 2005, nearly a threefold increase on 2004. The growing popularity of local loop rentals as a means of providing DSL access has also been accompanied by an increase in line sharing.

With a total of around 6.8 million DSL lines at the end of 2004 and an estimated 10.4 million at the end of 2005, Germany remains the European leader in terms of the sheer number of DSL lines in operation.

DSL penetration was up in 2005, with an estimated 27 percent of German households

5 As well as the actual connection, customers also need an Internet access agreement that allows them to use the Internet for a certain fee.

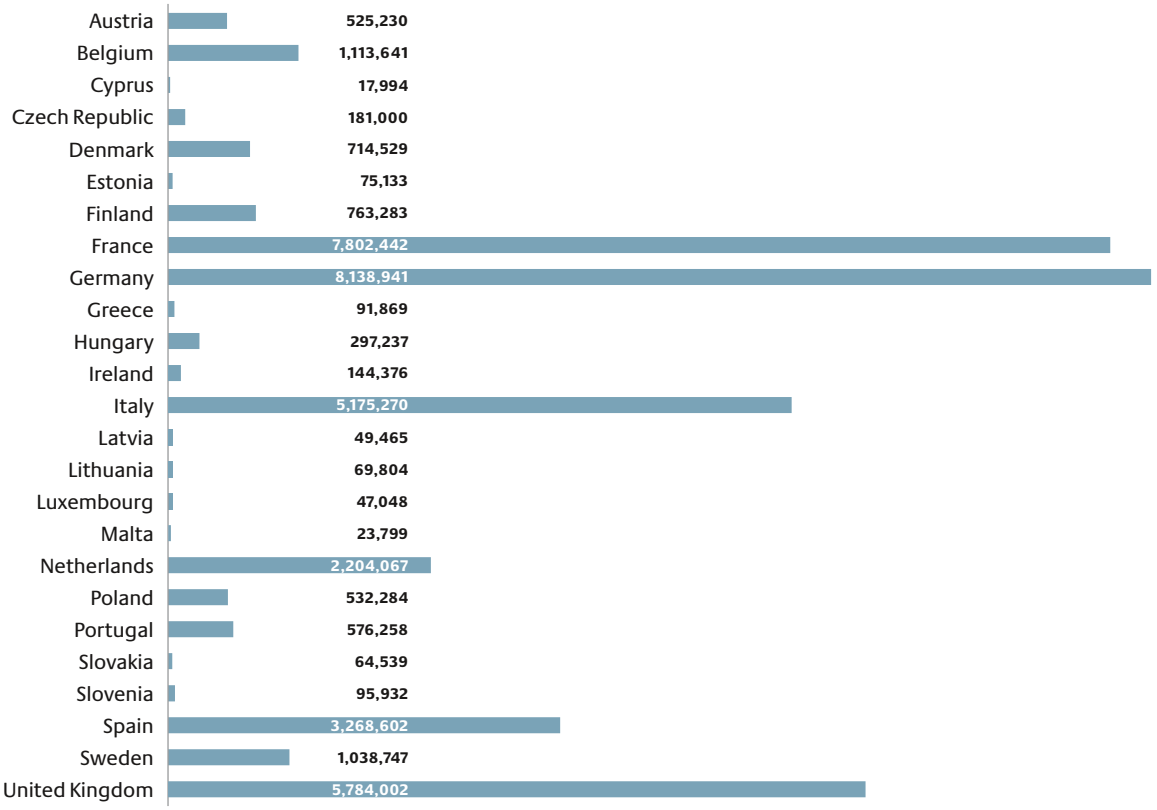
DSL lines in operation (millions)



now having a DSL line. In terms of actual line provision, DTAG was predicted to hold a national market share of some 72 percent at the end of 2005. It therefore remains the biggest player in the market, although its competitors have been able to seize significant market shares in certain regions. Some competitors claim to have already captured over 50 percent of the market in some cities.

The products offered by alternative access network operators generally include a charge for Internet access in addition to the telephone and DSL line. This means that for the most part, their customers obtain a complete package of telephone line, DSL line and Internet access from a single source. In contrast, Deutsche Telekom's T-DSL customers can choose from almost the entire range of Internet price plans that ISPs offer to T-DSL users on the basis of wholesale products furnished by DTAG.

DSL lines in Europe



Source: European Commission, July 2005

The price war among providers of DSL lines grew even more intense in 2005. Whereas in 2004 it was possible to obtain a complete package comprising a telephone/DSL line and flat rate Internet access for approximately € 40, by the end of 2005 comparable packages cost as little as € 30.

Cable access

High-speed Internet access via a cable TV connection is proving increasingly popular in Germany. There are now almost 40 cable network operators that provide this service. They offer competitive rates and transmission speeds of up to 20 Mbit/s. The number of households opting for Internet access via cable modem has increased from 45,000 at the end of 2002 to an estimated 240,000 three years later. Cable companies are rapidly modernising their infrastructure with the result that at the end of 2005 over six million households had a cable connection capable of delivering such a service.

Powerline

Powerline provides high-speed Internet access by using electricity networks to transport data. This means that nationwide coverage is possible and is a reason why powerline technology has attracted much international interest. There are six companies in Germany that offer powerline services. At year's end, some 9,600 households had opted for Internet access via this medium, while a further 155,000 could be connected with a minimum of delay.

Satellite

Satellite links provide Internet access almost irrespective of the local infrastructure. Satellite technology can be used in areas that, for technical reasons, are not served by DSL or cable TV networks with return channel capability. It is available in two forms: in the case of a bi-directional service, both the up- and the downlink are carried by satellite. This requires the use of relatively expensive systems and, although recent advances in technology have led to a sharp fall in costs, the € 1,500 price tag means that such services remain the preserve of business users. There are currently fewer than 1,000 customers who use bi-directional services. Hybrid services only use satellite links for the forward channel, thereby significantly reducing the cost and making the service much more attractive to end users. In this case, the telephone line serves as the return channel. At the end of 2005, approximately 56,000 users operated such systems.

Traffic volumes

The volume of narrowband traffic continues to fall and was estimated to be 337 billion minutes in 2005. This is due to a shift in Internet traffic away from narrowband telephone lines to broadband (DSL). A closer look at the individual segments reveals the following trends:

Local and extended local traffic[6]

The decline in local traffic that took place between 2000 and 2002, partly as a result of the substitution of mobile phones for fixed lines, was offset and even reversed in 2003 with the introduction of carrier (pre-)selection[7] for local calls. After preselection and call-by-call made it possible to opt for a low-cost competitor, consumers have been making more local calls and talking for longer. In contrast, the volume of extended local traffic is falling slightly. Growth in local traffic can be ascribed entirely to DTAG's competitors, whose gains in this segment exceeded DTAG's losses. In 2004, alternative carriers accounted for a

6 The difference between local and extended local traffic is as follows: local traffic is traffic to all destinations not requiring a prefix "0". Extended local traffic is traffic to adjacent local networks or to local networks with a 20-km radius or to destinations possibly within a larger radius but priced at the same levels as local traffic.

7 The amendments to the Telecommunications Act of 21 October 2002 laid the groundwork for the introduction of carrier selection in the local network. Call-by-call and preselection have been available in the local network since 25 April 2003 and 9 July 2003 respectively.

third of all call minutes in the local network and their share is estimated to have risen to more than 40 percent in 2005.

The popularity of carrier selection is not the only reason for the growth in the competitors' share of the local call market. Another factor is the increase in the number of lines operated by competitors. In 2004, (pre-)selected carriers accounted for 15.2 billion minutes or 60 percent of all local call minutes generated by competitors, while competitors with direct access accounted for the remaining 40 percent (10.1 billion minutes).

Long-distance traffic

Until 2003, growth in long-distance call traffic was almost linear. Although this segment, too, experienced a degree of fixed-mobile substitution, its effects were offset by the overall growth in long-distance traffic. In 2004, the volume of traffic dropped, possibly due to the impact of mobile communications and an increase in e-mail.

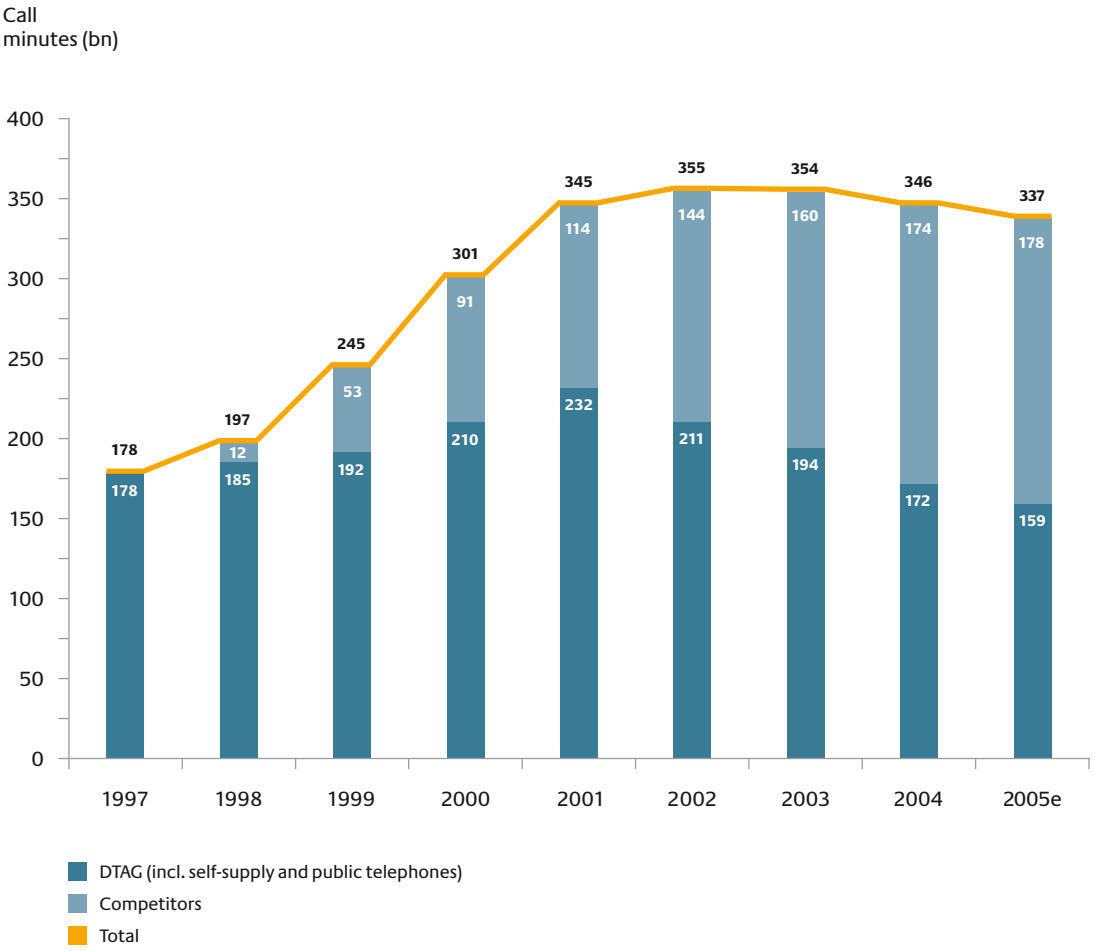
Fixed to mobile traffic

Growth in fixed to mobile traffic has recently slowed. The 2003 growth rate of 7 percent fell to 3 percent in 2004 and an estimated 2 percent in 2005. This is clearly linked to the high level of mobile phone penetration, which means that many calls are now made directly between two mobile phones instead of from a fixed line to a mobile.

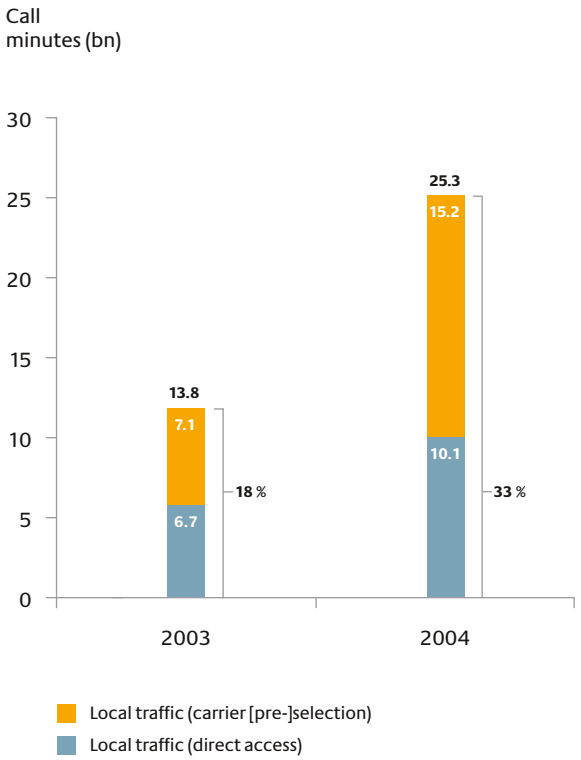
International traffic

Recent years have seen a slight increase in international traffic.

Call minutes in the fixed network 1997–2005



Growth in the competitors' share of the local call market

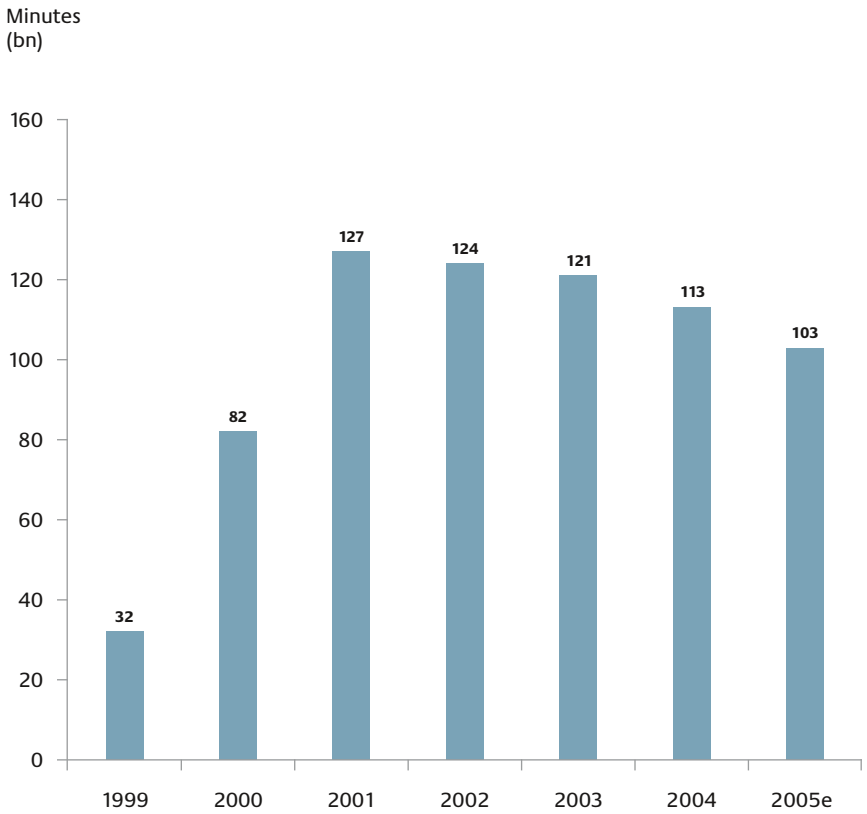


Internet traffic

Internet access has a tremendous influence on overall traffic trends. The volume of dial-up Internet connections over the fixed network rose until 2001. However, since 2002 narrowband access has been in decline. Users are increasingly turning to broadband connections as their preferred means of accessing the Internet. This led to a particularly sharp drop in narrowband traffic in 2003 and 2004, a trend that was expected to be even more apparent in 2005.

In contrast, the volume of broadband Internet traffic – measured in gigabytes – has been growing continuously, a testament to the unremitting demand for broadband services. Growth continued to be strong in 2005, when the volume of data sent over broadband was estimated to be 650 million Gbytes.

Narrowband Internet traffic



The decline in narrowband traffic and the significant gains made by broadband are due in part to the migration of many users from narrowband access to DSL and cable modems. However, the growth in the volume of data generated by broadband connections since 2004 does not match the increase in the number of lines. One of the reasons for this is that even the less intensive Internet users are increasingly opting for broadband, thereby reducing the average volume of traffic generated by each connection.

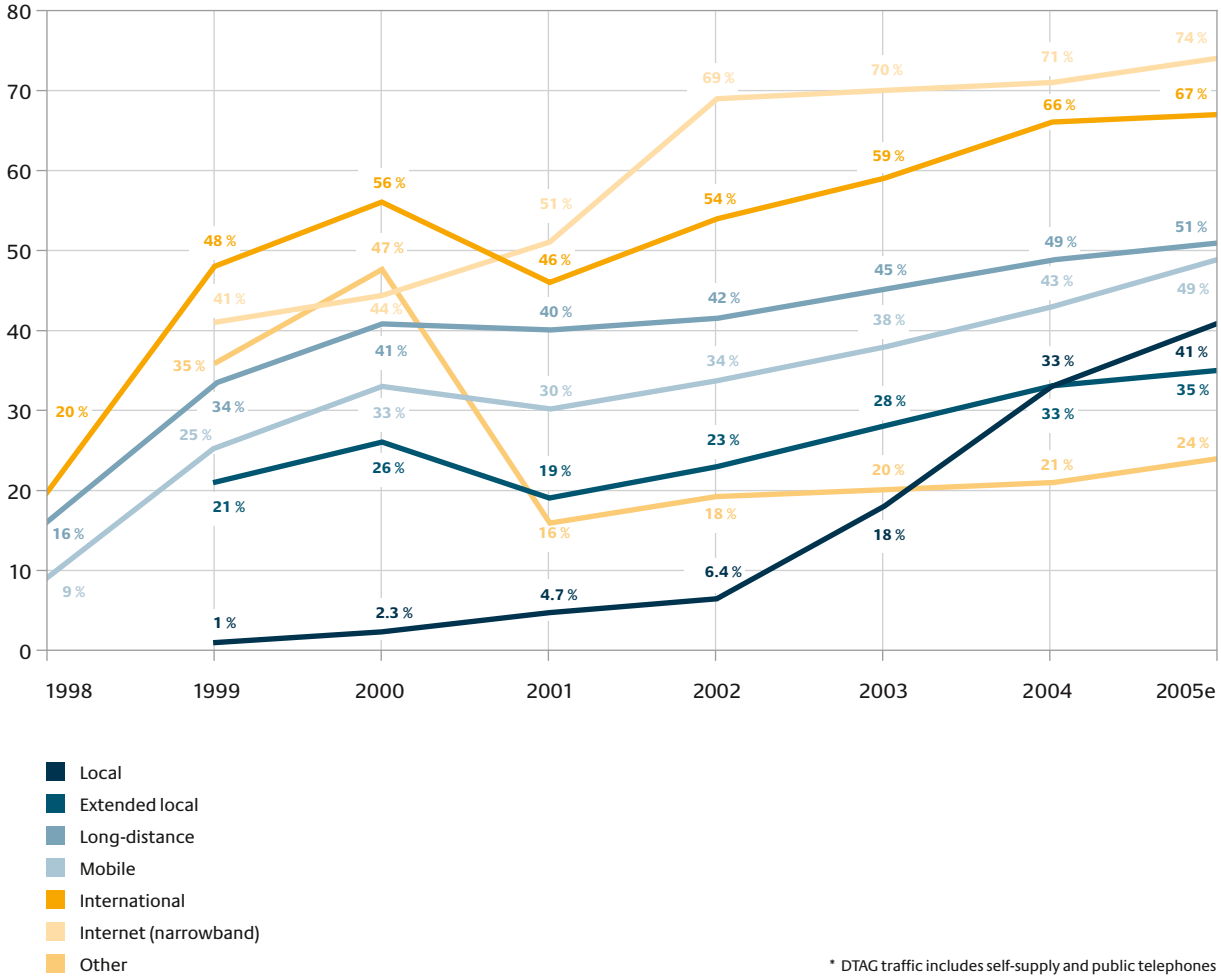
Competitors' share of traffic

The diagram below gives an overview of the changes in competitors' market share in each segment. It is estimated that at the end of 2005, alternative providers accounted for 53 percent of all call minutes.

Revenues

Following a period of temporary decline due to price cuts, revenues from fixed network services have been rising again since 2001. In 2005, revenues of network operators, Internet Service Providers without their own access network and resellers of voice services totalled an estimated € 25.1 billion, up from € 24.7 billion the previous year.[8] Excluding resellers, the figures for 2004 and 2005 were € 24.0 billion and € 24.4 billion respectively. The competitors' share of revenues[9] from fixed network services, comprising fixed prices and call charges, grew from 28 percent

Changes in the competitors' share of traffic in each fixed network segment* (in %)

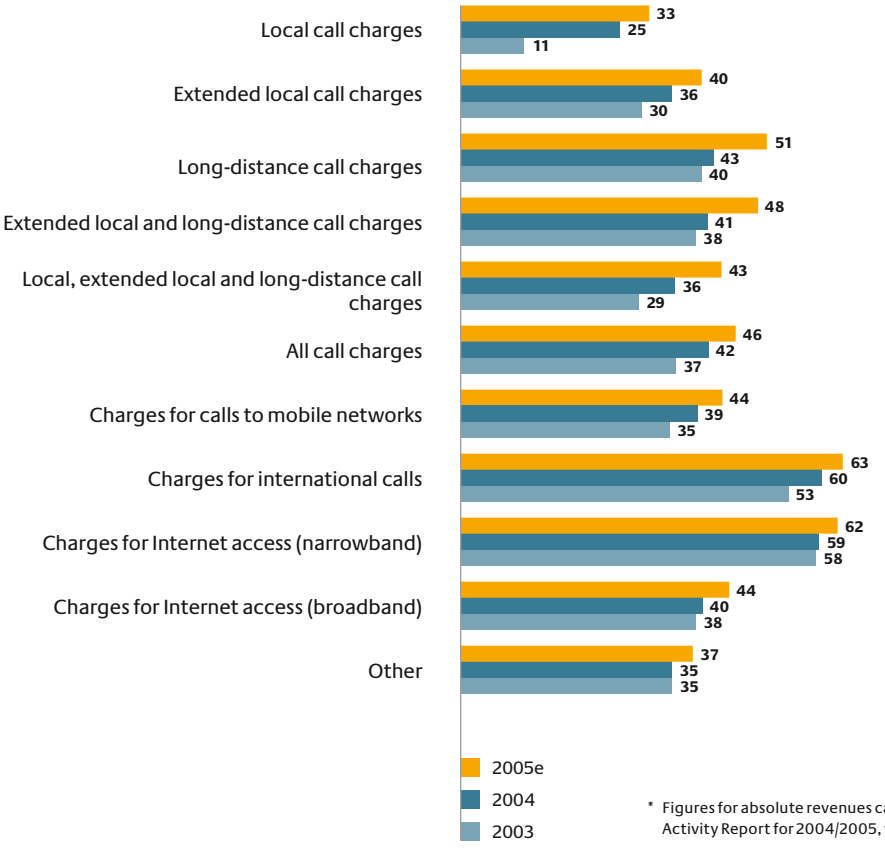


* DTAG traffic includes self-supply and public telephones

in 2004 to 29 percent in 2005, with their share of fixed price revenues climbing from 7 to 9 percent.

Particularly striking is the large proportion of revenues from international calls that now goes to competitors, and the strong growth that they have enjoyed in this segment. Gains in the competitors' share of local call revenues can be traced to the introduction of carrier (pre-)selection as well as the growing proportion of telephone lines now operated by alternative providers. Advances in the fixed price segment[10], on the other hand, are a testament to the successful marketing of telephone and DSL lines. It should be noted that the competitors' share of revenue in a particular market segment is usually less than its market share expressed in terms of call minutes. This is due to the fact that the end user prices of these providers are generally lower than those of DTAG. Of course, competitors can only hope to win market share from the former monopolist by competing on both price and quality.

Changes in the competitors' share of revenues between 2003 and 2005* (in %)



* Figures for absolute revenues can be found in the Federal Network Agency's Activity Report for 2004/2005, volume D, annex 1, p. 362 ff.

8 Provisional estimate for 2005. The figures quoted are cumulative revenues generated by network operators from services provided to end customers and resellers of voice services, by the resellers of voice services themselves and by Internet Service Providers offering Internet access services.

9 Market shares of network operators and Internet Service Providers without their own network.

10 Fixed price revenues include revenues from one-off and monthly basic charges for telephone and DSL lines (paid by both end customers and resale customers) as well as revenues from flat rates.

Voice over IP (VoIP)

2005 was the first year in which a number of VoIP services were available that bore comparison with conventional telephone services in terms of quality and design. This means that VoIP now has the potential to make an impact on the market. As a rule, VoIP services require a broadband connection, Internet access and a product from a VoIP provider. These components can either be purchased as a package from a single provider or, if the individual elements are available separately, purchased from different sources and put together by the end user.

At the end of 2005, there were around 50 companies offering mass-market VoIP services in Germany, compared to fifteen at the end of 2004. In contrast to earlier product offerings, which were entirely software-based and needed the PC to be switched on in order to work, today's products are far more user-friendly. Special IP telephones are no longer needed (a conventional phone with an adaptor will suffice), nor does the PC always need to be switched on. New hardware products also make it possible to use both VoIP and a conventional fixed line at the same time. Customers are usually assigned a phone number. In most cases, this is a local number, although in future national numbers in the 032 range will also be used. These numbers are intended for a range of services including VoIP. Some service providers do not assign a number to their customers, which means that their services can only be used to make outgoing calls.

VoIP services have the potential to compete with conventional telephony in terms of both lines and call minutes. However, there are few services available to date that can completely replace existing analogue or ISDN lines. Those that do exist generally consist of a simple broadband connection combined with a VoIP product and are provided by companies that have their own infrastructure. Services of this type have so far had no impact in terms of competition in the market. This is only likely to change if there is an increase in the number of providers offering broadband connections as a separate product – and not in combination with a telephone line – or if cable network operators make further inroads into the telephone market. It will only be possible to realise the full potential of VoIP when the products available offer the same quality of service as a traditional telephone line. If this can be achieved, competition will hot up considerably as providers vie for direct access to end users. The availability of wholesale products, which allow companies without their own infrastructure to serve end customers directly, will therefore play an important role in stimulating competition.

In terms of customer numbers and revenue, it is estimated that VoIP services have made comparatively little impact to date. At the end of 2004, approximately 500,000 people possessed VoIP soft- or hardware, of whom an estimated 250,000 were active users. According to providers' forecasts, these numbers are likely to have doubled by the end of 2005. VoIP services are therefore still in an early stage of development and their impact as a competitive force in telecoms markets has yet to become fully apparent.

In September 2005, the Federal Network Agency published its "Key elements in the regulatory treatment of Voice over IP" as well as an action plan. In its deliberations, the Agency took account of the fact that VoIP services have only recently arrived on the market and it is not yet clear how durable existing and future business models will be. The Federal Network Agency has therefore opted for an evolutionary approach, which allows the emerging market to develop with little intervention by the regulator. The Federal Network Agency will only step in if and when intervention is required.

For the Federal Network Agency, the ultimate objective of any regulation of VoIP would be to ensure that, once VoIP has reached

maturity, the various services are competing on a level playing field. In the medium term, VoIP services will be required to meet the same criteria as conventional services. In light of these factors, the Federal Network Agency favours transitional arrangements (eg technical regulations) as a suitable means of supporting this potential source of innovation while at the same time serving the public interest with regard to the legal obligations that providers must meet. The prospect of VoIP products developing into a genuine, long-term alternative to conventional telephony largely depends on whether they can offer a comparable quality of service.

Price trends

In 2004, there was a profusion of special offers from providers of fixed network services. These included waiving the one-off connection charge, giving users free call minutes and offering equipment to new ISDN and DSL customers at a discounted rate or free of charge. The strong demand for DSL prompted nearly all providers to extend their special offers beyond the end of 2004.

An ISDN line with DSL access and an Internet flat rate is currently available for approximately € 30, considerably less than it would have cost in 2003. And at the end of 2005, a DSL line including telephone service and an Internet and telephone flat rate could be had for as little as € 40 a month. There has also been a continued trend towards pricing options whereby customers pay a monthly premium in return for cheaper calls at certain times; in some cases, the price will cover all the customer's phone calls.

Mobile operators are offering price plans whereby customers pay a fixed price for a certain number of call minutes each month (50, 100, 200 or 500). There is no line rental and any extra call minutes they use are charged and invoiced separately. Some mobile providers continue to offer additional packages that provide customers with a certain number of "free" call minutes, or even unlimited calls, at particular times (eg weekends). Mobile companies are also seeking to enhance the appeal of their product and to make wireless a viable alternative to the fixed network. To this end, they are offering special prices of three cents per minute for phone calls to fixed line numbers at weekends and outside business hours, as well as special prices for calls to fixed lines made from within a Homezone. The industry has been shaken up further by the recent arrival of discounters in the market.

Lining up against them are the providers of conventional fixed network services, the cable TV companies and the ISPs, some of whom are offering free phone calls or free Internet telephony between their customers in an effort to secure and expand their customer base. At the end of 2005, for instance, customers could make unlimited VoIP calls to German landlines for a fixed price of approximately € 10 per month. And it is also customary for VoIP services to include a certain number of free minutes.

Price competition used to be restricted to providers of conventional fixed network services, yet it is increasingly being waged between, as well as within, segments. Traditional phone companies are competing with providers of Internet telephony and mobile companies to satisfy the demand for communications services, and there have already been the first signs of substitution, in terms of both call and line providers. Mobile networks already account for 16 percent of all phone calls, and their operators view fixed network customers as a potential source of additional growth.

Although connection charges rose in 2004, call charges fell. The Federal Statistical Office's 2004 price index for telecommunications services consequently dropped by 0.4 compared to the previous year's average. Of course, there is a certain time delay before

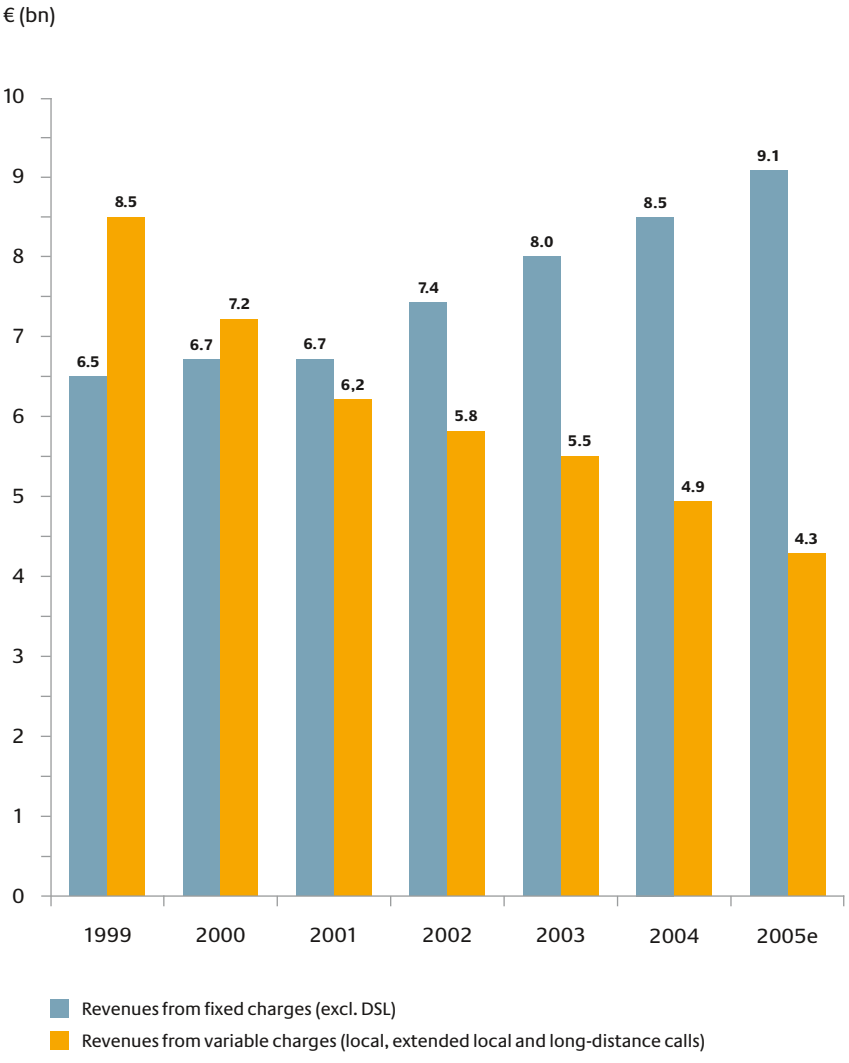
changes in consumer behaviour are reflected in the index.

The deregulation of voice telephony on 1 January 1998 triggered a rapid growth in competition. In the next three to four years, prices fell sharply until they almost reached the level they are at today. For today's consumers, the price of a national call is now just 5 percent of what it was before liberalisation.

There is a clear trend towards combined product offerings and flat rates. The figures clearly show a shift in favour of monthly price plans that charge a flat rate for calls. In 1999, for example, monthly fixed charges accounted for € 6.5 billion in revenue, less than the € 8.5 billion generated by national calls billed on a per-minute basis. In 2005, however, providers of fixed network services generated an estimated € 9.1 billion from fixed charges and just € 4.3 billion from the charges for individual national calls.

This trend also shows just how effectively a competitive market adjusts its pricing structures in line with the preferences of its customers, with flexible and innovative providers benefiting most from the competition unleashed by this shift towards flat rates.

Changes in fixed and variable revenues from fixed network services



Wholesale products provided by DTAG for fixed network competitors and ISPs

In most cases, competitors that wish to provide access and call services are reliant on wholesale products offered by the established operator, such as call termination and origination. If alternative providers interconnect their networks with DTAG exchanges that offer an interworking function, they also incur interconnection charges. DTAG has set up 474 interconnection sites throughout Germany. In addition, competitors generally lease loops from DTAG in order to obtain direct customer access. In doing so, they incur costs for using the buildings and other facilities of the established operator. Carriers offering preselection services also have to pay DTAG for programming its switching systems with the corresponding prefix. In the case of call-by-call services, competitors rely on the established provider to invoice the end customer or to at least provide the billing data. The DTAG infrastructure, in this case leased lines, is also frequently used for connections to and between the carriers' switches. Finally, ISPs pay to use DTAG's narrowband and broadband connections for transporting data.

At the end of 2004, payments for all of the DTAG wholesale products mentioned above totalled € 2.65 billion, thereby showing little change from the previous year (€ 2.7 billion). This contrasts with the growth in revenues generated by fixed network competitors and ISPs, which climbed from approximately € 6.1 billion in 2003 to around € 6.8 billion at the end of 2004. Around 61 percent of this total was therefore the result of value creation on the part of alternative providers, a leap of 6 percent from the previous year.

The increasing interconnection between the DTAG infrastructure and the networks of its competitors is one of the reasons why the latter have become less reliant on wholesale products in recent years. By the end of the first quarter of 2005, five operators had interconnected their networks with DTAG at all of the 474 sites where this is possible, while a further four carriers were almost in the same position. This means that a total of nine carriers now offer full (or almost full) network coverage and, having set up their own infrastructure, have less need for wholesale products. There is also an increasing degree of interconnection between competitor networks. A final point worthy of mention is the reduction in the price of various wholesale products.

Access to DTAG's loops

In addition to their own lines and wireless links, competitors rely primarily on DTAG facilities, namely local loops, to obtain customer access (via analogue, ISDN and DSL lines). In most cases, these are unbundled copper pairs, although sometimes DTAG's optical fibre links are used. This system allows competitors to offer their end customers a telephone line or DSL access without having to set up their own infrastructure. At the end of the first quarter of 2005, some 95 percent of all telephone and DSL lines provided by competitors were realised via leased loops.

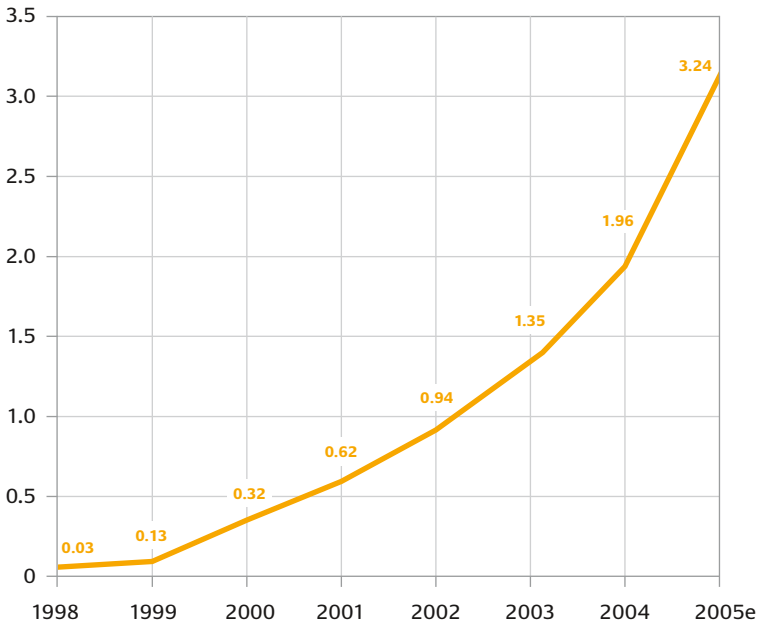
Competitors interested in this wholesale product must first sign a contractual agreement with DTAG. In 2005, DTAG signed around 100 agreements of this type with competitors.

DTAG offers local loops in different product variants. In 2004, the combined rentals of all product variants that were in operation amounted to 1.96 million, rising to over three million by the end of 2005. The main reason for this sharp climb is the increased demand for high-speed local loops on the part of competitors, who wish to use them to provide broadband services. Line sharing also continues to gain ground.

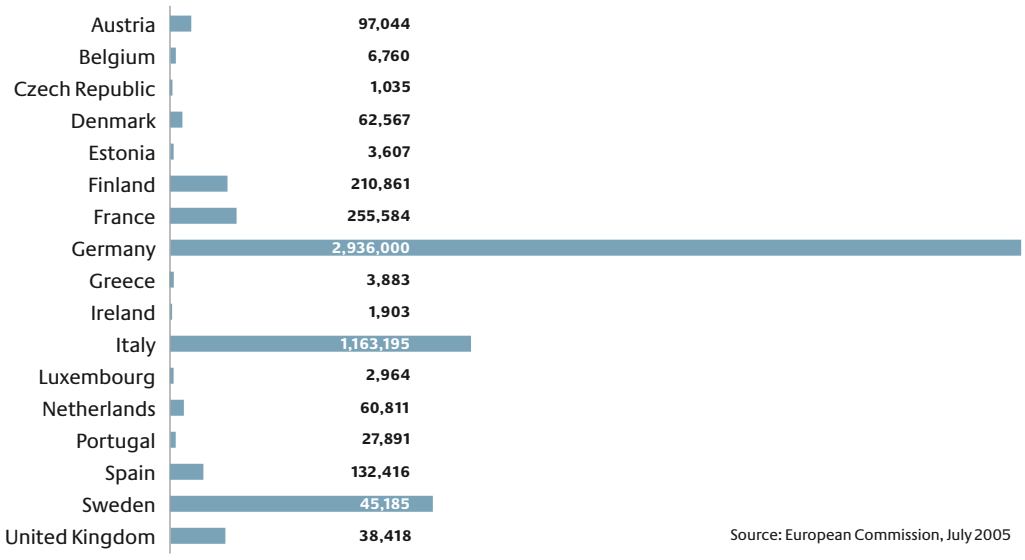
Germany is the European leader in terms of local loop rentals, accounting for 58 percent of all unbundled local loops in Europe as of mid-2005.

Co-location is a prerequisite for local loop access. DTAG provides a room for this purpose

Growth in DTAG's local loop rentals



European local loop rentals



Source: European Commission, July 2005

at the site of the main distribution frame for the relevant access area. At the end of 2004, competitors were using around 2,600 such co-location facilities and this number is likely to have risen slightly in the course of 2005. According to DTAG, at the end of the first quarter of 2005 there were approximately 7,000 co-location facilities available, through which competitors could access around 15 million analogue lines, some six million basic rate ISDN lines and approximately 74,000 primary rate ISDN lines. The infrastructure therefore exists for customers who are using these lines to switch from DTAG to another network operator. In fact, these figures indicate that some 56 percent of all telephone lines in the DTAG network are now accessible to competitors.

Carrier business (interconnection)

When customers make a call, they are often relying on the services of several network operators. If they opt for call-by-call, the access network operator they have chosen has to pay for the call to be routed to its own network by the operator who owns the customer's line. And if the number being dialled is in a different network, the operator of that network charges a fee for the call terminating service. The sharp increase in the number of network operators since liberalisation began has given rise to a complicated web of relationships. Interconnection agreements – of which there were 104 between DTAG and alternative carriers at the start of 2005 – form some of the main strands of this web.

The carrier services market, comprising revenues generated between network operators, was estimated to be worth € 7.9 billion in 2005.[11]

MOBILE SERVICES

Subscribers

German mobile operators and service providers continued to grow their customer base in 2005. Provisional figures show that there were around 79.2 million mobile subscribers[12] in Germany at the end of 2005. New customers were attracted by innovative price plans offering discounts and flat rate charging. One of the ways in which these price plans cut the cost of mobile telephony is by providing a service that does not include a subsidised mobile phone.

Between 2003 and 2005, Germany's two largest networks, T-Mobile and Vodafone, lost market share (measured in terms of their subscriber base) to their two smaller competitors, E-Plus and O2. The fastest growth was recorded by O2, which has boosted its market share by some 4.6 percent since 2002.

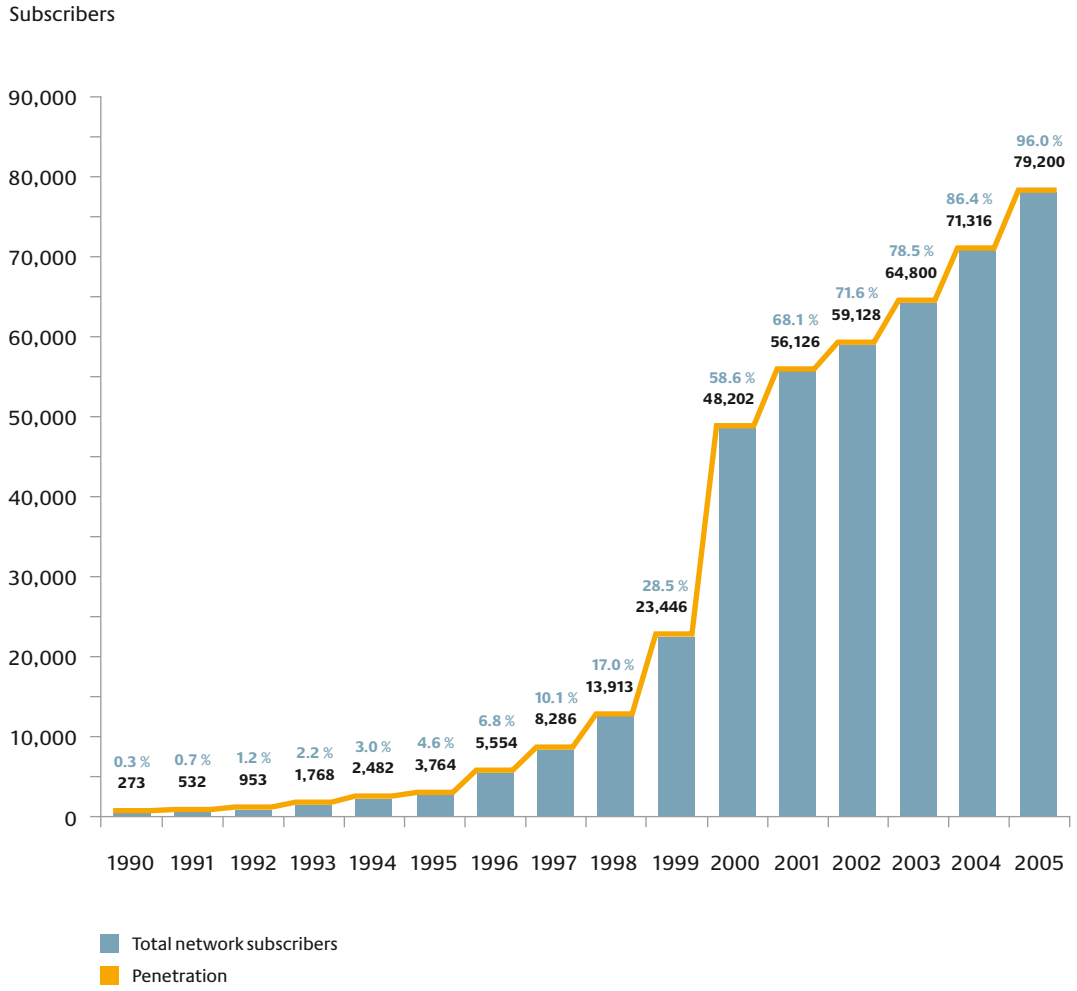
Call volumes

Growth in the number of subscribers has been accompanied by a rise in the volume of incoming and outgoing traffic, although the volume of outgoing calls from mobile networks is growing faster than the incoming traffic. This is due to both the rise in mobile phone penetration and the pricing strategies of the mobile providers. Outgoing calls from mobile networks into the fixed network and to other mobile subscribers, especially those in the same network, in most cases cost far less than calls made from fixed to mobile

11 Revenue generated by operators of Internet platforms with ISPs that do not have their own infrastructure is not included under carrier business, which does however include all Internet and IP services between network operators. Carrier services further include all connection and access services provided by operators when interconnecting their networks.The leasing of DTAG's local loops also forms part of this market, as do co-location services, billing and collection services, and preselection. Page 36 of the Federal Network Agency's Activity Report for 2004/2005 contains more details about the composition of this market.

12 Number of mobile phone contracts. A user may have more than one mobile phone contract. Figures for 2005 include UMTS.

Mobile subscribers



networks. The very high market penetration also means that more and more people can now be contacted via mobile phone. Combined with falling prices, the result is a shift in call traffic from fixed networks to mobile networks.

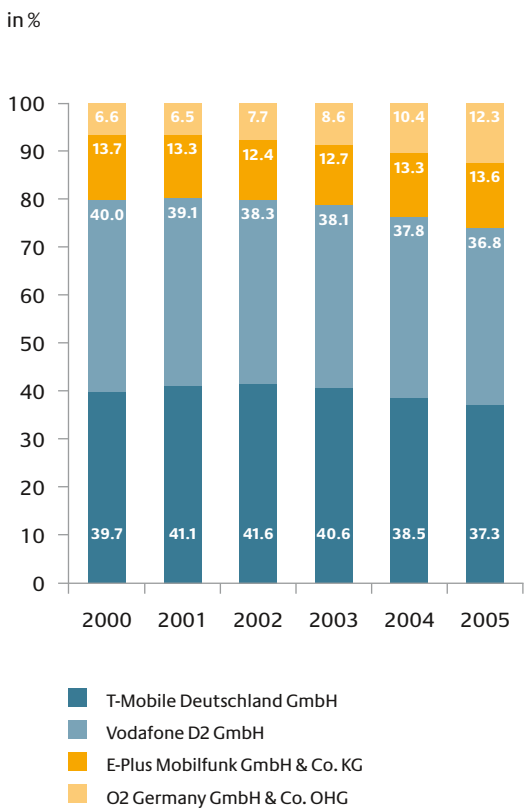
An examination of all outgoing calls from fixed and mobile networks reveals that there is a certain degree of substitution taking place, as can be seen from chart on the right.

Mobile services still account for only a small proportion of all calls made – 16 percent in 2005 – yet their share is growing steadily. In the future this trend may be accelerated by low-priced discounter services, flat rates for mobile phones and sharply reduced prices for calls to landlines. Many mobile subscribers already have no use for a fixed line because network operators now offer a special Home-zone service that allows customers to use their mobile phone like a landline when they are in or near their home.

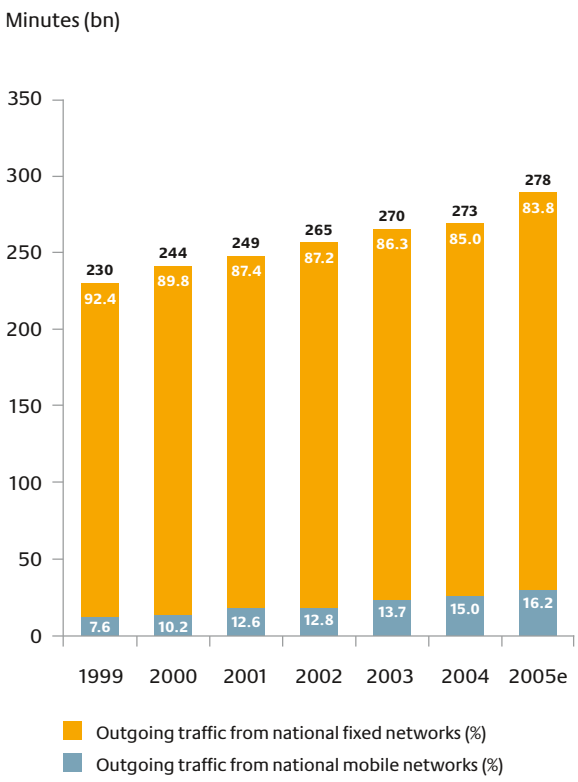
Revenues

In 2005, mobile providers generated revenues of approximately € 28 billion. In the case of network operators, this included revenues from end customers (eg line rental, calls, data, mobile phones), revenues from service providers (wholesale products) and revenues from carriers (eg call terminating, roaming). In the case of mobile service providers, the main sources of revenue were end customers as well as commissions and bonus payments.

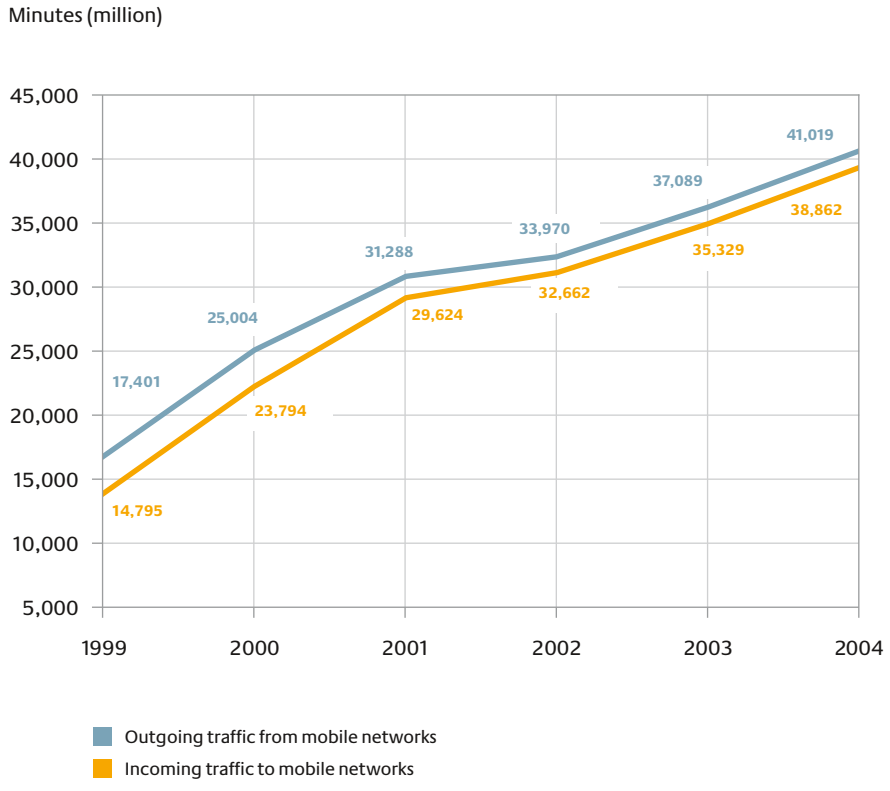
Market shares of mobile operators (by subscriber base)



Outgoing calls from fixed and mobile networks



Growth in mobile traffic



UMTS

There has been a proliferation of UMTS-capable wireless devices since UMTS was launched in mid-2004. This allows network operators to offer their customers a wide range of interesting services, including video, music and game downloads for mobile phones. Users can visit the online portals of their network operator and try out the different services on offer (eg shopping, news and sport). UMTS also makes it possible for customers to surf the world wide web from their mobile phone; current connection speeds are up to 384 kbit/s. Network operators offer a variety of hardware solutions for Internet access, including UMTS routers and laptop cards. Some network operators report that up to 3 percent of their customers are already using UMTS services. Add to this the proliferation of attractive services and the continuing expansion of network coverage and it seems likely that the UMTS customer base is set to grow strongly. It is estimated that there were two million UMTS users at the end of 2005.

BROADCASTING/CABLE TV

According to figures from the Société Européenne des Satellites (SES), at the end of 2004 53.5 percent of the 36.18 million German households with television received their signal via cable (including those households that receive signals via a satellite master antenna yet do not have their own satellite receiver). Almost 42.7 percent of households had their own satellite dish, while 3.8 percent received terrestrial television. These figures reveal that cable and terrestrial links continue to lose ground to satellite reception.

Faced with mounting competition from satellite services and the advent of digital video broadcasting (DVB-T), cable operators are increasingly attempting to secure their customer base by introducing new services. For instance, they are expanding digital television coverage, which makes it possible to offer subscription packages as well as video on demand. And they are even branching out from TV to offer additional services such as Internet and telephony. First, however, they must upgrade their networks and the infrastructure investment this will require is likely to prompt further consolidation and cooperation in the market. Cable TV already accounts for one-third of all fixed network investment by alternative providers (€ 0.3 billion).

Consumer advice and protection

CONSUMER ADVICE SERVICE

Consumer enquiries

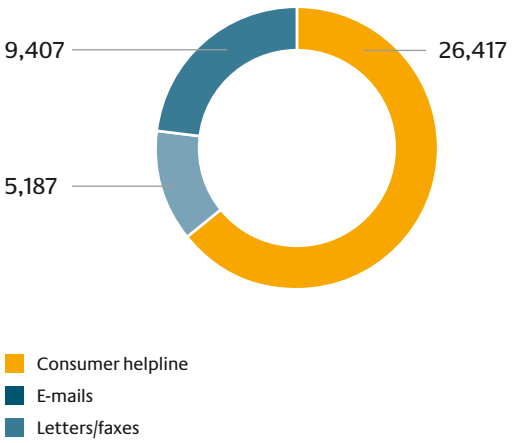
The Federal Network Agency was once again a successful consumer advocate in 2005, offering expert advice and assistance in the field of telecommunications.

The Federal Network Agency's Consumer Advice service continued to prove very popular in 2005, underlining the importance of this work.

The Agency has responded to this demand by boosting the number of staff employed to provide this service. These individuals are needed in particular to cope with the additional workload arising from the enlargement of the Agency's mandate to encompass energy issues. In 2005, the Consumer Advice service received 41,011 enquiries and complaints.

The enquiries and complaints regarding charges in telephone bills were primarily concerned with call charges in the fixed

Enquiries and complaints in 2005
41,011 in total



The main issues were:

- Charges on telephone bills 17.5 %
- Contracts 16.9 %
- Unsolicited direct marketing (fax spam, phone scams etc.) 13.4 %
- Numbering 8.2 %
- Prices/charges of telecoms providers 6.0 %
- 0190/0900 premium rate services (incl. diallers) 5.4 %
- Technical matters (incl. DSL availability) 4.0 %
- Other 28.6 %

network (eg forwarding by information services, premium rate services and fees for terminating calls in alternative networks), text messaging services and calls to 0137 numbers, as well as hotly disputed Internet charges (arising from diallers and disagreements regarding the volume of data and the amount of time spent online).

Contractual matters continue to account for a large proportion of consumer complaints, which focus in particular on poor customer service in terms of rectifying problems as well as the alleged failure of telcos to adhere to contractually agreed terms and conditions with regard to the charges billed, periods of notice and the ability to switch providers.

Despite the entry into force of the Second Ordinance Amending the Telecommunications Customer Protection Ordinance (TKV) and of the Premium Rate Services Act (MWDG), consumers still complain about unsolicited direct marketing received in the form of faxes, text messages or e-mails. The main source of complaints, however, are phone scams whereby consumers are prompted to call a certain number. Such scams now employ 0137, 0180 and local numbers in addition to the more familiar 0190/0900 numbers.

Another major source of complaints are premium SMS, whereby customers are provided with information and entertainment services in the form of text messages. The charges are then added to their telephone bill. Customers complained in particular about illegal advertising for these services, as well as the difficulty of objecting to the prices charged and terminating subscriptions. Discussions between the Federal Network Agency and the companies involved have resulted in voluntary measures on the part of industry to protect consumers (eg publishing the names of content providers on the Internet).

Many of the enquiries received concerned numbering, where the main issues are number portability and the options for blocking numbers.

The Consumer Advice service receives numerous enquiries regarding the prices and charges of individual telecoms providers. The fact that providers' price lists are published in the Federal Network Agency's Official Gazette leads consumers to believe that the Agency is responsible for regulating the prices and charges of all telcos. Consumers complain, for instance, that certain telecoms providers lure new customers with low prices and then make changes at short notice that render their service less attractive.

There is a constant flow of complaints relating to difficulties in obtaining DSL lines. Consumers lament the fact that DSL is not available in certain regions, as well as the long waiting time for a DSL line or for the activation of their DSL port. Although problems of service provision are typical of such a fast-growing market, the Agency endeavours to regulate the market and the spectrum in such a way as to facilitate the provision of broadband services by market participants.

COMBATING NUMBER ABUSE

Overview

The Telecommunications Act (TKG) empowers the Federal Network Agency to intervene in cases where it has reliable information on unlawful use of numbers, in particular in order to prevent further abuse taking place. Under its responsibility for numbering administration, the Federal Network Agency may issue orders and take any other suitable measures to secure compliance with the legal provisions and with the conditions it has imposed in connection with the allocation of numbers. This can include issuing a warning, withdrawing the number in question, ordering the network operator to deactivate the number, requesting the bill-issuer not to issue bills for the number or even prohibiting certain business models.

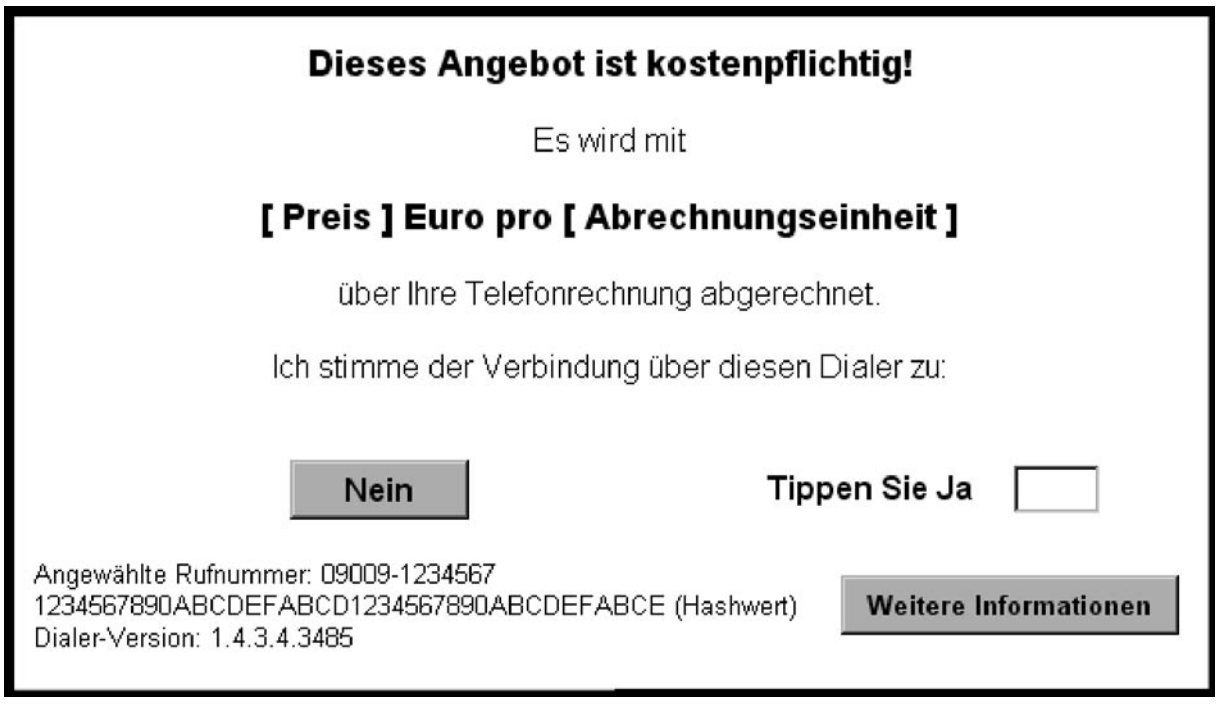
In the period under review, the Federal Network Agency dealt with 46,393 consumer enquiries and complaints (submitted in writing and by telephone). Furthermore, a total of 3,960,728 applications to register diallers have been received since the entry into force of the MWDG. These have been either approved or rejected, unless they were withdrawn by the applicants or – depending on the date they were received and the complexity of the individual case – are still being processed.

Consumers may submit a formal request in order to ascertain the service provider ultimately responsible for a particular 0190 premium rate number. A total of 3,899 written responses were provided in such cases during the period under review. The numbering administration call centre answered a total of 32,883 calls and e-mails, of which 4,176 related to 0190/0900 numbers. Detailed consumer complaints were examined by the Federal Network Agency, which intervened in 287 cases.

New approval window for diallers

The Federal Network Agency regulates the dialler sector in order to protect both consumers and legal providers. The Agency's experience in this sector has led it to issue an order that supplements and modifies existing rules. The order regulates the behaviour, provision, installation and activation of diallers used by consumer devices with a graphical interface, as well as the way in which such diallers establish a connection. It modifies the requirements pertaining to the display of pricing information, the request for explicit consent on the part of the user, the registration procedure, the declaration of conformity and the installation features.

The complaints received by the Federal Network Agency about chargeable diallers have revealed that in many cases consumers who use a dialler are unaware of the costs that are involved. This is because many dialler providers fail to adequately indicate the price for using their service. The Federal Network Agency now requires that a prescribed approval window appear on the screen prior to establishment of the chargeable connection (see illustration). This window must cover at least one third and at most two thirds of the screen. It is now also mandatory to indicate the price for the service in the approval windows prior to download and installation/activation of the dialler. In addition, formulations such as



"free access tool", which might suggest that the service is free of charge, may no longer be used in the three approval windows.

To protect the user of a dialler from being deceived or confused by an identical structure of the three approval windows, the design of the approval windows that are shown prior to download and installation/activation must clearly differ from the layout of the third approval window. Last but not least, the new requirements prohibit diallers from leaving the user's computer without their consent. The new requirements entered into force on 17 March 2005, although old diallers that did not comply with the new rules could still be used until 16 June 2005. Registered diallers are entered into a Federal Network Agency database, which consumers can access online (www.bundesnetzagentur.de >Verbraucher > Dialer/Spam/Rufnummernmissbrauch). The fact that a dialler is registered with the Federal Network Agency is not a guarantee of quality. Nevertheless, diallers that are not registered or do not satisfy the minimum requirements may not be used.

Steps taken to combat dialler abuse

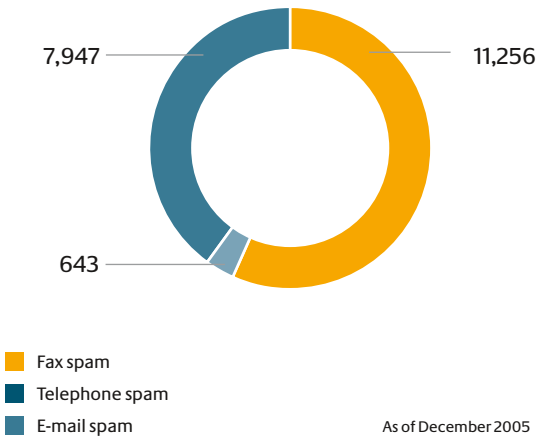
The Federal Network Agency again had to revoke the registrations of a large number of diallers with retroactive effect. This action was taken after consumer complaints and spot checks revealed that, contrary to the declaration of conformity submitted by the applicant, there were many areas in which the minimum requirements had not been fulfilled.

According to the Federal Network Agency's interpretation of the law, by revoking registration with retroactive effect, the Agency also lifts the obligation on consumers to pay for using the diallers in question. This includes the period during which the rogue diallers were initially registered. During the period under review, the Federal Network Agency also prohibited several providers from issuing invoices and collecting payment. Some companies have challenged steps taken to combat dialler abuse in court. However, in none of these cases has a decision of the Federal Network Agency been reversed by a court, either in full or in part.

Telephone spam

Complaints about spam (unsolicited direct marketing) were again a major theme for the Federal Network Agency in the year under review, with the Agency receiving a total of 19,846 spam-related complaints during this period. The complaints concerned spam sent by fax, text message and e-mail, as well as "one-ring fraud", whereby the phone rings briefly, prompting the called party to check and return the missed call. Doing so, however, will cause them to dial a 0190/0900 number or similar. The amended Telecommunications Act empowers the Federal Network Agency to intervene in all instances where spam is sent using a telephone number. Anyone sending spam is considered to be breaking the law. Furthermore, the sender does not normally reveal his identity and also fails to provide numerous other pieces of information required by the Distance Selling Act, thereby committing a further infraction. The use of telephone numbers to send spam is therefore

Complaints about telephone spam in 2005
19,846 in total



deemed to be illegal on a regular basis. In view of growing media convergence, the Federal Network Agency does not make a distinction between unsolicited messages sent by fax, e-mail or text message, as long as the message contains a telephone number. The courts have expressly confirmed the powers of the Federal Network Agency to pursue in the public interest violations of the Unfair Competition Act (UWG).

In view of the large number of spam-related complaints received by the Federal Network Agency, a separate mechanism was introduced for spam victims on 15 March 2005. The aim is to channel complaints more effectively and to simplify the procedure for consumers. Victims of spam can now send their complaints to a dedicated fax number or e-mail address at the Federal Network Agency. Both options have proved very popular. In addition, the Federal Network Agency now offers over-the-phone advice about spam sent using a telephone number, as well as advice on diallers and premium rate services.

In the period under review, the Federal Network Agency received a total of 19,846 complaints about spam. Of these, 11,256 complaints referred to fax spam, 7,947 to telephone spam and 643 to e-mail spam sent using a telephone number.

In several egregious cases, the Federal Network Agency prohibited the business model employed by the offending companies. A decision by the Federal Network Agency to prohibit one particular business model was upheld by the relevant administrative court, as were the Agency's decisions in a number of other cases.

Details of the steps taken to combat spam-related abuse, including a list of the numbers that have been deactivated, can be found on the Federal Network Agency's website.

In mid-2005, the Federal Ministry of Economics and Technology decided that the Federal Network Agency should serve as Germany's representative in the Contact Network of Spam Authorities (CNSA), which brings together

Statistics showing action taken to combat abuse

	Number
Written and verbal enquiries from consumers	
About diallers	21,559
About spam	19,846
Formal requests to ascertain the service provider with ultimate responsibility, pursuant to section 43a(1) of the TKG in conjunction with section 152(1) of the TKG	4,988
Total	**46,393**
Total number of dialler registrations	
Since the entry into force of the Premium Rate Services Act	3,960,728
During the period under review	1,740,569
Dialler registrations withdrawn during the period under review	502,634
Questions received during the period under review from parties obliged to register	1,210
Number of times the Federal Network Agency's dialler database has been accessed during the period under review	2,277,929
Bans on billing and collecting payment issued during the period under review	54

those European entities responsible for combating spam in their respective countries. In 2005, the CNSA agreed on a procedure for sharing complaints about spam in order to facilitate the cross-border criminal prosecution of spammers.

Pricing information

The TKG sets forth certain requirements for providers of 0190/0900 numbers with regard to the provision of pricing information. Any infringement of these requirements constitutes a misuse of the number and prompts the Federal Network Agency to intervene. Complaints of this nature were again received in the period under review, in response to which the Agency issued a warning or deactivated the number in question.

Administrative offence proceedings and referrals to the public prosecutor

A wide range of cases relating to diallers, spam, pricing requirements and formal requests for information became the subject of administrative offence proceedings. Approximately 85 cases resulted in fines of up to € 50,000. Some cases involving administrative offences are currently being heard by local criminal courts, while any evidence of a possible criminal offence was passed on to the appropriate public prosecutor.

PRIVACY OF TELECOMMUNICATIONS AND DATA PROTECTION

Safeguarding the privacy of telecommunications and protecting the personal data of telecoms users are at the heart of customer protection. The Federal Network Agency is responsible for monitoring and, if need be, enforcing compliance with those provisions of the TKG that address the privacy of telecommunications and data protection.

Personal data is collected and processed at the time a contract for telecommunications services is concluded as well as in the course of actual service provision. The latter set of data, which might include information about the time and duration of a call, is covered by provisions that safeguard the privacy of telecommunications, which protect more than just the content of the call.

After the liberalisation of the telecoms market, the telecommunications data and content referred to above are now in the hands of numerous private telcos instead of a single state-owned monopoly. The TKG imposes stringent requirements on telcos in order to safeguard the right of telecoms users to privacy as well as their right to determine how their personal data is used.

The 2004 amendment to the data protection provisions of the TKG resulted in an increased number of enquiries and complaints on the part of consumers, a trend that continued into 2005. The legalisation of reverse searches, for instance, has proved a source of annoyance, particularly among consumers who place a premium on data protection. In response, the Federal Network Agency has informed consumers about the legal underpinnings of reverse searches, thereby clarifying the rights of consumers in their dealings with telcos. There were also a large number of enquiries about itemised bills, which under the TKG may only show those calls that incur a separate charge. Customers with flat rates were therefore informed that, unless calls are billed individually, itemised billing is not possible.

In many cases, consumer complaints prompted further investigations of telcos' activities, which in some instances uncovered violations of data protection law. For example, the Federal Network Agency was alerted to a situation in which consumers contacting the call centres of certain mail order companies would suppress their caller ID, only for the telco to circumvent this feature without authorisation and reveal their number to the call centre so that the customer could be identified and greeted by name. The Federal Network Agency intervened and took steps to

find a solution that satisfied data protection requirements while also taking the mail order companies' interests into account.

The period under review also saw a fine levied on a telco that had illegally used subscriber data for the purpose of direct marketing. This marked the first use of administrative fines proceedings to enforce the data protection provisions of the TKG.

It must be emphasised, however, that the vast majority of companies endeavour to comply with the law and its data protection provisions. It is therefore the task of the Federal Network Agency to inform providers of telecommunications services as well as consumers about the data protection requirements of the TKG. Some companies have even taken it upon themselves to contact the Federal Network Agency before launching a new service in order to ensure that it complies with data protection law. The entry into force of the amended Telecommunications Act has made it all the more imperative to ensure that companies are kept up to date.

In 2005, the Federal Network Agency again paid particular attention to VoIP services, which allow users to make telephone calls over IP networks such as the Internet. After examining the results of a public consultation on this topic, the Federal Network Agency considers that VoIP services are in principle governed by the same laws as conventional voice services with regard to the privacy of telecommunications, data protection and public safety. This is partly due to the fact that it is often no longer possible for the consumer to distinguish between VoIP and conventional services and that, to a large extent, the former services aim to replace the traditional telephone line.

In addition, the Federal Network Agency worked closely with the Federal Data Protection Commissioner, who also has a duty to ensure compliance with the data protection provisions of the TKG. The two bodies do not just discuss current data protection issues in the realm of telecommunications, rather they coordinate their efforts when dealing with important cases in order to enhance the effectiveness of data protection.

DISPUTE RESOLUTION

Under the TKV, customers may ask the Federal Network Agency to conciliate in a dispute with their voice telephony or public telecoms network access provider. It was for this purpose that the Agency set up a dispute resolution service in June 1999, in line with the amended regulations published in its Official Gazette.

An application for dispute resolution will only be admitted if the applicant can assert violation of their statutory rights, if judicial proceedings with the same disputed subject matter are not pending, if an attempt to reach agreement with the defendant has been made beforehand, if the defendant has not cited limitation of action to the applicant and if clarification of a fundamental issue is not compromised.

As a rule, dispute resolution by the Federal Network Agency is carried out in writing. It is also voluntary. It follows, therefore, that the procedure is regarded as closed as soon as one of the parties refuses to cooperate. The aim is amicable agreement. It fails if the applicant withdraws their application after the procedure has begun, if the defendant refuses to consent to conciliation or withdraws their consent, or if the proposal made is not accepted. In deciding to invoke the process, the applicant must bear in mind that it is an out of court dispute resolution procedure. The Federal Network Agency's service assesses both parties' statements on the case, including associated documentary evidence, as well as declarations regarding the legal position. It then works out a proposal based on the parties' positions and aimed at a compromise

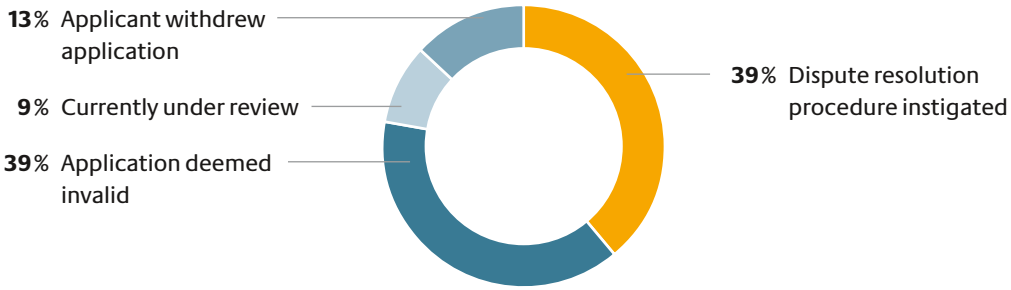
between the conflicting demands. The outcome thus fundamentally depends on the willingness of the two sides themselves to clarify the facts and to compromise in order to reach a solution. Under the Code of Civil Procedure Introduction Act (ZPOEG), the Federal Network Agency's dispute resolution service is classified as "another conciliation body". This means that the service – except in the case of implementation by a federal state of the ZPOEG – can in pecuniary disputes before the local courts when the value of the matter in dispute does not exceed € 750, take the place of the mandatory procedure before a conciliation body set up or recognised by the state administration of justice. It should be remembered that a settlement made through the agency of this dispute resolution service is not an executory title within the meaning of the Code of Civil Procedure (ZPO). There is a minimum fee of € 25 for this service. The fee increases in line with the value of the subject matter and is incurred once the defendant has agreed to take part in the dispute resolution procedure. If a proposal is put forward, the dispute resolution service shall determine the costs as appears fair, taking into account the findings of fact.

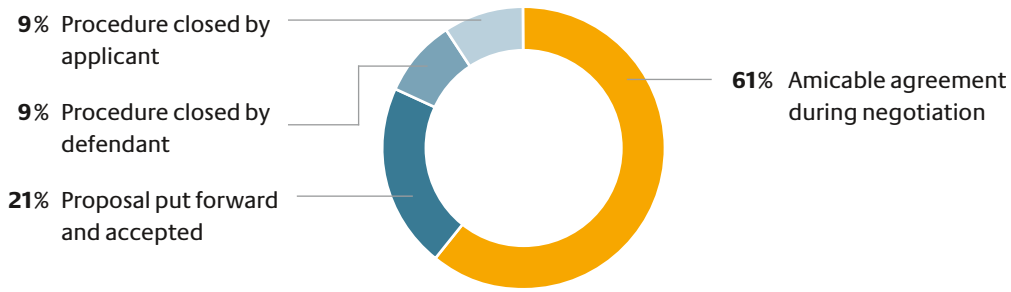
In 2005, the dispute resolution service was called in to conciliate on 280 occasions; in 39 percent of the cases it was possible to instigate the procedure. In 13 percent of the cases, the application was withdrawn after the Federal Network Agency commented on the case or notified the applicant of the legal requirements and the rules of procedure. Finally, in a third of the cases, the Federal Network Agency was forced to reject the application after determining that, within the meaning of the TKV, the customer's rights had not been infringed.

In many cases, defendants refused to participate in the out-of-court settlement procedure.

In 82 percent of the dispute resolution procedures that were instigated, it proved possible

Applications for dispute resolution





either to reach an amicable agreement in the course of negotiations or to agree on a compromise proposal put forward by the dispute resolution service.

The requests for dispute resolution cited the same grievances as last year. In the main, these were:

- Disputed charges on telephone bills.
- The quality of telecoms and customer services.
- Differences of opinion between consumers and providers on charges billed, the use of premium rate services and the use and duration of use of online services.

Most of the disputes concerned sums of between € 100 and € 1,000.

The Federal Network Agency's dispute resolution service forms part of BundOnline, a federal government initiative to make suitable administrative services available on the Internet. The aim is to provide a modern, user-friendly service by making it possible to submit and process applications electronically.

To meet these requirements, the IT processes used to provide the dispute resolution service have been completely restructured in order to improve service efficiency. In recent years, information on the different options open to consumers and on how to submit an application has been made available on the Federal Network Agency's website, thereby enhancing the service of "Dispute resolution pursuant to section 35 of the TKV". And starting in 2006, consumers will be able to submit applications and monitor their progress online. This improvement means that all citizens now have a quick and easy means of reaching the dispute resolution service.

UNIVERSAL SERVICE – TELECOMS

Universal services are defined as a minimum set of publicly available services of specified quality to which every end-user, irrespective of their place of residence or work, must have access at an affordable price and whose provision to the public as a basic service has become indispensable. The activities of the Federal Network Agency in this field focused on connection to the public telephone network and the provision throughout Germany of public pay telephones. The Agency also joined in the European debate about the future of universal services.

The TKG requires that DTAG notify the Federal Network Agency if it intends not to offer universal services to the full extent or to offer them under less favourable conditions. In this case, it must signal such intentions one year prior to their taking effect. No such notification has been received. The Federal Network Agency holds the view that market forces will generally ensure the provision of universal services and that it need only intervene if a universal service is not being adequately or appropriately provided by the market, or if there is reason to fear that such a provision will not be secured.

"Connection to a public telephone network" is at the heart of the universal service. In the period under review, the Federal Network Agency received enquiries on this topic from 424 consumers. These enquiries show that the provision of universal services is secure at the present time and is likely to remain so in future.

Connection to the public telephone network also permits "functional Internet access" via a narrowband connection. In so far as is technically feasible, this universal service also includes the features call waiting, call forwarding and call hold/broker's call.

The rapid growth in the number of broadband Internet connections to the public telephone network, offering transmission speeds in excess of 128 kbit/s, is also worthy of special note.

The robust growth in the national broadband market, the plans to regulate spectrum use and the comments of the European Commission indicate that there is no need at present to modify universal service requirements with regard to broadband Internet access.

The Federal Network Agency also focused on ensuring the provision throughout Germany of public pay telephones, another universal service. At the end of 2004, there were 105,000 payphones and cardphones in Germany. The decline in the number of public pay telephones has been accompanied by a rise in mobile phone use; there are now some 78 million mobile subscribers in Germany. This is why the Federal Network Agency has joined forces with local authority associations and DTAG to devise a new structural concept that takes account of the changed usage patterns: the "basic telephone". The basic telephone will eliminate some of the more sophisticated features while continuing to provide a basic service even at uneconomic locations. The aim of the pilot project is to test the suitability of the basic telephone as a low-cost device and to see how well it is received by users. Once this phase is complete and the pilot project has been evaluated, a decision will be taken at the start of 2006 as to whether the basic telephone is acceptable and can be installed at locations that are used extremely infrequently. To date, no user complaints have been reported, apart from a very small number of people who were unhappy with the reduced features available. The pilot project is supported by a dedicated advisory board led by the Chairman of the Inter-State Working Group. In addition to the Federal Network Agency, the advisory board also brings together representatives of DTAG, leading local authority associations, consumer associations and WIK Consult.

International developments

By the end of 2005, the Federal Network Agency had completed and consolidated its analysis of 12 of the 18 markets identified in an EU Recommendation that seeks to roll back sector-specific regulation where it is no longer needed.

The new regulatory framework assigns greater importance to the cooperation between national regulators throughout Europe. This is reflected in the participation of the Federal Network Agency in the Independent Regulators Group (IRG) and the European Regulators Group (ERG). The ERG seeks to encourage coordination between national regulatory authorities by promoting a consistent application of the European regulatory framework. In order to achieve this, it brings together independent national regulators with representatives of the Commission.

Last year, the ERG addressed the growing popularity of VoIP services and what this means for regulators. In February 2005, it published a Common Statement on VoIP that focused on issues of numbering and access to emergency services. The incorporation of VoIP services into "traditional" fixed network markets (markets 1 to 6 in the Recommendation) is currently being investigated.

May 2005 saw the publication of the ERG Broadband market competition report (ERG [05] 23), which used 13 country case studies to investigate the development of competition in broadband access markets.

In addition, the IRG/ERG examined the important topic of national markets for wholesale international roaming. The result was a joint position paper produced by the Wholesale International Roaming working group and published in September 2005 under the title "On the Coordinated Analysis of the Markets for Wholesale International Roaming" (ERG [05] 20rev1).

September 2005 also saw the publication of agreed "Guidelines for implementing the Commission Recommendation C (2005) 3480 on Accounting Separation & Cost Accounting Systems under the regulatory framework for electronic communications".

In general, it can be concluded that European cooperation is an increasingly prominent factor in the decisions of the national regulator and that as a result, regulators must invest greater resources in these links. This is particularly apparent in the drafting of administrative orders, which must reflect the common position with regard to remedies. In addition,

contact with professional colleagues from other regulatory authorities has proved to be a valuable source of information and ideas, which makes it imperative to play a regular and active part in working group meetings and to assist in drafting documents. Participation in these working groups is now at least as important as our presence in "traditional" committees such as COCOM, if not more so. The procedure set forth in Article 7 of the Framework Directive means that it is no longer possible for one country to isolate itself from regulatory developments in other countries and to disregard the comments of the Commission.

Ruling Chamber decisions

RULING CHAMBER 2

Under the Telecommunications Act (TKG) the rates and rate-related components in DTAG's general terms and conditions for telephone services and leased lines are, until further notice, subject to ex post rates regulation and additionally to the special control of anti-competitive practices pending the completion of market analysis and any subsequent imposition of remedies by the Agency. Additionally, DTAG has been obliged, until a final order based on the outcome of the current market definition and market analysis procedures is issued, to notify the Agency, two months before the planned effective date, of its rates measures in respect of retail prices for access to the public telephone network at a fixed location, publicly available local and/or national telephone service provided at a fixed location and publicly available international telephone service provided at a fixed location (notification requirement). DTAG likewise had to commit to enabling its customers to use the call by call and preselection facility pending the issue of a final order based on the outcome of the current market definition and market analysis procedures.

Ruling Chamber 2, responsible for rates regulation and the special control of anti-competitive practices in the markets for telephone services, resale, public payphones and preselection, in 2005 pronounced on, in all, two ex post rates regulation cases, 18 anti-competitive practices cases and one case to issue a provisional obligation. Substantive decisions brought the completion of one ex post case, 11 anti-competitive practices cases and the procedure for determining a provisional regulatory order. One case of anti-competitive conduct resolved itself through withdrawal. Also, under the notification procedure, the Chamber looked at 18 sets of DTAG's pricing measures, checking them for compliance with the TKG. Altogether, 140 companies and interest groups were invited to attend proceedings.

Processing preselection orders via electronic interface

After DTAG cancelled the agreements on the electronic transmission of preselection order data that it had concluded in June 2004 with a number of core network operators and that contained a provision on liability exemption, the companies filed an anti-competitive practice application under section 42 TKG.

DTAG was then prohibited by the Chamber from making its offer of an agreement on the electronic transmission of preselection order data contingent upon presentation of a written

declaration of intent from the customer. The defendant was also prohibited from using information acquired in connection with carrying out preselection orders to win back customers, and thus ordered to continue the agreement until acceptance by the complainant for a maximum, however, of four weeks after publication of the notice. The application was found to be without sufficient cause on the other counts of anti-competitive conduct.

Action brought by DTAG against the decision was allowed by Cologne administrative court in its ruling of 26 October 2005 in part only. With regard to the part of the decision quashed by the court, the Agency has filed for non-admission so as to enable a review by the Federal Administrative Court.

Refusal by DTAG to supply local loops

Further cases concerned an abuse of DTAG's significant market power through its lack of non-discriminatory treatment of telecoms service providers obtaining, like retail customers, AGB products at retail prices. A provisional order was issued pending a final decision, requiring DTAG to continue to supply providers with AGB services, ie ordinary and ISDN lines as set out in the general terms and conditions for the telephone service. DTAG was forbidden in particular to make supply contingent on signing "conditional agreements".

RULING CHAMBER 3

In 2005, Ruling Chamber 3 was responsible for telecommunications regulation and energy regulation. When Chambers 6 to 9 were set up in November 2005, the responsibility for energy regulation was then transferred to them.

Internet

The Agency approved the charges for the main broadband interconnection service currently available with effect from 1 November 2005. DTAG continues to provide most of the broadband Internet connections in Germany under the brand name T-DSL. The T-DSL ZISP product enables Internet service providers to offer T-DSL customers Internet services over a platform of their own. T-DSL ZISP provides the link between the T-DSL connection and the competitors' Internet platform.

The previously agreed rate of € 0.52 for use of the basic T-DSL ZISP line was lowered to € 0.49 for each 10 kbit/s unit of capacity. The reduction is bigger still when set against the price of € 1.5625 for each 10 kbit/s that DTAG had filed for.

Leased lines (CFV/SFV)

Further market analysis studies were made on the supply of leased lines in the period under review, so that a regulatory order has not yet been issued. Thus it was necessary to consider whether there were any special circumstances prior to the completion of these studies that necessitated action to secure competition and to protect users' interests. A case that Ruling Chamber 3 had opened on this was closed, however, after T-Com, the provider of carrier leased lines and standard leased lines (CFV/SFV), declared itself willing to keep the pricing status quo pending the issue of a regulatory order.

Introduction of simyo by E-Plus

Ruling Chamber 3 on 12 July 2005 settled a dispute between the service provider Mobilcom Communicationstechnik GmbH (mobilcom) and the mobile operator E-Plus GmbH & Co. KG (E-Plus) about its new "simyo" brand. In its decision the Chamber concluded there was no obvious reason for absolute equal treatment and that, considering the circumstances of the case, different treatment was permissible under the terms of the licence and also under standard competition rules, if there was objective justification. This included, most notably, first-mover competition which was, in principle, a desirable expression of compliant behaviour.

Online flat rate dispute resolution case

debitel AG had also referred a dispute with E-Plus Service GmbH & Co. KG for resolution. Here, too, the case involved possible discrimination in the introduction of a new offer, this time an online flat rate for the use of data services delivered primarily over the defendant's UMTS network. This case was also decided in favour of the mobile operator.

Advertising directory enquiry services on telephone books

On 2 February 2005 Ruling Chamber 3 issued a decision about a complaint from telegate AG in respect of what it considered to be anti-competitive practices by DTAG's subsidiary DeTeMedien in the preparation of telephone books and classified directories.

In its ruling the Chamber concluded that although competition was affected by DTAG's conduct, this was not to be regarded as unfair or as not objectively justified. True, a study submitted by telegate was able to set out convincingly that telephone books and classified directories were important means for advertising numbers for directory enquiry services provided by telephone, yet there were enough other ways of advertising telegate's directory assistance services. telegate's filings against the subsidiary DeTeMedien proved inadmissible.

With regard to the discrimination accusation, the Chamber concluded that DTAG had not breached the rules because it had treated telegate in just the same way as every other company in processing the information it had provided for publication in directories.

Rates for the provision of subscriber data

On 25 November 2004 the European Court of Justice (EuGH), in a ruling on a submission from a Dutch court, clarified the interpretation of the voice telephony directive that addresses the provision of subscriber data and recognisable costs at European level.

Following the European Court of Justice, the Agency's Ruling Chamber 3 had first to investigate whether DTAG, under its current subscriber data provision agreements, merely supplied "mandatory data" – which was the case – and second, what costs could be billed. Under the Court of Justice ruling, only the costs of provision could be recognised, not those for setting up and updating the databases. The data had to be collected and updated by telephone service providers anyway. The costs for this were paid by the customers already. Thus the Court found that a costly second use of the data by the telephone companies should not happen. On 17 August 2005 the Agency therefore ruled that the annual costs DTAG charged users of subscriber data should be reduced by around 98 percent from € 49 million to € 770,000. This decision borders on a paradigm shift, since the huge reduction in the cost price for subscriber data could lead to greater market entry in the downstream markets for directory enquiry services and to greater competition there.

RULING CHAMBER 4

Last year, the Chamber dealt with 14 rates proposals for access services, seven filings for access orders under section 25 TKG, 70 filings for a partial amendment of interconnection orders and two dispute resolution cases. A particular focus of the Chamber's work was the issue of the very first regulatory orders for the interconnection markets and the local loop access market. And finally, in early 2005, the Chamber had to decide on eight cases that were still open at the end of 2004. Some of the cases such as those concerning the regulatory orders and approval of the rates for local loop access, were widely followed by the competing companies and their industry associations. Accordingly, decisions had to be taken on the large number of requests from the competitors and associations to attend proceedings.

In addition to its responsibilities for regulation of markets 8 to 11 of the Commission Recommendation on relevant markets, Ruling Chamber 4, in the course of the year, temporarily assumed some of the responsibilities of Ruling Chamber 3 in connection with staffing changes brought about by the Agency's new responsibilities for energy regulation.

The main decisions are set out below.

Regulatory measures in the markets for call origination, call termination and transit services in the public telephone network (markets 8 to 10)

Regulatory order on DTAG

The definition and analyses of wholesale markets 8, 9 and 10 of the Commission Recommendation carried out immediately after enactment of the Telecommunications Act 2004 showed the President's Chamber that DTAG had significant market power (SMP) in most of the markets.

In light of this, Ruling Chamber 4, after carrying out a national consultation and submitting the draft measure to the Commission, issued a regulatory order on DTAG imposing a number of obligations strengthening the rights of competing companies in some regards.

The rates for interconnection services and for granting colocation are subject to ex ante approval by the Agency, measured by the criterion of the cost of efficient service provision.

In line with the scope provided by the new Telecommunications Act, DTAG was ordered to publish a reference offer for its interconnection and colocation services.

As the outcome of the definition and analysis of markets 8 to 10 also showed DTAG to have SMP in the markets warranting regulation "Call origination on the public telephone network provided at a fixed location, including local call conveyance via primary rate interface to calls to online services" and "Transit services in the fixed public telephone network via primary rate interface plus call origination from national networks to online services", the Agency also issued a regulatory order on 16 November 2005 in respect of these. The order obliged DTAG, amongst other things, to make transparent its wholesale prices for access services in the markets relevant to the case, in particular its wholesale connection rates for ISPs (AfOD) and its Internet access wholesale flat rates (OVF), and to give the Agency information, upon request, on the volume of wholesale products offered externally and used internally, with the corresponding revenues.

In light of the depth of regulation previously – under the old TKG, primary rate interface was classed as general network access – it was duly decided not to impose an access obligation on DTAG with the resultant ex ante rates regulation duty.

Hence the rates for access services in the markets "Call origination on the public telephone network provided at a fixed location, including local call conveyance via primary rate interface to calls to online services" and "Transit services in the fixed public telephone network via primary rate interface plus call origination from national networks to online services" are subject only to ex post rates regulation. The order in full is published on the Agency's website.

Regulatory order on alternative access network operators

Another work item for the Ruling Chamber last year was the preparation of regulatory orders on alternative access network operators and opening of the associated cases. This was necessary against the following background. The Commission had vetoed the initially notified market definition and market analysis draft on market 9 where it

concerned alternative access network operators. In the draft, the President's Chamber had concluded that the alternative fixed network operators did not have SMP, in particular on account of DTAG's countervailing market power in termination services. Because of the Commission's veto, the draft on market 9 has been revised again with regard to the alternative operators and amended to the effect that all the alternative access network operators have SMP in their particular network in the relevant call termination market. The Agency has decided that this assessment will also apply to alternative access network operators operating in future in the above sense in termination markets.

Against the background of this modified determination, the Chamber then consulted on a template draft. This envisages, most notably, an obligation on access network operators to provide interconnection and as part of this, termination services in their respective networks. The rates should be regulated ex post. The consolidation procedure required by the legislation is still pending; it will be carried out shortly.

Rates for interconnection links (without colocation)

In the period under review it was again time for approval of the rates for interconnection links (ICAs). These links comprise the switching and transmission equipment needed where the networks meet (points of interconnection).

The new rates payable from 1 December 2005 were approved largely on the basis of cost statements, even if individual components had to be established from an alternative source, or even completely disregarded, on account of a lack of proof.

All the new rates for interconnection links were approved at levels below the current ones. By contrast, the provisioning charges approved were slightly higher than the current ones. The increases arose chiefly from an increase in the hourly rates, accepted by the Chamber – even if lower than the rates of increase stated by the complainant – in light of, amongst other things, the introduction of the 34-hour week, a costing amendment from the complainant in respect of particular, basically justified times given, and updated frequencies in process costing.

Higher tariffs for preparing the switching and cascading documentation were approved. This was because of the acceptance, for the first time, of the cost statements on the "subcontracts" that have to be drawn up for every cascading path. With cascading, the "Customer Sited" interconnection links are provided one behind the other to allow competitors to bundle their traffic to and from the points of interconnection.

However, prices up to 75 percent lower than those filed for by DTAG were approved almost throughout. Virtually all the cost components were reduced.

Regulatory measures in the market for wholesale unbundled access to metallic loops and sub-loops for the purpose of providing broadband and voice services (market 11)

Regulatory order for access to the local loop

On 20 April 2005 the Chamber issued a regulatory order for market 11 of the Commission Recommendation. The order imposed a number of obligations on DTAG, it having been found by the President's Chamber to have SMP in the national market for access to the local loop.

The rates for access to bundled and unbundled loops and for colocation are subject to ex ante approval based on the costs of efficient service provision.

The obligation under the old TKG to grant unbundled access in the form of pure optical

fibre was revoked in the order. The market analysis had shown this market not to warrant regulation. Action taken by a competing company against this decision was unsuccessful in the first instance at Cologne administrative court. In accordance with the scope provided by the new TKG, DTAG also had to commit to publishing a reference offer for access to the local loop and for colocation.

Monthly rentals for access to the local loop
Publication of the local loop access order was followed by the approval of new monthly charges for access to loops, the so-called last mile. This decision was thus taken fully on the basis of the Telecommunications Act 2004, without recourse to transitional provisions.

Accordingly, the monthly charge for the most common variants, the simple 2-wire copper pair and the 2-wire copper pair high, was reduced retroactively from 1 April 2005 by a further 9.75 percent from € 11.80 to € 10.65. Thus the charge approved was almost 40 percent less than DTAG's proposal of € 17.40. Charges up to 48 percent lower than previously were also approved for rental of the other access variants. Again, the Chamber referred to a cost model drawn up by WIK to identify market prices.

Following these approvals, the monthly local loop rentals now constitute a good average of the countries using the same cost criteria. The rates were again approved for a period of two years ending 31 July 2007.

One-off charges for access to the local loop and line sharing charges
Finally, on 3 August 2005, two important decisions were taken on local loop access rates. The first concerned the approval of new one-off charges for provisioning and termination retroactively from 1 July 2005.

A provisioning charge of € 43.10 was approved for the simple transfer of a 2-wire copper pair without work at the end customer's. This is about 10 percent lower than the previous charge. With new lines, the reductions can be as much as 32 percent. The charges approved are up to 50 percent lower than DTAG's proposals.

The termination charges for most of the access variants are also considerably lower. In future, the competitors will pay 71 percent less, namely now only € 5.80 instead of € 19.95 as before, for termination of the simple 2-wire copper pair if the end customer changes provider or returns to DTAG at the same time. When this does not happen, the termination charge falls by 21 percent from € 36.65 to € 29.10.

The second decision addressed the rates for line sharing. A monthly charge of € 2.31 from 1 July 2005 was determined for access to the high frequency portion of the local loop. This is slightly less than 5 percent of the price previously approved by the Chamber and proposed by DTAG. There were likewise reductions in the one-off provisioning and termination charges for line sharing. The transfer and new line tariffs were reduced by up to 17 percent. For a simple transfer, competitors in future will have to pay € 51.43 instead of € 60.82. For the first time, line-sharing termination charges – as those for the local loop – were differentiated according to whether the end customer switched provider or not. The more favourable price, applicable when the customer switches at the same time, is around 83 percent lower than the previous price, and the tariff applicable when the customer does not, is around 19 percent lower.

By international standards, too, the German prices occupy a good position; they are in the Top 3 level within the EU countries. The prices for access to the high frequency portion of the local loop are lower than those in France where line sharing has already proved itself to be a successful business model.

Voice call termination on individual mobile networks (market 16)

In light of the expiry on 14 December 2005 of the vodafone-V.1 termination charge, the Agency on 1 December 2005 fixed new termination rates to apply from 15 December 2005. The Chamber used an international benchmarking exercise to set a per minute rate of € 0.11 plus a markup for fewer than nine, or four, points of interconnection implemented.

Telecoms cases in 2005

	Ruling Chamber				Total
	BK1	BK2	BK3	BK4	
Rates regulation		20	1	14	**35**
Abuse		18	38		**56**
Regulatory orders					
Section 10 and 11 TKG determinations	6				**6**
Imposition of obligations					**0**
Interconnection orders			2	79*	**81**
Imposition of obligations Section 12(2) TKG provisional obligations		1		3	**4**
Reference offers				2	**2**
Others					
Mediation, complaints, approvals, dispute resolution			2	2	**4**
Total number of cases	**6**	**39**	**43**	**100**	**188**
Numbers invited to attend		140	139	294	**573**

* of these, 70 to change existing interconnection orders

Administrative court proceedings

In 2005 again, a number of court cases (main and summary proceedings) against the Agency were opened. Most of the cases completed in 2005 were decided in the Agency's favour.

In the telecoms sector there were 124 main proceedings and 31 summary proceedings in all. Of the 124 main proceedings, 46 are now closed. Of these, 42 were decided in the Agency's favour, three against and one case ended in partial defeat. Of the 31 summary proceedings, 25 were decided in 2005. The Agency won 21 of these cases and lost three, while one ended in partial defeat.

The focus of the legal disputes and rulings on telecoms issues in 2005 was interpretation of the provisions of the TKG 2004, most notably as regards the transitional provisions of section 150.

Cologne administrative court did not raise any objections to the Agency's mobile termination charges order (D2, O2 and E-Plus) in response to the applications from 01051 Telecom and 01081 Telecom. However, with regard to E-Plus' mobile termination charges, the decision was taken only after the Agency's modified application under the summary proceedings (1L6/05; 1K8432/05; 1L624/05; 1L683/05; 1L277/05, 1K765/05 and 1L319/05).

As far as interconnection was ordered under the new TKG, the court confirmed that the orders had legitimately been made on the basis of section 25(1) TKG 2004. With regard to rates approved, the court stated that under section 150(1) TKG, just the "determinations of market dominance made … prior to the entry into force of this Act and the resulting obligations shall remain in effect", but not, however, the previously applicable legal situation (in particular, the approval criteria of the old TKG) as a whole. Yet the market analysis required under the TKG 2004, not available before completion of the market definition and market analysis procedure, can be replaced by a concrete, individual determination on market dominance made by the Agency under the TKG 1996. Regarding the charges to be set, the court saw section 25(5) sentence 3 TKG as the reference in law to sections 27 to 38 TKG and determined that the Agency had rightly measured the termination charges using the section 28 TKG criteria and had rightly not raised objections. In two cases (E-Plus and D2), 01051 Telecom and 01081 Telecom have meanwhile lodged an appeal on a question of law (6C17.05 and 6C18.05).

In summary proceedings, Cologne administrative court turned down an application

from DTAG stating that it was not required to have the rates for its T-DSL ZISP basic connection approved (1L3263/04 – 18. 05. 05). Indeed, an approval requirement did not ensue from section 39 TKG 1996, nor from section 150(1) TKG in conjunction with previous approvals for T-DSL ZISP basic connections. But the approvals issued before enactment of the TKG 2004 continue to apply even after repeal of the old TKG, via section 150(1), as obligations linked with the finding of dominance. However, this held good only until expiry of the period fixed in the approval decision, since section 150 TKG ordered solely the continued validity of concrete, individual obligations whose scope was limited by what was actually regulated in the decision. This means that a TKG 2004 approval requirement must be looked at when an approval issued and given a time limit under the TKG 1996 expires after enactment of the TKG 2004.

In a decision taken on 7 July 2005 (1K4556/04) on DTAG's parcel offers, Cologne administrative court further stated with regard to section 150(1) sentence 1 TKG that there had to be a close connection between dominant position and resulting obligation. Covered by section 150(1) sentence 1 TKG were only such obligations as needed no further regulatory act of implementation. This was not directly applicable to the determination of an approval requirement; rather, it had to be implemented in the form of approval grant.

In its judgment of 26 October 2005 (1K4639/05) Cologne administrative court rejected an appeal from DTAG against the preselection obligation imposed by the Agency. The court regarded imposition of this obligation on the basis of section 40(1) sentence 1 TKG in conjunction with section 150(1) TKG as lawful. It affirmed the reasonableness of this action, notwithstanding DTAG's voluntary commitment to continue the preselection obligation.

In a further decision on 26 October 2005 (1K4418/05), Cologne court affirmed the Agency's section 42 ban on DTAG's use of preselection order data passed on to it by competitors for preselection purposes, to win back customers. In its decision the court expressly affirmed the applicability of the abuse ruling of section 42(1) TKG in conjunction with section 150(1) TKG before the issue of a sections 10 and 11 regulatory order. The court stated that the lawmakers had decided to close any regulatory gaps by applying the new TKG provisions. In DTAG's use of preselection order data to win back customers it saw an abuse of SMP, as other companies' competitive scope was impaired without objectively justifiable reason. True, there were no objections even to powerful companies persuading customers to migrate. However, DTAG did not obtain the data as a result of its own activity as an access network operator, but solely because of its dominant position in this capacity and competitors' reliance on its services. In objective terms, DTAG's attempts to entice customers away were likely to affect competition substantially. Whether and to what extent its action to do so was ultimately successful, however, was irrelevant.

However, the court ruled that it was unlawful to oblige DTAG not to make the processing of a preselection order dependent on a written declaration of intent from a customer. While it recognised that the abuse ruling of section 42 TKG was designed to limit the economic and contractual scope open, in principle, particularly to DTAG, it said it should be remembered that this was a matter of civil law powers explicitly granted to DTAG by law (section 174 of the Civil Code, or BGB). It could not be assumed that the TKG should generally displace the Civil Code's requirements as to form. On this, the Agency filed a complaint against denial of leave to appeal.

In a decision dated 24 August 2005 (1L803/05) and a judgment dated 17 November 2005 (1K2429/05) Cologne court confirmed the legality of the revocation, by regulatory order for the local loop market (market 11), of the

obligation on DTAG to grant unbundled access to fibre optic lines. Arcor has meanwhile lodged an appeal (6C28.05). In its decision the court stated that the Agency, in its three criteria test according to section 10(2) sentence 1 TKG, had accurately determined that the offer in question was not part of a market in which the conditions of section 10 TKG were met. When one of the three cumulatively needed conditions of section 10(2) sentence 1 TKG was not met, market regulation was not warranted. Since the third criterion, at any rate (markets in respect of which the application of competition law alone would not adequately address the market failure(s) concerned), was not fulfilled in this case, it was enough to apply competition law. Access to fibre loops is not essential for competition at retail level, since DTAG's competitors connect many more end customers via their own fibre optic lines.

In its ruling of 19 August 2005 (13A1521/03) Münster higher administrative court addressed the matter of the Agency's scope for interpretation with regard to price controls under the old TKG. Unlike Cologne administrative court in its decision of 6 February 2003 (1K8003/98), the Münster court, while denying that a public authority had scope for interpretation in setting an appropriate return on capital according to section 3(2) of the Telecommunications Rates Regulation Ordinance (TEntgV), did establish that there were no objections to either the Agency's imputed rate of interest or to the depreciation period for conduit systems. DTAG'S complaint against denial of leave to appeal (6B70.05) has meanwhile been rejected, on 15 December 2005, by a ruling from the Federal Administrative Court.

Also, DTAG's most recent application under section 35(5) sentence 2 TKG (1L1586/05) seeking a temporary order by means of which to receive higher rates for access to the local loop and access to the primary connection point in two variants because the Agency had wrongly determined the appropriateness of the rate of interest, was rejected by the court on 19 December 2005. The court stated that it could not be definitively decided whether there was scope for interpretation under section 31(2) TKG, yet under section 31 TKG there were many indications that this was given. Contrary to DTAG's view, summary proceedings could not clarify whether the Agency had exceeded its scope for interpretation; this was hence open.

Technical regulation

Spectrum management

Spectrum is a finite resource and the goal of spectrum management is to allocate this resource in order to satisfy demand. In doing so, it is important to think beyond current spectrum usage to the development of the market and the impact of technological advances. Extensive planning is required at both national and international level in order to ensure that the available spectrum can be used by a wide range of applications and technologies without this causing interference or inefficiencies, and to establish a level playing field and effective competition in telecommunications markets.

Preparations for the 2007 World Radiocommunication Conference

As the only body authorised to amend the Radio Regulations, WRC-07 will again have important decisions to make on spectrum utilisation at a global level. Just two examples of the issues to be addressed are IMT-2000/UMTS and further developments and additional frequency bands for aeronautical telemetry and aeronautical radio.

The preparations, in particular the organisation of European activities for WRC-07 and cooperation between the working groups of the Electronic Communications Committee (ECC) and the European Conference of Postal and Telecommunications Administrations (CEPT), namely the Conference Preparatory Group (CPG) and the Frequency Management (FM) and Spectrum Engineering (SE) working groups, continued in 2005 with input from the Federal Network Agency. Preparations also cover the representation of European interests at meetings of the working groups in the Radiocommunication Sector of the International Telecommunication Union (ITU-R) in Geneva.

In the year under review, the Federal Network Agency again sent delegates to the CPG and to all other project groups, where they occupied senior positions and represented German interests.

A national group has again been set up under the leadership of the Federal Ministry of Economics and Technology to prepare the German positions. The “downstream” groups tasked with working out the details were headed by the Federal Network Agency in 2005 and are open to interested professionals.

European harmonisation

In view of the advance of globalisation and the goal of the European Union to create an internal market, it is becoming increasingly important to harmonise international spectrum usage. This means that national

regulators must help to shape international developments and take them into account in their planning. Decisions taken at international level directly affect individual countries, as the scope for deviation at national level is very limited. The Federal Network Agency therefore works alongside the German government to play an active part in the international process of harmonisation.

The Federal Network Agency is a member of the Radio Spectrum Policy Group (RSPG), a high-level EU body that addresses policy issues. The RSPG adopts Opinions that shape strategy in key areas of spectrum management. In 2005, considerable effort was devoted to the preparation of an Opinion on Wireless Access Policy for Electronic Communication Systems (WAPECS). The RSPG also focused on activities connected with its earlier Opinions on secondary trading and digital broadcasting. In addition, work began on an Opinion regarding scientific use of spectrum.

The Federal Network Agency is also represented on the EU's Radio Spectrum Committee, which issues mandates to CEPT on issues of substance and determines, on the basis of the reports submitted, EU-wide technical implementing measures. These measures are then binding on all EU Member States.

In 2005, mandates were issued to CEPT regarding IMT-2000/UMTS, short-range devices (SRDs), the Terrestrial Flight Telecommunications System (TFTS), spectrum information using the CEPT-developed European Frequency Information System (EFIS) und ultra wideband (UWB). Planned mandates for broadband wireless access (BWA) and for mobile satellite services including terrestrial components in the 2 GHz band, as well as a second mandate for SRDs, are almost complete.

In 2005, Commission decisions on ERMES (harmonised use of the spectrum hitherto reserved for ERMES), WLAN in the 5 GHz band and short-range radar (SRR) in the 24 GHz band were adopted. The goal of these decisions is to harmonise European usage by establishing binding rules that tie certain services and applications to specific frequency bands. Commission decisions on SRDs and IMT-2000/UMTS have been drafted, with the former likely to be adopted in the near future.

Another field of activity in European Commission bodies is work in the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM), where the Federal Network Agency addresses the regulatory aspects of European spectrum harmonisation. In drawing up the air interface descriptions subsequently notified to the Commission, the Federal Network Agency makes sure that the regulatory aspects of the spectrum are addressed so as to secure harmonised, fair opportunities for all providers in the European market while guaranteeing national and CEPT-wide efficient and interference-free use of frequencies.

The Electronic Communications Committee (ECC), part of the European Conference of Postal and Telecommunications Administrations (CEPT), is responsible for radio and spectrum matters throughout the whole of Europe. It has a number of permanent working groups and project-based groups set up to tackle specific tasks. The Federal Network Agency was actively involved in framing the CEPT-wide conditions for frequency use.

Of particular interest to Germany were the ECC decisions that established a regulatory framework for the IMT-2000/UMTS extension band, opened the spectrum reserved for ERMES to new applications, allocated new frequency bands for high-density satellite applications and framed the conditions for short-range devices (including radio frequency identification or RFID).

GSM and UMTS consultations

In May 2004, the Federal Network Agency launched two consultations in preparation

for the distribution of further spectrum: the "Consultation for the award of further spectrum for public digital cellular mobile communications below 1.9 GHz" and the "Consultation on the availability of spectrum for Universal Mobile Telecommunications Systems (UMTS)/International Mobile Telecommunications 2000 (IMT-2000)". The consultations are known as the "GSM concept" and the "UMTS concept" respectively.

The Federal Network Agency aims to produce a number of individual concepts that will eventually form an overall strategy covering all forms of wireless access in a range of frequency bands. The main elements of this strategy will be more flexible frequency usage conditions, technological neutrality and the efficient use of spectrum. Issues relating to competition must also be taken into consideration alongside technical and regulatory factors.

The consultations on methods for awarding spectrum for GSM and UMTS applications are taking place simultaneously in order to avoid an artificial scarcity of spectrum, which might occur if spectrum were awarded in parts and which would distort the market. The aim is to ensure that market players have as much information as possible, thereby creating the transparency needed for future spectrum assignment.

GSM concept and key elements

The GSM concept envisions a two-stage process. First, E network operators will be required ex officio to transfer part of the existing GSM uses from the 1800 MHz band to the 900 MHz or E-GSM band (GSM extension band). In the second stage, a decision is then taken about the reassignment of the spectrum cleared by this transfer. The agreement of the Federal Ministry of Defence to relinquish its right to use the 900 MHz range in spring 2004 has made it possible to transfer existing uses to this frequency band. The clearance of the E-GSM band was a long-standing goal and paves the way to establishing similar physical and economic conditions for spectrum usage by D and E network operators.

In the process of adjusting the regulatory framework to ensure fair competition, however, it is not necessary to increase the amount of spectrum available to E network operators. The 900 MHz band should not, therefore, be awarded to E network operators in addition to their existing allocation. Instead, E network operators will be required to transfer part of the existing uses from the 1800 MHz band to the E-GSM bands and to return cleared 1800 MHz spectrum (in a single block) to the Federal Network Agency. This spectrum will subsequently be made available to the market in a process that falls outside the scope of this concept. Under the GSM concept, all rights to use GSM frequency assignments will expire on 31 December 2016.

Seventeen comments were received in the course of the public consultation and a preliminary evaluation is now complete. The Federal Network Agency must weigh the conflicting interests highlighted by these comments. For instance, the aim of stimulating competition by allowing a new operator to the enter the market must be weighed against the goal of establishing common technical standards with regard to existing GSM operators, a goal which in turn encourages technological progress. The Federal Network Agency adopted the GSM concept on 21 November 2005 and it was published in the Agency's Official Gazette on 30 November 2005 together with the associated subplans 226 and 227.

UMTS concept and key elements

Known as the "UMTS concept" for the sake of simplicity, the consultation on the availability of spectrum for UMTS applications is, strictly speaking, still in its infancy. The consultation sets forth key elements by way of an initial framework, yet it does not contain concrete ideas for awarding spectrum. Instead, the object of the consultation is to develop the

UMTS concept by expanding on these key elements.

At the heart of the consultation is the idea that available spectrum in the UMTS core band, which was auctioned in 2000, and frequencies in the UMTS extension band, which will be available following harmonisation from 2008, will be awarded together. One of the main objectives of the consultation is to obtain information from the market about the actual level of demand for UMTS spectrum, taking into account advances in technology. This information will then inform the design of prospective award mechanisms.

The consultation will also examine the question of whether existing wireless local loop (WLL) assignments in the UMTS extension band could remain in effect beyond the end of 2007, when they are currently due to expire. The goal is to make additional UMTS spectrum available in line with demand and at the earliest possible opportunity.

The key elements of the UMTS concept state that in Germany spectrum for UMTS/IMT 2000 services can be made available in the core band. They also note that, in addition to the core band, Germany's entire UMTS extension band, subdivided into FDD and TDD bands, is designated for UMTS/IMT-2000 from 1 January 2008. This affects the WLL applications that currently use the extension band and that are limited until the end of 2007. These are fixed service applications and, according to the ordinance implementing the National Table of Frequency Allocations, applications of this type are only permitted to use this spectrum until the end of 2007. The possibility of extending usage beyond this date will therefore be determined by the feasibility of changing the National Table of Frequency Allocations as well as the actual demand for mobile applications.

The Federal Network Agency assumes that a basic package of 2 x 10 MHz (paired) – the same as for the networks licensed in 2000 – will be sufficient for a new UMTS network. This means that, as in 2000, new entrants will also be catered for. The Agency further intends to make UMTS/IMT-2000 spectrum available at the earliest possible date in line with demand. The award mechanism should be in place by the end of 2007, even if no applications for spectrum have been received. In order to make spectrum available, the regulatory framework governing the award mechanism (bid process, auction, application procedure) must be clear, as must the use of the spectrum (ie allocation). If spectrum is scarce, the TKG states that, as a general rule, spectrum is to be awarded by auction.

The Federal Network Agency must therefore first decide if there is sufficient spectrum to meet demand. If demand outstrips supply, or if several applications have been made for particular frequencies, the President's Chamber can specify that an auction must be held or an invitation to tender issued. The choice of award mechanism will be determined by the actual number of applications received and the proven demand for the spectrum in question. Once all the comments have been evaluated, the Federal Network Agency will finalise the concept for awarding UMTS/IMT-2000 spectrum, which will be followed by a concrete award mechanism. Twenty-four comments were received by the allotted deadline.

A discussion on the availability of spectrum for UMTS/IMT-2000 was held on 27 October 2005 in response to the comments received. The discussion explored the conflicting interests of UMTS network operators and prospective new entrants on the one hand, and the operators of broadband wireless access (BWA) and fixed service applications on the other. The results of this meeting were then used to draw up the aforementioned finalised UMTS concept for Germany, which was published in the Official Gazette of 21 December 2005 to give market players a final opportunity for

comment. The UMTS concept will then form the basis for an award mechanism.

Wideband PAMR

Wideband spectrum for public access mobile radio (PAMR) was awarded to two companies that submitted applications in 2004. However, the submission of further applications after the specified period had ended prompted the opening of a new application window at the end of June 2005. The number of further applications submitted during this window means that the demand for spectrum now exceeds supply. In such a scenario, the 17 February 2004 decision of the President's Chamber states that an auction must be held to award wideband PAMR spectrum. The decision of the President's Chamber is currently being challenged and the award procedure is therefore on hold until this matter has been resolved.

Frequency assignments for innovative radio applications

In 2005, some 650 frequency assignments were issued under section 58 of the TKG for the purpose of developing and testing new technologies and for research projects or similar. Assignments for innovative and experimental radio services may be at variance with the specifications of the National Table of Frequency Allocations and the Frequency Usage Plan, but variant use must not be allowed to degrade the services and usages included in the Table and the Plan.

The new developments in 2005 focused on: the first frequency assignments for mobile systems in the 2.6 GHz UMTS extension band, the operation of the first networks for testing wireless links between end customers in the 3.5 GHz band (WiMAX), and the development of electronic RFID anti-theft systems in the 866 MHz band.

Broadcasting

In 2005, the Federal Network Agency processed the following frequency assignments for broadcasting services:

- 196 for VHF
- 357 for HF
- 1 for MF
- 27 for TV
- 183 for T-DAB
- 118 for DVB-T.

Digital broadcasting

The President's Chamber has specified key elements for assigning DVB-T spectrum. In the year under review, the Federal Network Agency was able to successfully complete a number of DVB-T frequency assignment proceedings, including proceedings for the federal states of Saxony, Saxony-Anhalt and Thuringia.

Assignment proceedings have been opened for further notified coverage areas in the states of Baden-Württemberg and Rhineland-Palatinate. These procedures are due to be completed next year. By the end of 2005, a total of 242 DVB-T frequencies had been assigned for commercial operation, while the total number of frequency assignments for T-DAB now stands at 1,073.

Frequency usage for earth stations

Under the EC package of directives, individual assignment is needed for the frequency applications of earth stations in bands shared with other services (radio relay, as a rule) and for those of earth stations near airports. In each case, a frequency and location coordination procedure must be carried out, and near airports a study of compatibility with the electronic systems of aircraft, so as to secure interference-free and efficient co-existence of the different applications.

In 2005, the Federal Network Agency issued 192 individual spectrum assignments. In most cases, the spectrum was assigned to larger stations for point to point transmissions (eg to route Internet traffic and for transmission paths in crisis-hit regions) and for the provision of wide area coverage (eg for TV channels).

Assignments for satellite networks

Satellite earth stations are often operated as part of networks. These usually comprise a number of terminals whose frequency usage is monitored and controlled mainly by the network operator. The end customer (eg the user of a VSAT terminal) has no influence of any kind on the frequency-related properties of the terminal. This would suggest that the operator of the satellite network be assigned frequencies for the applications of the entire system, thus covering operation of the terminals as well.

International notification and coordination of satellite systems

The amended TKG contains a new paragraph addressing "Orbit Positions and Frequency Usage by Satellites". Upon application, the Federal Network Agency carries out the advance publication, coordination and notification (filing) of satellite systems with the International Telecommunication Union (ITU) in Geneva. If frequencies and orbit positions are available, if the application is compatible with other frequency usages and other satellite system notifications and if there is no detriment to public interest, the applicant is assigned the rights to orbit and frequency usage. Only then may the system be brought into use and operated.

The Federal Network Agency also provides support and assistance in the international coordination of orbit and frequency usage rights. In this lengthy process of international coordination, the Federal Network Agency represents Germany's interests and seeks to ensure that frequencies and orbit positions are available for German users. The Agency is also responsible for the protection, under ITU procedures, of terrestrial services in the many bands that are shared with satellite services.

Frequencies for public authorities

Frequencies are also required by a number of public authorities for the performance of their duties. The Federal Network Agency assigns frequencies on the basis of the Frequency Usage Plan and the Frequency Assignment Ordinance to users such as the emergency services (BOS), the German air traffic control authorities, the waterways and shipping administration and the railways.

Frequencies used by the Federal Ministry of Defence in the bands reserved exclusively for military purposes do not need to be assigned by the Federal Network Agency. In the bands used for civil and civil-military purposes, however, it is necessary for the Agency to assign frequencies to military users such as the Bundeswehr, NATO and foreign armed forces.

Temporary use assignments

Temporary use assignments are issued by the Federal Network Agency for sporting, cultural and other media events. The spectrum is generally needed for only a few hours or days.

In 2005, the Federal Network Agency issued a total of 2,180 temporary use assignments. These covered, in all, 11,157 usages in a variety of bands between 146 MHz and 22 GHz for 996 events. Most of the assignments were for motor racing (eg Formula 1 and the German touring car championships), cycle races, winter sports and the FIFA Confederations Cup 2005.

International frequency coordination for mobile services

In order to ensure the efficient and interference-free usage of spectrum along Germany's borders, rules must be drawn up together with the spectrum management administrations in neighbouring countries. The HCM Agreement sets forth a binding framework of rules for the international coordination of frequencies used by mobile services and fixed radio services. The Federal Network Agency has been the managing administration for the HCM Agreement since the end of 2004.

Operator certificates

Participation in aeronautical and amateur radio requires special knowledge. The regulator therefore holds special examinations and certifies that successful candidates do indeed possess the required knowledge of aeronautical radio by issuing operator certificates. Approximately 4,600 operator certificates were issued in 2005.

Professional mobile radio

Professional mobile radio (PMR) consists of various non-public applications. A particular distinguishing feature is that it is tailored to users' individual needs and does not require an external network operator. Despite the steady advance of public mobile services, professional mobile radio has consolidated its position as a customised communications medium for closed user groups. Traditionally, the core of PMR has been trunked radio. A special offshoot is public safety radio for the police, the fire brigade and other emergency services. Paging, too, is of major importance. A further subdivision of non-public mobile radio is telemetry and telecommand (remote control, remote data retrieval, transport management systems, warning systems).

Fixed point to point links

Fixed point to point links are a low-cost, flexible alternative to leased lines and independent cable projects as a means of digital communication and data transfer. Thanks to these significant advantages and the increasing availability of high bandwidths, demand for fixed point to point links continued to grow strongly in the year under review. The cost-effectiveness of such links means that they are not only suitable for bridging the last mile, but also for setting up mobile networks incorporating a number of locations.

Fixed point to multipoint links

In 2005, the Federal Network Agency devised and launched a new procedure for assigning spectrum for broadband wireless access applications in the 3,400 to 3,600 MHz band. The 3,400 to 3,600 MHz band has attracted increasing attention as it is associated with advances in technology that are expected to make high-speed wireless Internet access a viable economic proposition.

In two consultations, at the start of 2005 and in July 2005, the public was given the opportunity to state their views on the new assignment mechanism. The Federal Network Agency plans to introduce a two-stage procedure that satisfies demand while at the same time ensuring that spectrum usage is flexible and technology-neutral. The first stage will see registration of the intended usage; the second will convert registration into assignment proper if concrete rollout plans for a coverage area have been submitted within an eight-month period. By introducing registration, the Agency is aiming to assign spectrum to reflect real requirements. Only those submitting definite plans for opening up areas will be assigned spectrum. The intention is to avoid this scarce resource being blocked for any length of time. If the assignment requests in any one region cannot be met, the market players will be given the opportunity to find compatible solutions themselves before award proceedings are initiated. They will be able to decouple their use of frequencies by agreeing spatial or technical measures, for instance, before an official decision is taken.

The final details of the assignment procedure were announced on 21 December 2005. Applications to register for the assignment of BWA spectrum can be made until 28 February 2006.

Market surveillance under the EMC Act and the RTTE Act

In order to meet the obligations imposed by the EU's EMC and RTTE Directives, the Federal Network Agency carries out tests on electrical equipment in the market. These two directives were transposed into national legislation by the German Electromagnetic Compatibility

Act and the German Radio and Telecommunications Terminal Equipment Act respectively. Checks are carried out on a sample of the equipment in the market in order to verify the following points:

- Compliance with the CE marking requirements
- Plausibility of the EC conformity declarations
- Compliance with the EMC protection requirements
- Information on intended use and any operating restrictions applicable to radio and telecoms terminal equipment
- Conformity with the essential requirements of the RTTE Directive, namely safe operation, EMC and efficient spectrum use.

The goal of the Federal Network Agency as market regulator is to protect consumers and to prevent companies from gaining competitive advantage by offering products that do not meet the above requirements. The Agency therefore does not review all the products in the market but instead seeks to identify and filter out those that are substandard. Consequently, the results of market surveillance do not reflect the overall quality of products in the German market.

Market surveillance by the Federal Network Agency under the EMC Act and the RTTE Act involved a total of 11,864 separate activities in 2005. These activities encompassed checks of 501 different parties that place equipment on the market and 1,769 different suppliers of electrical/electronic goods, corresponding to a sample of 8.43 percent and 1.84 percent of each group respectively. A total of 8,340 series and one-off products were tested or visually inspected.

Marking verification

In the year under review, 8,340 devices were examined to verify that they satisfied marking requirements and that their conformity declarations were correct. Of the devices tested, 176 (or 2.59 percent of the sample) failed to meet the requirements of the EMC Directive and 640 (41 percent of the RTTE products tested) failed to meet the requirements of the RTTE Directive.

All in all, this translated into an average irregularity rate of 9.78 percent in all marking and conformity declaration checks. Put into figures, this means that the number of irregularities decreased by just under 4 percent compared with the previous year (2004 = 13.41 percent).

Measurements

In 2005, 1,411 series and 92 one-off products (unique products, very small series and expensive products) were measured. Irregularities were discovered in 538 series and 21 one-off products, which meant that 38 percent of the series products and 23 percent of the one-off products that were tested failed to meet the EMC protection requirements or the RTTE essential requirements. This means that the number of irregularities highlighted by measurements increased by about 4 percent compared with the previous year (2004 = 34 percent).

In the year under review, checks were also carried out on 103 products to determine whether they adhered to the RTTE essential requirements (in terms of equipment and product safety). The checks focused on the essential requirements with regard to electrical functionality, temperature stability, and correct and complete information on information plates. Formal faults and exceeded limits were found in 23 cases. This translates into an irregularity rate of 22 percent.

Follow-up actions

A scaled procedure was again used in 2005 to assess compliance with the protection requirements of the EMC Act and the RTTE Act. Breaches of the Acts can thus be addressed in a more nuanced way. After discovery of an infringement, the party responsible for the

placing on the market is heard. Only after the hearing has taken place and the documentation has been scrutinised is a decision on further action taken.

Over the year, 566 sales bans were imposed under the EMC Act and 608 under the RTTE Act on grounds of non-compliance with the protection/essential requirements or on grounds of faulty marking. This represents an increase of almost 15 percent in the number of sales bans compared with 2004.

Radio Equipment and Telecommunications Terminal Equipment Act

The entry into force on 8 February 2001 of the Radio Equipment and Telecommunications Terminal Equipment Act marked the transposition into German law of Directive 1999/5/EC of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (RTTE Directive). The Act regulates the placing on the market and free movement in the European single market of radio equipment and telecommunications terminal equipment. The discontinuation of the costly and occasionally time-consuming certification procedure for equipment that falls under the scope of the RTTE Act means that products can now be brought to market much more quickly. Innovative products in particular can now reach the market much faster than was possible under the old rules.

Although the experience with its application has been largely positive so far, both EU and non-EU equipment manufacturers and those placing equipment on the market still, after more than four years, need clarification of the access procedures. More than 205 queries from interested individuals as well as commercial market players from Germany and other countries were answered in 2005, mostly within a short space of time (cf 2003 – approximately 200 queries, 2004 – around 220).

Placing on the market notification for radio equipment operating on Community-wide non-harmonised frequencies

Radio equipment operated on frequencies whose use is not harmonised throughout the Community must, pursuant to the RTTE Act and the RTTE Directive, be notified to the Federal Network Agency at least four weeks before being placed on the German market. The aim is to secure efficient use of the radio spectrum. The Agency confirms that it has received the notification and gives manufacturers and placers explanatory notes about the assignment needed (general or individual assignment) and information on any restrictions on using the frequencies in Germany. In some cases, placers must be advised that operation of the radio equipment they intend to place on the market is not possible in Germany.

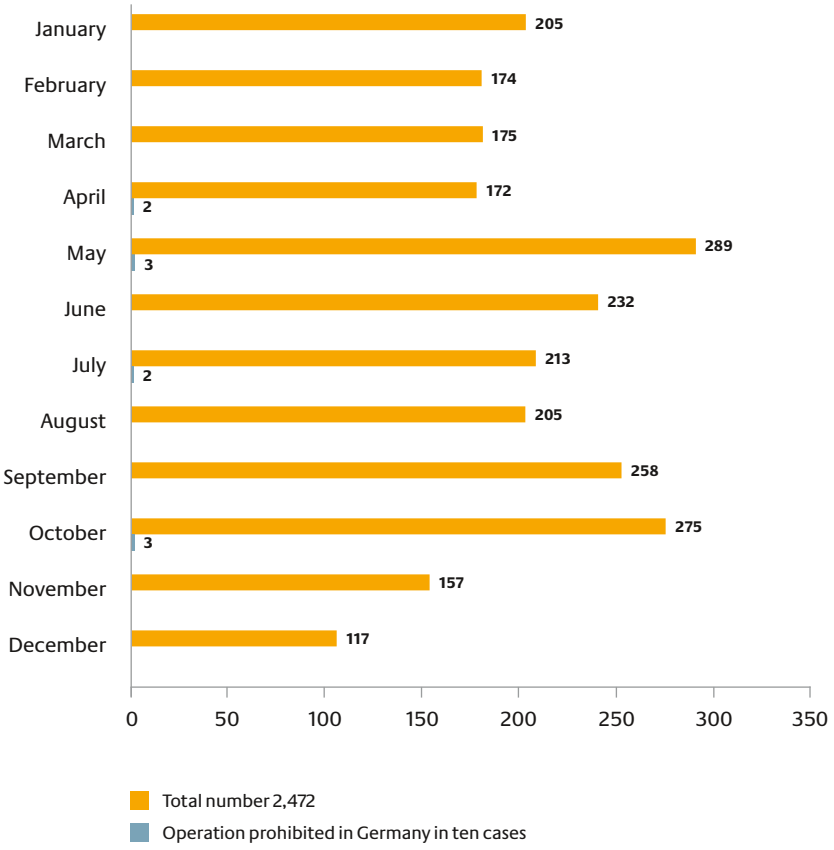
The average number of notifications received by the Federal Network Agency in 2005 was 206 a month (see page 76). Compared to the previous years (275 a month in 2003; 250 a month in 2004), this represents a decline of approximately 17 percent from the 2003 peak.

Public telecoms network interfaces

The provision of public telecoms network interface specifications is to enable equipment manufacturers to develop terminal equipment supporting use of all the services provided over the interface and to allow all the relevant tests of the interface-related essential requirements to be carried out.

The RTTE Act requires public telecoms network operators to disclose their network interfaces. This requirement is deemed to have been met when the Federal Network Agency has been advised of the source for obtaining the specifications or of their reference, so that publication in the Official Gazette is possible. In all, the Agency has received around 1,000 interface specifications from public telecoms network operators. About 20 percent of the operators make their specifications available directly for download.

Notifications received in 2005 under section 10(4) RTTE Act/Article 6(4) RTTE Directive



Compatibility

Activities to secure compatibility before new services are introduced were again undertaken in close cooperation with other international administrations and the developers and potential operators of the new technologies. Radio compatibility issues were addressed by the Federal Network Agency in international CEPT and ITU bodies such as the CEPT ECC SE (Spectrum Engineering) working group.

The Federal Network Agency was able to provide constructive input pursuant to the introduction of compatible ultra wideband (UWB) applications (eg communications systems, sensors, through-wall radar) at frequencies below 10.6 GHz. Realistic compatibility tests were carried out and recommended in order to establish a common and binding European legal framework for micro FM transmitters operating at frequencies between 87.5 and 108 MHz. Furthermore, a new ECC Recommendation on arrangements for systems operating in the 71 – 76 GHz and 81 – 86 GHz bands creates the first harmonised technical framework for fixed service applications intended for use at higher frequencies.

The Federal Network Agency is also supporting much of the other work on compatibility that is currently underway in the ECC and ITU. For example, the Agency has sent employees to join a CEPT WG SE project team focusing on drawing up technical requirements that will allow airline passengers to use GSM mobile phones (GSM 900, GSM 1800, IMT-2000) on board an aircraft. In addition, work is underway to identify critical technical parameters for a new ECC Decision in respect of the IMT-2000 extension band.

Electromagnetic compatibility standardisation

In the interest of consumers, all electrical and electronic equipment, systems, installations and networks must satisfy certain minimum or key requirements with regard to unwanted emissions and resistance to interference. This is necessary to protect radio services and applications as well as energy and telecoms networks. The committees of the International Electrotechnical Commission (IEC) are responsible for drawing up worldwide standards for electromagnetic compatibility (EMC), which are then incorporated into the harmonised European EMC standards produced by ETSI and CENELEC, the custodians of European telecoms and electrotechnical standards. The Federal Network Agency applies these standards when checking products as part of its market surveillance duties and when dealing with complaints about interference lodged under the EMC Act and the RTTE Act. By playing an active part in the committees that draw up standards, the Agency is able to influence the form they take. The goal is to help maintain the adequate level of protection that exists at present.

Unwanted emission limits have now been set for all types of high-frequency industrial, scientific and medical (ISM) equipment up to 18 GHz. And limits are also in place for modern IT equipment (ITE) and telecoms terminal equipment (ie for all ICT equipment) in frequency bands up to 6 GHz.

The efforts of the Federal Network Agency have resulted in a new CEPT ECC Recommendation that sets forth criteria for assessing interference from wired telecoms networks. The Agency expects that the new ECC Recommendation will enhance the transparency of European administrative action.

Advising on the application of EMC standards

In the year under review, one of the Federal Network Agency's main tasks was again to provide specialist advice to internal and external customers on the application and interpretation of EMC standards, the EMC Act, the RTTE Act, the TKG and the relevant European Council Directives. More complex problems were discussed, where possible, with experts from the German Commission for Electrical, Electronic and Information Technologies of DIN and VDE (DKE); solutions and interpretations were then agreed with industry representatives. One of the key areas under discussion was without a doubt the application of standards in cases where they have been overtaken by the convergence of services and technologies. It was possible to draw some general conclusions about many of the problems that were identified in applying standards. These conclusions now inform market surveillance as well as the work of the standardisation bodies themselves.

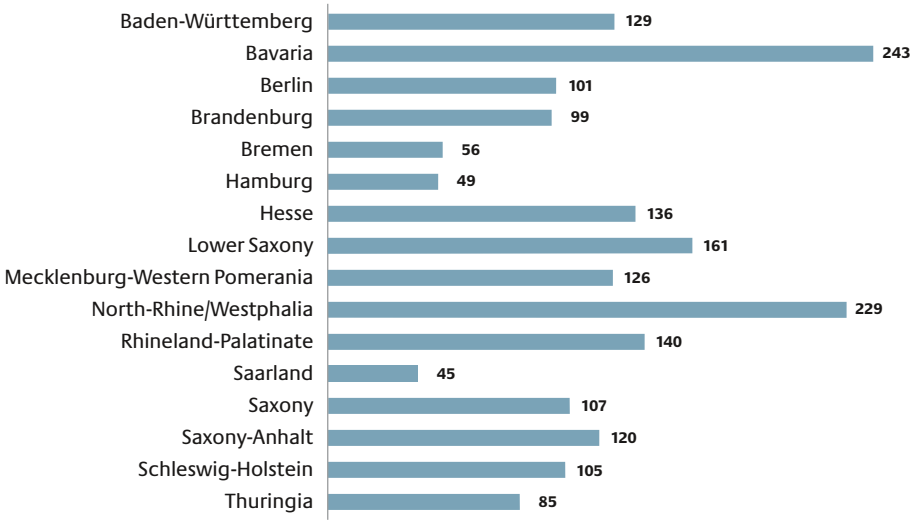
EMC and the environment; site certification

In order to protect persons exposed to electromagnetic fields created by radio transmitters, the Federal Network Agency assesses fixed radio transmitters with an equivalent isotropic radiated power (EIRP) equal to or more than 10 W. It does this on the basis of the Ordinance concerning the Controls for the Limitation of Electromagnetic Fields (BEMFV). Operators requiring a certificate of safety for their site must give the Agency details of the relevant technical parameters. Taking account of all the relevant local field strengths, the Federal Network Agency then determines the exclusion zone that must be enforced to keep people at a safe distance from the transmitter. The transmitter may only be put into service if it is clear that the exclusion zone can be maintained at the site in question.

EMF measurements

The Federal Network Agency carries out EMF measurement programmes under the above Ordinance to document its site certification procedures. In 2005, these audits were again carried out in close cooperation with the environment ministries of the federal states. Of the total of 2,000 measurement locations,

Number of locations in each federal state where EMF measurements were taken in 2005



1,000 were picked by the environment ministries. The Federal Network Agency included these locations, unchanged, in the programme and evaluated the findings for entry in its EMF database: www.emf.bundesnetzagentur.de. This collaboration clearly demonstrates to the public the good working relationship between the Agency and the federal states.

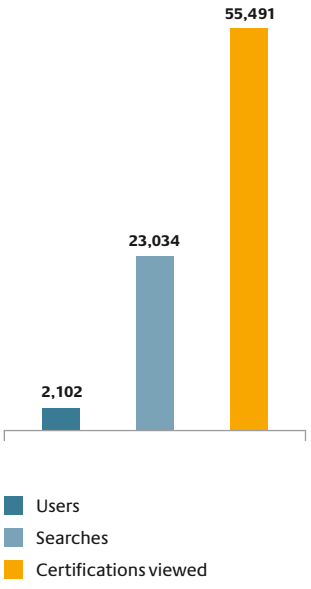
EMF database

The EMF database comprises two main data sets. One shows the sites of fixed radio transmitters that require operating clearance, ie site certification, from the Federal Network Agency. The other shows the locations of checks of compliance with public exposure thresholds. For every location there is an information window giving details of either the transmitters (in the case of transmitter sites) or the EMF measurements (in the case of test locations). Between the date on which the database went live (28 January 2004) and December 2005, some 5.7 million searches were made by visitors to the website. This heavy use confirms that the database has become an established source of information for the general public.

Local authority transmitter site database

For reasons of data protection, access to this database by local and regional authorities is password-protected. The database contains a listing of all the sites of operational radio transmitters for which the Federal Network Agency has issued a certificate of safety.

Transmitter site database



EMF monitoring

The Federal Network Agency has devised a concept for an automatic measuring system (or EMF monitor) that will enable the permanent monitoring of electromagnetic fields created by radio transmitters in the frequency bands between 9 kHz and 3 GHz. EMF monitors will improve transparency and risk management and are expected to be ready for use in 2006. The processed measurements will be made available to the public in the EMF database.

Radio monitoring and inspection service

One of the primary tasks of the Federal Network Agency's radio monitoring and inspection service (PMD) is to secure the efficient and interference-free use of spectrum and an environment of electromagnetic compatibility. To perform this task, the service possesses the latest fixed and mobile measuring equipment and maintains a presence in many of the Agency's service centres throughout Germany. The service undertakes extensive and varied monitoring and inspection activities, focusing in particular on eliminating interference, checking frequency uses, market surveillance, measuring electromagnetic fields and identifying unauthorised spectrum usage.

Interference investigations

Clearing up cases of electromagnetic and radio interference always has top priority, particularly if sensitive services and applications are affected. These include radio applications used in air travel (eg voice transmission and navigation services) and by emergency services or other public bodies. Fully-equipped measuring vehicles as well as a variety of specialised vehicles are used alongside stationary measuring facilities and direction-finding systems in order to determine both domestic and foreign sources of interference.

The largest category of interference addressed in 2005, as in previous years, was that affecting broadcast receivers and other transmitting and receiving stations. Only a small percentage of cases concerned electromagnetic incompatibility with other electrical or electronic equipment and devices. The introduction of digital television (DVB-T) was accompanied by a slight fall in the number of cases of interference to sound and TV broadcasting, whereas the number of cases of interference to other radio services remained at more or less the same level.

Approximately 1,150 cases of interference were reported in the spectrum used by aeronautical radio. Of these, 840 concerned frequencies used by emergency services. There were also some instances of interference to radiolocation services; these were successfully resolved, however. In the interests of safety, reports of interference to radio applications used in air travel are of course given top priority. A quick response time is therefore guaranteed and some stationary measuring facilities even operate around the clock.

In the period under review, there were more than 73 reports of interference to GSM mobile communications and 53 cases of interference affecting UMTS mobile communications.

EMF measurements by the inspection service

In the period under review, the radio monitoring and inspection service continued its annual programme of EMF measurements and inspected certified, fixed radio transmitters pursuant to the Ordinance concerning the Controls for the Limitation of Electromagnetic Fields. Measurements were again taken at around 2,000 points in order to determine if EMF values were within acceptable parameters. It was once again noted that at none of these locations had the thresholds been exceeded. As in the past, the federal states were involved in choosing the sites at which measurements were taken. By publishing the results on its website (in the EMF database), the Federal Network Agency continues to inject a large dose of objectivity into the debate about electromagnetic fields.

Space radio services

The Leeheim monitoring earth station helped to ensure the efficient use of spectrum by satellites (downlinks) in Europe by carrying out a number of measurement requests.

The station's capabilities are unparalleled in Europe. For this reason, a memorandum of understanding (MoU) was drawn up under which the monitoring earth station at Leeheim conducts measurements for other countries that are willing to cover the costs. Current signatories are the telecoms administrations of France, the UK, the Netherlands, Switzerland and Spain. The majority of internal and external requests concerned investigations into satellite and transponder load. Twelve requests were processed in the period under review. The number of requests that have been received but have yet to be processed mean that the Leeheim monitoring earth station will continue to operate at full capacity in 2006. The processing of these requests will of course be put on hold to deal with any emergencies that arise.

Tour de France, Deutschland Tour, World Youth Day and other events

Major events such as the Tour de France, Deutschland Tour, Confederations Cup 2005 and the World Youth Day in Cologne attract considerable media attention, which usually means a lot of broadcasting equipment (eg radio equipment, wireless cameras and microphones, and speedcams for the finish line). Event organisers, media organisations and millions of listeners and viewers all expect the equipment to work without a hitch to deliver uninterrupted picture and sound coverage of the event. The Federal Network Agency plays a key role in ensuring that this is the case. In the year under review, the Agency once again coordinated and assigned the spectrum needed both before and during the event. In addition, the radio monitoring and inspection service verified spectrum usage on site and immediately tackled any cases of interference that arose.

Recognition of conformity assessment bodies

Enactment of the Functions Assignment and Recognition Ordinance (BAnerkV) tasked the Federal Network Agency with recognising and assigning functions to conformity assessment bodies (CABs) in respect of radio equipment, telecoms terminal equipment and electromagnetic compatibility.

Mutual recognition agreements

Another of the Federal Network Agency's tasks deriving from the Functions Assignment and Recognition Ordinance is the recognition of CABs for third countries in the shape of mutual recognition agreements (MRAs).

In order to further international economic cooperation, the EU has signed agreements with the following non-EU countries: the US, Canada, Australia, New Zealand, Japan and Switzerland. These MRAs allow the CABs of one country to assess particular products according to the rules of the other, as if they were resident there themselves. The agreements cover, in their sectoral annexes, a variety of products and areas. In Germany, the Federal Ministry of Economics and Technology is the body authorised to designate CABs for the sectoral annexes dealing with radio and telecoms equipment and electromagnetic compatibility. However, determining the competence of these bodies is the job of the Federal Network Agency. In all, 20 CABs have so far been recognised by the Agency under these MRAs, notably the agreements in place between the EU and the US and Canada.

Telecoms legislation and economic policy aspects of technical regulation

Technical regulation can give rise to issues that need to be addressed from both a legal and an economic standpoint. Particular importance is attached to the achievement of regulatory goals, such as ensuring that there is a level playing field for competition and safeguarding user and consumer interests. Legal considerations are grounded in the TKG, the EMC Act and the RTTE Act.

One of the main focal points in this regard was the development of next generation networks (NGNs), which the Federal Network Agency continued to monitor in 2005 in order to ascertain the impact this might have on the regulatory landscape and regulatory tools.

The Federal Network Agency also worked with regional media authorities and the digital access office (GSDZ) to draw up process descriptions for joint procedures pursuant to Part 4 of the TKG (Broadcasting). The descriptions were supplemented by a joint paper setting forth key elements that reaffirm the intention of the Federal Network Agency and the regional media authorities to work together in pursuit of successful outcomes.

Interface specifications and notifications

The Federal Network Agency continued to draw up and notify air interface specifications in 2005. Interface specifications are provided pursuant to the RTTE Act. They contain all the information needed for manufacturers to conduct independent tests with regard to the relevant requirements for radio equipment. The draft specifications are discussed with interested manufacturers and users, at which point they become public. They are then submitted to the European Commission for the purpose of notification as part of the Europe-wide process of information sharing. Finally, the interface specifications are put into force by Official Gazette order and published online. In the year under review, 37 interface specifications were completed and entered into force by this means. This means that there are now 45 interface specifications available on the website of the Federal Network Agency. It is also possible to order printed copies.

Portable and mobile reception

Consumers should be able to receive digital video broadcasting (DVB-T) signals with portable indoor devices. At the periphery of a coverage area, however, the attenuation caused by buildings means that field strength is sometimes inadequate for this purpose. The use of indoor repeaters offers a means of offsetting this. Indoor repeaters boost the DVB-T signal and retransmit it on the same frequency. However, if input and output are not properly decoupled this procedure can easily result in uncontrolled oscillations that disrupt the entire area. A working group of the Technical Telecoms Regulation Committee (ATRT), which advises the Federal Network Agency, has been charged with drawing up minimum technical requirements and assessing whether such devices have consumer applications and, if so, under what conditions. The working group is expected to report its findings at the start of 2006. The results of this work will also inform the rollout of digital video broadcasting handheld (DVB-H).

DVB-H is based on DVB-T and allows for the transmission of up to 40 channels at a time, delivering video and additional services to low-resolution mobile devices. In the past, DVB-H has been restricted to point to multipoint services. However, the advent of the Internet Protocol Datacast (IPDC) standard opens the door to interactivity by defining a convergent system that links DVB-H and GSM/GPRS/UMTS. There are nevertheless certain issues of content protection and rights administration that still need to be resolved.

Digital Multimedia Broadcasting (DMB) technology makes it possible to transmit two or three channels delivering video content to mobile devices. DMB represents an extension of digital audio broadcasting (DAB) and DMB signals can be broadcast over the existing DAB network infrastructure on VHF channel 11 and in the L band. The video coding standard is MPEG-4, which ensures a good image quality for small displays, even at transmission speeds of less than 400 kbit/s. The Bavarian Regulatory Authority for Commercial Broadcasting (BLM) is currently preparing a pilot project that will test the use of DMB in Regensburg.

Cable TV network transition

The year under review saw further progress in the transition from cable TV networks to multimedia, interactive, broadband networks. The large, multimedia networks now in place in fifteen German cities are capable of delivering a triple-play combination of TV, Internet access and Internet telephony. The next stage in the development of cable networks will entail a move towards HDTV signals. This currently takes the form of satellite-broadcast DVB-S2 signals, which offer HDTV capability. They are transmitted to the head-end before being transmodulated for the relevant cable network. The increasing convergence between consumer electronics and information technology makes it important to take account of the need to cater for different network configurations. The Federal Network Agency must ensure that EMC standards for radio services are adhered to, in particular in the case of services that use the same spectrum. In line with the aims of regulation, the Agency works to ensure that the appropriate standardisation bodies implement the technical regulatory framework with regard to security, access to emergency services, quality of service and interoperability.

Access to emergency services

The growing popularity of VoIP and the technical difficulties that hamper VoIP access to the local emergency service centre operator, particularly in the case of nomadic usage, have focused attention on the cooperation needed between infrastructure owners and service providers. This is all the more important in view of plans to automatically transmit the location of the caller to the service centre. This is a problem that also affects other countries, which is why the European Telecommunications Standards Institute (ETSI) is investigating a range of possible solutions. The Federal Network Agency has joined these efforts as part of its preparations for drawing up the technical directive provided for in section 108 of the TKG. Access to emergency services also emerged as a prominent concern in a public consultation about VoIP regulation. Network operators and service providers are encouraged to seek solutions that meet the needs of the public and the emergency service authorities.

Quality of service standardisation

Quality and price play a key role in a competitive market. The Universal Service Directive therefore requires that adequate and up-to-date information on quality of service (QoS) be made publicly available. This is to enable both end users and providers to make more informed decisions and to influence competition accordingly. Appropriate standards form the basis for the provision of comparable and transparent QoS information; hence their availability is vital.

ETSI and ITU-T working groups are tasked with drawing up appropriate standards that define quality of service and permit comparisons to be made. The Federal Network Agency takes a very active part in these studies. The role of these working groups includes the preparation of standards for describing, recording and measuring quality of service. Most notably, they define, specify and standardise quality parameters describing and measuring telecoms service quality from the user's point of view. These parameters range from general ones such as service and billing to parameters for the quality of voice, fax, data and mobile services and parameters for Internet access services. The Federal Network Agency also chairs individual subgroups, coordinates the preparation of certain standards and hosts working group meetings in its Mainz office. This mechanism has enabled the creation and implementation through ETSI and ITU-T of standards governing the quality of telecoms services and networks.

A public consultation was carried out to examine the question of providing information about the quality of broadband Internet

connections in the national market to end customers. The results are available on the Federal Network Agency's website: it is recommended that service providers gather and publish quality information voluntarily.

Metering and billing

Accurate billing requires the correct recording of data pertaining to actual service usage and the proper application of contractually agreed charges. As the customer has no means of determining whether or not providers have established the charges in accordance with the contractual arrangements, provision has been made in the Telecommunications Customer Protection Ordinance (TKV) to secure billing accuracy. Under the TKV, all providers of publicly available telecoms services whose prices are calculated and billed on the basis of time and/or distance are required to demonstrate to the Federal Network Agency on an annual basis that their billing systems and processes are functioning properly, irrespective of the service provided, the bandwidth used and the transmission and switching technology employed. In 2005, demonstration of compliance was given in 128 cases. Non-compliant providers were asked to take action to meet the TKV requirements in full and to report to the Federal Network Agency accordingly. A number of telecoms providers had to be reminded that, pursuant to the TKV, compliance must be demonstrated each year. Some were asked for a demonstration of compliance as a result of new services offered. Administrative fines proceedings were initiated to enforce compliance in six cases.

Numbering

The TKG states that the administration and assignment of numbers in Germany is the responsibility of the federal government. This duty has been performed by the Federal Network Agency since 1998. The Agency makes sure that all market participants enjoy non-discriminatory access to number resources and that there are no bottlenecks in availability in individual number ranges. Its main tasks in this regard consist of structuring the numbering space, drawing up the assignment rules, setting the conditions of use for the various number ranges and assigning numbers to network operators, service providers and consumers.

Efforts in 2005 focused on the provision of suitable number resources for VoIP services, and in particular on a modification of the rules for assigning local numbers. Other developments worthy of note include the final decision to deactivate 0190 numbers and the consultation regarding changes to the rules for assigning numbers used by information services.

Provision of suitable number resources for VoIP

Rules for the assignment of national numbers in the 032 range entered into force in November 2004 and assignment began in January 2005. The large number of applications and assignments is a clear indication of the strong demand for these numbers.

There have also been calls to use local numbers in order to meet the demand for VoIP services. Key elements exploring this idea were drawn up and published for discussion in November 2004; written comments could be submitted until the start of 2005. The comments have since been examined and the main findings made public. Modified assignment rules are due to be published in the first half of 2006.

Deactivation of 0190 numbers

A final decision was taken in September 2005 not to extend the period for deactivating 0190 numbers. As determined in 2001, the telephone numbers had to be deactivated by year's end 2005. To facilitate changeover to the 0900 numbers, the Federal Network Agency also issued an order stating that a 20-second recorded announcement would be allowed on the 0190 numbers in the first six months of 2006, giving a replacement

number and the price of a call to that number. The recorded announcement itself must be free of charge. This was the outcome of a consultation held by the Agency in summer 2005.

Changeover to the 0900 numbers has many benefits for consumers. For instance, the type of service can be recognised by the digit the follows the 0900 code: "1" stands for information, "3" for entertainment and "5" for adult services. This makes it possible to block certain types of content.

Services can be individually priced. The price must be stated in all promotions and in a recorded announcement given at the beginning of every call. The price is the same from all fixed networks. In contrast to the 0190 numbers, there is no "chain assignment". The rights holder can be easily identified using information on the Agency's website.

Review of assignment rules for information services

A consultation with market players was held in the middle of 2005 in order to clarify the future development of information services. The primary aim of the consultation was to gather more information about the anticipated level of demand for such services. Central questions included the allocation of an additional number range for information services and the assignment of these numbers for portal services. The review of the comments submitted is largely complete and the findings will be reported to the market players.

Number statistics

Network operators that provide fixed-line connections to the public telephone service can apply to the Federal Network Agency for blocks of 1,000 numbers in Germany's 5,200 local networks. They can then use the numbers for their customers. By the end of 2005, a total of 94,283 number blocks had been assigned to 85 operators.

	Assigned number blocks	Local networks	Operators
Year-end 1998	3,088	710	53
Year-end 1999	6,750	2,636	72
Year-end 2000	50,861	5,200	89
Year-end 2001	59,372	5,200	86
Year-end 2002	63,653	5,200	81
Year-end 2003	68,843	5,200	76
Year-end 2004	80,283	5,200	74
Year-end 2005	94,283	5,200	85

As of January 2005, operators may also apply for national numbers. These numbers are likewise used for public telephone lines yet, unlike local numbers, are not tied to a particular geographic region. The numbers are assigned in blocks of 1,000 and can be awarded to network operators and service providers. By the end of 2005, 1,020 blocks of 1,000 numbers had been assigned to 33 operators.

The Federal Network Agency also assigns telephone numbers for public cellular services to operators of GSM or UMTS/IMT-2000 mobile networks. These numbers are assigned in large blocks of 10 million numbers apiece; the assignment of three blocks in 1999 and a

Assigned numbers	2005	Total at year's end 2005
Numbers for user groups (in blocks of 100 to 10 million)	9	**38**
Number blocks for Int. Virtual Private Networks (IVPNs) (in blocks of 10 million)	7	**59**

Assigned numbers	2005	Total at year's end 2005
Carrier codes	16	**99**
Numbers for DQ services	11	**89**

	Assigned number blocks (10 million numbers apiece)	Assigned number blocks (total)
1999	3	3
2000	10	13
2001	4	17
2005	3	20

Service	Assigned in 2005	Total at year's end 2005
(0)800	12,965	174,171
(0)180	12,066	127,405
(0)900	11,341	92,109
(0)700	5,197	102,802

further 14 blocks in 2000/2001 satisfied initial demand and it was only at the end of 2005 that further blocks needed to be assigned.

Blocks of numbers were also assigned in other number ranges. These included numbers for user groups and for international virtual private networks.

The Federal Network Agency also assigns 0137 numbers, which are used for channelling large volumes of traffic to specific destinations (eg television call-ins). Prior to liberalisation, this service was provided by the legal predecessor to Deutsche Telekom AG using the same number range. Until a new range is available, the Agency will continue to assign these numbers to network operators and service providers who wish to offer comparable products. Sixteen blocks of 10,000 numbers were assigned in the year under review.

Individual numbers are assigned in the following ranges: 0800 freephone numbers, 0180 shared cost numbers, 0900 numbers for premium rate services and 0700 personal numbers. The table above shows how many numbers had been assigned by the end of 2005.

The Agency receives so many applications for these types of numbers that it has implemented an electronic assignment procedure. Numbers are also assigned individually in cases where the volume of applications is lower but the significance for the industry is just as high.

The Federal Network Agency also assigns 019 numbers for online services. Just like the mass application 0137 numbers mentioned above, 019 numbers were assigned by the legal predecessor to DTAG before liberalisation.

Assigned numbers	2005	Total at year's end 2005
National Signalling Point Codes (NSPCs)	96	2,495
International Signalling Point Codes (ISPCs)	17	408
Portability codes	24	221
Closed User Group Interlock Codes (CUGICs)	0	23
Charging reference branches	10	135
Equipment manufacturer codes for telematic protocols	0	16
Notification of International Carrier Codes (ICCs)	1	13
Individual TETRA Subscriber Identity (ITSI)	4	11
International Mobile Subscriber Identity (IMSI)	5	27
Data Network Identification Codes (DNICs)	0	17

Technical numbers

In addition to numbers that can be dialled in public telephone networks, the Federal Network Agency also assigns technical numbers that can be used for such purposes as network control. There was a particularly strong interest in National Signalling Point Codes (NSPCs) in the period under review.

Section 112 TKG information requests

The diagram on page 87 shows the growth in the number of requests between 2001 and 2005. For the performance of their duties, security authorities receive information (via the Federal Network Agency) from the customer data files (name and address of telephone subscribers) kept by telecoms service providers. The number of public authorities and telecoms service providers that participate in this procedure has grown steadily over the years. Currently, around 1,000 security authorities are registered with the Agency and can retrieve customer data from 85 telecoms service providers.

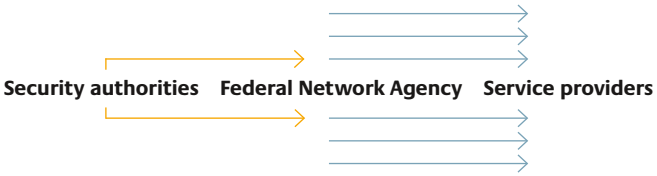
Abolition of licensing

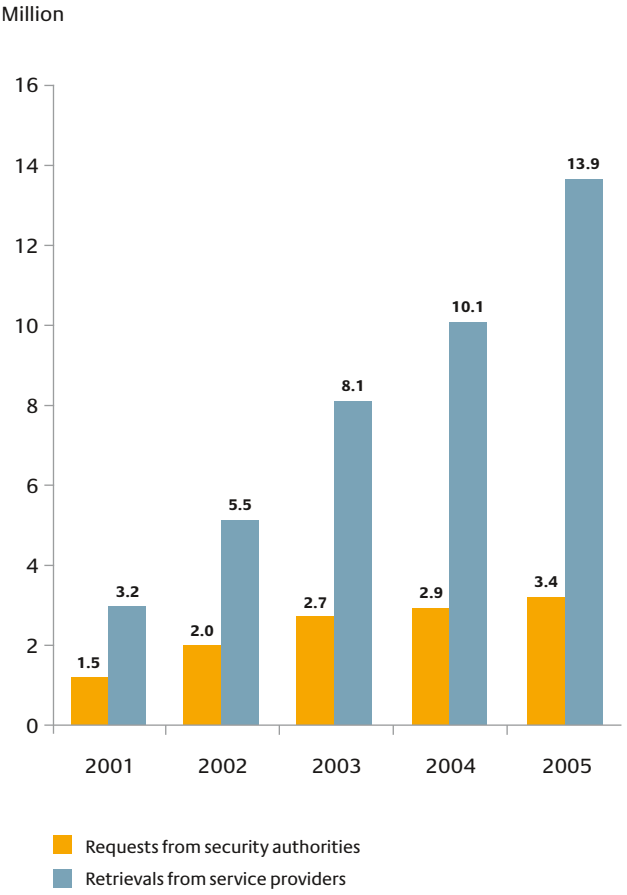
Under the new TKG, activities that previously required a licence no longer need special authorisation from the Federal Network Agency. The switch from ex ante to ex post regulation will facilitate market entry by removing the barrier of obtaining a licence. Operators of public telecoms networks and providers of commercial public telecoms services are still required to notify the Agency of their activities. This permits the Agency to maintain an overview of the market in order to better assess the level of competition. Rights already granted under licences, for instance rights of way, remain in effect.

Notification requirement

Any person operating a public telecoms network on a profit-oriented basis or providing a publicly available telecoms service on a profit-oriented basis is required to notify the Federal Network Agency without undue delay of beginning to provide, of providing with differences or of ceasing to provide his activity and of any changes in his undertaking. There are currently 2,045 telecoms providers and operators registered with the Federal Network Agency; a list is available on the Agency's website.

Section 112 automated information procedure





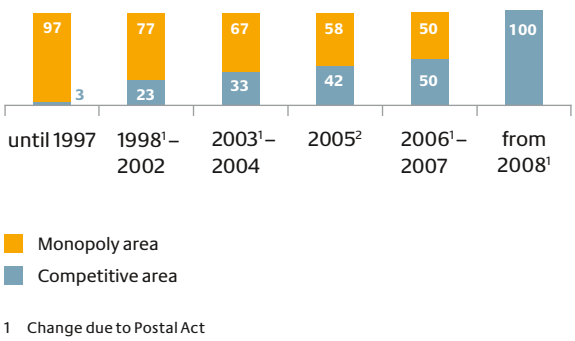
Post

Market data

In 2005 revenues in the German postal market totalled around € 23 billion. More than 70 percent of the postal market – mainly courier, express and parcel services, but also parts of the letter market – are already open to competition. Just under two thirds of revenues in the postal services market was accounted for by Deutsche Post AG (DPAG). The rest was generated by a number of providers, the majority working in the courier, express and parcel segment.

Anticipated revenues for 2005 in the areas subject to licence (conveyance of letter items weighing up to 1,000 g) are around € 10.2 billion, some € 700 million of which will be generated by DPAG's competitors. Thus DPAG will still hold around 93 percent of the market, despite certain areas having been opened up to competition.

Development of competitive area 1997–2008 (in %)



1 Change due to Postal Act
2 Change due to consolidation ruling

The widening of the competitive area by 8 percentage points in early 2006 is the result of the lower monopoly weight and price limits that took effect on 1 January 2006 (the weight limit was lowered from 100 g to 50 g, and the price limit from € 1.65 to € 1.38). However, letters weighing up to 50 g account for almost three quarters of letter items altogether. Thus the reduced weight limit has little impact on the extent of the competitive area.

The February 2005 Federal Cartel Office (BKartA) ruling on consolidation (for more details, see the section "Administrative court proceedings") extended the competitive area further; yet this does not mean that the added competition potential falls entirely to DPAG's competitors.

Findings of the market study in the licensed area

The market study run by the Agency in early 2005 requested data from altogether 1,337 licence holders on their revenue and sales volumes for 2004 (results) and 2005 (expected figures).

There was further proof of the trend, observable for some years now, towards the new market players' higher quality services (D services). In 2000, these services accounted for only 27 percent of licence holders' total revenues; in 2004 this figure had risen to 49 percent. And the trend is upwards – for 2005, 52 percent is expected. A detailed account of higher value services is given in the Agency's Official Gazette No 1 dated 11 January 2006. They include same-day and time-certain delivery services, track and trace services and integrated mail logistics services. The latter is an end to end solution covering the production and transmission of electronic messages from sender to recipient, with a guaranteed quality of service. Add-ons are possible, as the user requires.

The strong increase in formal delivery orders – meanwhile the speciality of several competitors – is also remarkable. The so-called service of documents is a special case in the Postal Act. It is not covered by DPAG's exclusive licence. Thus there is a level playing field for all market players, DPAG included.

Between 2002 and 2005, the total number of formal delivery orders rose by 40 percent and revenues by almost 23 percent. With around 27 million formal delivery orders, the competitors anticipate gaining a 39 percent share of sales in 2005 and up to 32 percent of revenues. DPAG's ten biggest rivals will capture some 20 percent of the market.

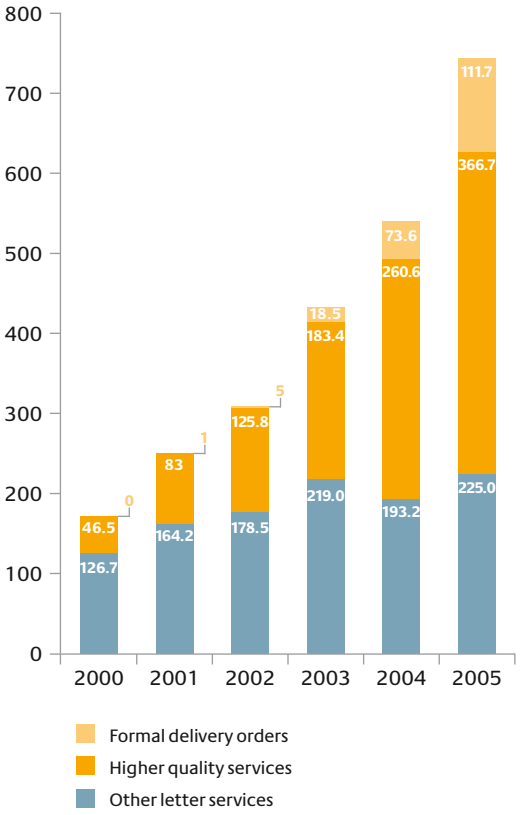
Most of the licence holders are small and medium sized enterprises, or SMEs (up to € 0.5 million and over € 0.5 million annual revenues respectively). This is so mainly because the volumes needed for large-scale operation are not possible on account of the exclusive licence DPAG still holds. Independently of this, however, there has been particularly strong growth – as in past years – in the number of medium sized enterprises (from 42 at the end of 2000 to 140 at the end of 2004). The licence holders expect this trend

Licence holders' revenues (excluding DPAG) in the licensed area

Services[1]		2002 € million	2003 € million	2004 € million	2005e € million
PZA[2]	service of documents[1]	5.0	18.5	73.6	111.7
A	≥ 200 g or > 5 times the price from 2003: > 100 g or ≥ 3 times the price	35.6	26.1	37.6	49.3
B	letter post items of identical content > 50 g	92.5	88.0	107.4	133.0
C	document exchange service	1.2	1.0	1.0	1.0
D	higher quality services	125.8	183.4	260.6	366.7
E	dropoff at DPAG acceptance offices	9.2	13.5	10.8	12.6
F	collection from DPAG PO box facilities	3.6	6.4	5.6	6.6
G	letters to other countries	possible only from 1.1.2003	16.2	6.4	9.2
H	letters from other countries	possible only from 1.1.2003	< 0.1	< 0.1	< 0.1
Old-type licences (bulk mail)		32.6	34.4	25.4	14.3
Total		**305.5**	**387.6**	**528.5**	**704.5**

1 See too Official Gazette No 1 published 11 January 2006
2 PZA = formal delivery orders (public law service of documents, section 33 Postal Act)

Breakdown of licence holders' revenues by licensable services (excluding DPAG) in € million



to continue in 2005. Also, the "established" medium sized enterprises have consolidated and expanded their position in the market (revenue growth of up to 50 percent – albeit at low levels). The income situation of the new players has also improved and this pleasing trend will continue in 2005, according to their reports.

Market structure and market shares

DPAG is expected to generate revenues of around € 9.5 billion in the letter market (subject to licence) in 2005 (some € 6.0 billion of this in the monopoly area). Thus it will still hold some 93 percent of the market for services provided under licence. Its share of the market that is open to competition (worth around € 4.2 billion) will be around 83 percent.

Jobs

The average number of people employed in 2004 in the area subject to licence (conveyance of letters up to 1,000 g), according to the companies' figures, was 181,086, of whom

Formal delivery orders – volumes

	2002 million pieces	2003 million pieces	2004 million pieces	2005e million pieces
DPAG	48.0	47.0	43.2	42.1
Competitors	1.2	4.7	17.3	27.0
Total	**49.2**	**51.7**	**60.5**	**69.1**
Competitors' share	2.4%	9.1%	28.6%	39.0%

Formal delivery orders – revenues

	2002 € million	2003 € million	2004 € million	2005e € million
DPAG	276.0	261.0	237.9	233.3
Competitors	5.0	18.5	73.6	111.7
Total	**281.0**	**279.5**	**311.5**	**345.0**
Competitors' share	1.8%	6.6%	23.6%	32.4%

Number of companies by revenue group 2000 to 2005

	up to € 10,000	€ 10,001 up to € 100,000	€ 100,001 up to € 500,000	€ 500,001 up to € 1 million	> € 1 million up to € 10 million	> € 10 million
2000	91	178	129	23	15	4
2002	96	186	149	32	41	7
2004	181	263	175	53	77	10
2005e	159	257	188	66	96	13

Monopoly and competitive part of the letter market 2005

33,478 were employed with the new licence holders. Without the competitors, these jobs would not exist. Hence they are making a valuable contribution to easing the pressure on the labour market (see page 94).

Jobs in the letter market

DPAG shed around 30,000 jobs (17 percent) in the letter market between 1999 and 2004. This reduction was not reflected in falling sales/revenues: on the contrary, the number of letters conveyed has continued to rise over the last few years and there have been no significant differences in revenues.

Market structure in the licensed area

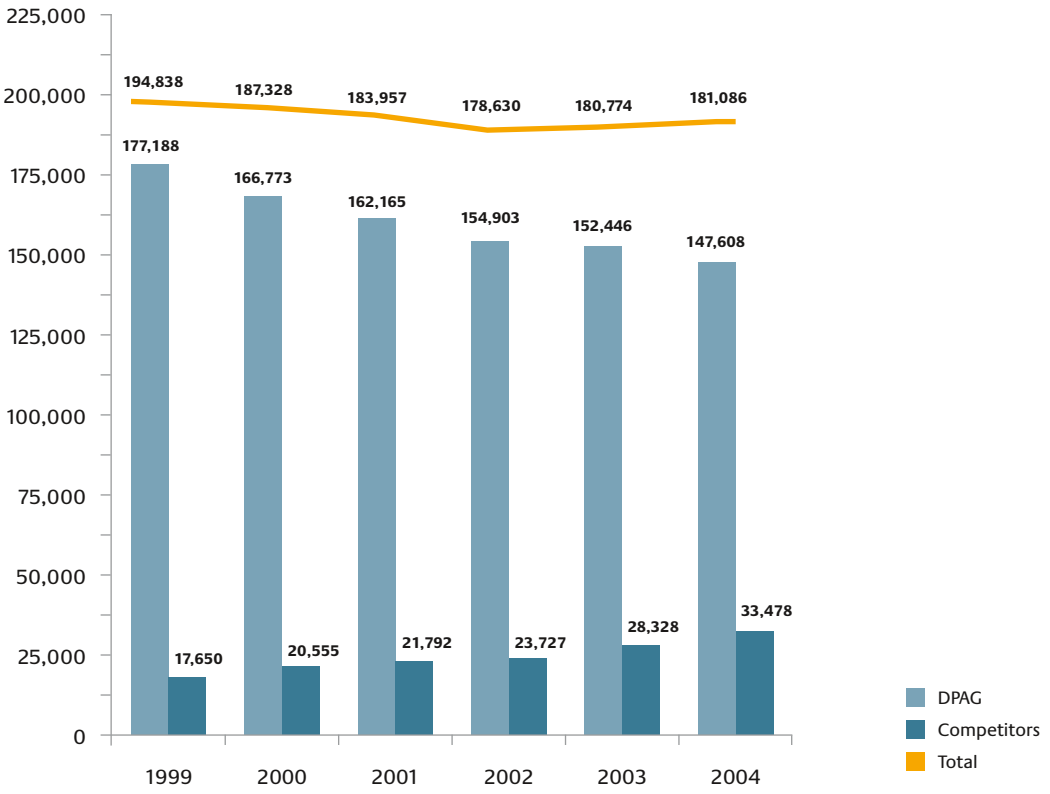
	Revenues (in € million)			Volume (million pieces)		
	2003	**2004**	**2005e**	**2003**	**2004**	**2005e**
Market as a whole	9,900.0	10,000.0	10,200.0	16,600.0	17,000.0	18,100.0
Licence holders' share (excluding DPAG)	387.6	528.5	704.5	615.8	909.5	1,198.7
Licence holders' market share	3.9 %	5.3 %	6.9 %	3.7 %	5.4 %	6.6 %
DPAG's market share	96.1 %	94.7 %	93.1 %	96.3 %	94.6 %	93.4 %

Licensing

Until the end of 2007, companies other than DPAG can provide postal services that are not reserved by the exclusive licence. These services are listed and defined in the Agency's Official Gazette No 1 published on 11 January 2006.

By year's end, the Agency had granted a total of 2,030 companies – with the number of applications totalling 2,100 – a licence for the provision of postal services. Of these 2,030 companies, some 660 have now exited the market (eg as a result of returning the licence, insolvency, ceasing to trade, etc). Around 470 of the remaining 1,370 licence holders are not actively part of the market, ie they are not generating revenues. Accordingly, the Agency assumes that somewhat more than 900 licensed companies are active in the market and generating revenues.

Jobs in the letter market



Licence applications, licences and market exits

31.12.2005	1998	1999	2000	2001	2002	2003	2004	2005	Total
Licence applications	384	291	210	238	181	235	265	313	2,117
Licences granted	164	455	241	221	179	238	255	277	2,030
Licences denied	3	1	0	0	0	3	3	0	10
Market exits	0	17	70	134	181	68	81	105	656

Letter prices and price levels

The table below gives a price level (volume-weighted prices) for Germany of € 0.77 (rounded) until the end of 2002 and of € 0.725 from January 2005. The price level for DPAG's listed products has thus fallen by around 6 percent since the end of 2002. This price level in itself is not very informative. It only becomes so when compared with other companies' price levels, or in an international comparison. A comparison with other German companies' price levels cannot be made as the products named cannot be offered by others at the moment on account of DPAG's statutory exclusive licence. Thus only an international comparison is possible.

Peer countries were the EU countries, Norway, Switzerland, the US, Canada, Australia, New Zealand and Japan. Products were chosen that most closely matched DPAG's postcard, standard letter, compact letter, large size letter and maxi letter products. Compared was the fastest method of conveyance in the standard letter service for which – as in Germany – no guaranteed transit time is given, but at most a probable, but non-binding one. An international comparison of such price levels can include a number of products with different price structures (see table below for examples). It also evens out differences that could distort a comparison restricted to one product only – eg a standard letter weighing up to 20 g.

The prices of the products chosen were established in € or the national currency. These prices were then weighted, as for the German price level. The sum of the separate weighted prices gives the price level in € or the national currency. The price level in the peer countries in € or the national currency was then converted using the consumer parities determined by the Federal Statistical Office in accordance with the German currency scheme.

Germany is the only country in Europe that has recorded a steady decline since 2002 in the price level for letters.

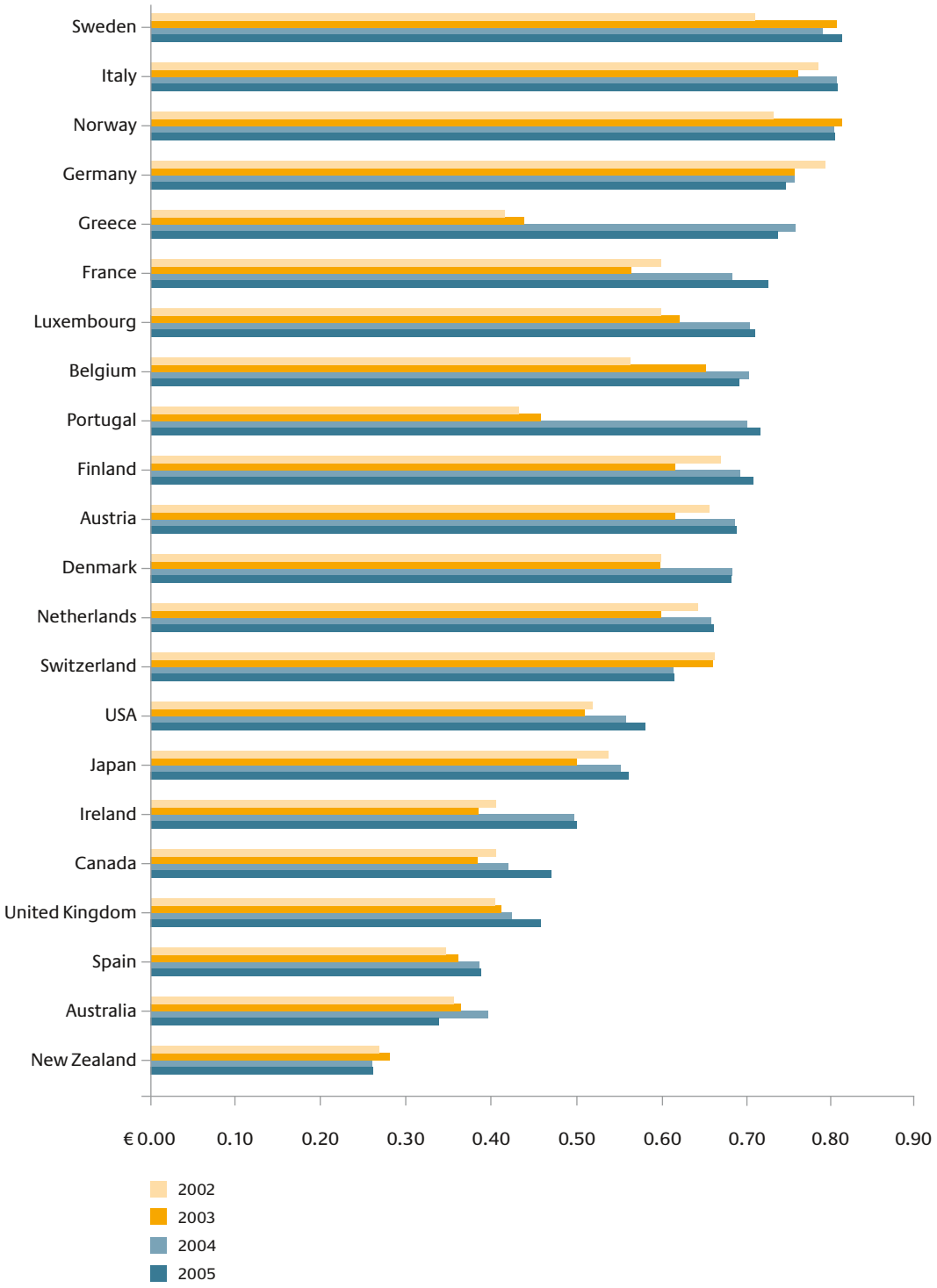
DPAG prices

		until end of 2002	from 2003	from 2005
Postcard		€ 0.51	€ 0.45	€ 0.45
Standard letter	(≤ 20 g)	€ 0.56	€ 0.55	€ 0.55
Compact letter	(≤ 50 g)	€ 1.12	€ 1.00	€ 0.95
Large size letter		€ 1.53	€ 1.44	€ 1.44
Maxi letter		€ 2.25	€ 2.20	€ 2.20

Price and weight structures for letters up to 50 g

October 2005	D [€]	UK [£]	A [€]	GR [€]	F [€]	USA [$]	NL [€]
Standard letter (up to 20 g)	0.55	0.30	0.55	0.49	0.53	0.37	0.39
Compact letter (21 – 50 g)	0.95	0.30	0.75	0.69	0.82	0.60	0.78
Compact vs standard letter	+ 73 %	+ 0 %	+ 36 %	+ 41 %	+ 55 %	+ 62 %	+ 100 %

Letter price levels (€) 2002–2005 (August 2005)



Provision of worksharing services, access to PO box facilities and change of address information

To encourage market entry and competition in the market for licensed postal services, the Postal Act (PostG) obliges the incumbent to grant requesting players access to its infrastructure and services. Such access agreements must be submitted to the Agency to ensure, amongst other things, that the incumbent is in compliance with the legal provisions.

Access to worksharing services

A worksharing service is that part of a conveyance service, otherwise provided end to end under licence, that remains after deduction of a requesting party's input. A dominant provider of postal services subject to licence must provide worksharing services. Under determinations made by the Agency's Ruling Chamber 5, both customers and competitors of DPAG are offered access to these services in its outbound mail sorting centres (BZA), where outbound mail is consolidated, and in its inbound mail sorting centres (BZE), which handle the delivery of incoming mail.

The provision of access to DPAG's worksharing services and discounts for consolidators as well has considerably widened competitors' scope for action in the letter markets (for more details, see the section "Administrative court proceedings").

Access to PO box facilities

A dominant provider of postal services subject to licence is obliged to allow competitors, for a fee, to deliver postal items to the PO box facilities it operates. In 2005, DPAG submitted 27 such access agreements to the Agency.

Access to change of address information

An incumbent is also obliged to give competitors access to information it holds on changes of address. In 2005, DPAG submitted 59 such access agreements.

Worksharing agreements 2005

	Type of item			
		Individual items[1]	Infopost[2]	Total
Point of access	BZA	BZE	BZE	All types
Contracting party				
End users	140	230	65	**435**
Competitors	1	1	0	**2**
Consolidators	87	91	13	**191**
Total	**228**	**322**	**78**	**628**

1 to both BZA and BZE
2 BZE only

BZA: outbound mail sorting centre (start), BZE: inbound mail sorting centre (end)

Public petitions and consumer protection

In 2005, the Agency received 1,651 public petitions, complaints and enquiries on postal issues.

Many of the submissions were about DPAG's decision to scale back its retail outlet network by the end of 2005 to the minimum number of 12,000 fixed-location facilities specified in the Postal Universal Service Ordinance (PUDLV). Complaints continued to be received about actual or perceived deficiencies in universal service provision as set out in the Ordinance and the provision of postal services as set out in the Postal Services Ordinance

Public petition statistics 2005

	Petitions	%
Access to postal services (letter boxes, retail outlets in particular)	494	29.9
Delivery	290	17.6
Loss	175	10.6
Charges	150	9.1
Provider's handling of complaints	94	5.7
Late or delayed delivery	76	4.6
Damaged items	59	3.6
Change of address	37	2.3
Behaviour and competence of provider's staff	26	1.6
Posting	11	0.6
Cross-border mail	11	0.6
Access to customer service information	8	0.5
Other (financial services included)	220	13.3
Total	**1,651**	**100.0**

(PDLV). A not inconsiderable number of the submissions, however, related to matters outside the Agency's remit (eg the Postbank's financial services).

Any real universal service deficits established were remedied by DPAG straightaway, following the Agency's request. Thus no formal action such as the imposition of fines was necessary in 2005.

Conciliation

The Postal Services Ordinance of 21 August 2001 regulates the rights and obligations of postal service providers and their customers. Under the Ordinance, customers can apply to the Agency for out of court dispute resolution, particularly in the case of loss, theft, or damage to postal items. The preconditions are that the applicant can claim violation of statutory rights, no case with the same matter in dispute is pending, an attempt to clarify the matter with the defendant has been made beforehand and the customer, as a business customer, has no special arrangements with the postal service provider. The aim is an amicable settlement. The procedure closes either with agreement between the parties or with the Agency determining that agreement between the parties has failed to come about. Little use of the conciliation option was made in 2005. Of a total of 18 applications, seven were concluded successfully; two failed because the parties could not agree between themselves; one failed because the applicant withdrew, and five are still open. Three applications had to be rejected because the requirements for invoking the procedure were not given.

Universal service

Provision of basic postal services to all customers throughout the country (universal service) is secured until the end of 2007. With a view to its Activity Report 2004/2005 and on the Advisory Council's recommendation, the Agency, in October 2005, held a workshop on continuation of the universal postal service. Representatives from some 30 groups (including consumer associations, trade associations, users, providers, scientific and research experts) took part. Discussions focused on securing universal service and the extent of universal service in the future competitive environment (from 1 January 2008). The Agency's Activity Report 2004/2005 contains a wide-ranging statement on this, setting out a number of recommendations for adapting the Universal Service Ordinance.

Fixed-location facilities

The Universal Service Ordinance prescribes a minimum of 12,000 fixed-location facilities nationwide where letter and parcel service agreements can be signed and implemented. At least 5,000 of these facilities must be staffed with company employees until 31 December 2007. Compliance with the requirements is monitored with an information and notification system agreed with DPAG.

The number of fixed-location facilities has declined by almost 18 percent since the end of 1997. The closures are all in locations where such facilities are not absolutely necessary under the Universal Service Ordinance or DPAG's voluntary commitment. In response to numerous petitions and enquiries about the restructuring of the retail outlet network, DPAG declared itself willing to take account of local circumstances in justified individual cases and to change its proposed action. Thus in 242 cases either a partner outlet or a Post-Service outlet was set up.

In all, the number of fixed-location facilities has undergone the changes shown in the chart on page 100.

Letter boxes

The Postal Universal Service Ordinance does not specify the number of letter boxes. It merely includes an arrangement on distance which states that there must be a sufficient number to ensure that customers in urban residential areas will not, as a rule, need to

go farther than 1,000 metres to reach one. DPAG has voluntarily committed to provide around 108,000 letter boxes across the country until expiry of its exclusive licence on 31 December 2007. On 31 December 2005 DPAG maintained some 110,000 letter boxes, thus comfortably meeting its self-imposed target. DPAG has also committed to ensuring, through appropriate measures, that letter boxes are not emptied before the last collection time. The Agency has not received any information or complaints that would lead it to believe that DPAG is not meeting its obligations.

Number of fixed location facilities

Year*	Total number of fixed-location facilities	Own-company-staff outlets
1997	15,331	10,095
1998	14,482	7,946
1999	13,948	5,956
2000	13,663	5,590
2001	12,818	5,331
2002	12,683	5,030
2003	13,514	5,513
2004	13,019	5,379
2005	12,671	5,671
Statutory requirement	at least **12,000**	at least **5,000**

* on 31 December

Source: DPAG

Ruling Chamber decisions

Rates regulation

Price cap

Under the price cap, the Chamber in autumn 2005 approved the rates for letter services subject to licence. The main point to note about this was that the decision marked falling price levels in Germany for the fourth time in succession.

In 2006, price levels will be down 0.2 percent in view of the specified 1.8 percent rate of growth in productivity and the 1.6 percent rate of inflation. For international mail, a reduction in postal charges for heavier items was accompanied, however, by a marked increase in the lower weight steps. Thus a standard letter to another country will cost € 0.70 in future. DPAG justified its higher prices for international mail with reference to the higher terminal dues payable to foreign postal companies. It also stated that charges across Europe for an item comparable to its standard letter averaged € 0.69.

With its reductions in some of the domestic charges (eg the compact letter down to € 0.90 from € 0.95) and the above adjustments in international mail, DPAG has met the price cap reduction requirements (– 0.2 percent). Looked at, as in the past, was compliance with the baskets specified for the period 2003 to 2007, the rates of price change and the secondary conditions. Since all the conditions were met, the rates for the fourth price cap period running from 1 January 2006 to 31 December 2006 were approved on 18 October 2005.

Under the price cap, the Agency also explicitly established that DPAG's internal accounting was in compliance with the requirements of section 10(2) of the Postal Act (separate accounting). Thus DPAG was in a position to provide the Agency with all the cost statements and documents it needed for its benchmark decision, including verifiable financial relations between the relevant postal services. Publication of such data is not envisaged either under the EU Postal Services Directive or under the German Postal Act.

Service of documents

The approval of rates for the service of documents under the rules of procedure and the laws governing service in administrative procedure constitutes a particular form of rates regulation, under which the criteria of section 20(1) and (2) of the Postal Act are applied to all such service providers. Thus the stipulations that the rates may not contain any surcharges or discounts and may not be discriminatory are widened to include all the providers of this service, although they are

otherwise applied solely to dominant companies.

As a result, the Chamber must make sure in particular that companies do not offer customer-specific charges, as these would automatically be discriminatory. Different charges for different regions, distance-sensitive and volume-based charges, by contrast, are compatible with the approval provisions. With innovative pricing models, postal service providers thus have added scope to reach more customers. Price differentiation is also being increasingly used by companies offering service of documents. More and more, the courts and public authorities are inviting tenders for the formal delivery order service, thereby often initiating bids competition. Greater competition then drives average price levels down, and the customer benefits.

The Chamber has also addressed further development by DPAG of its formal delivery order product. DPAG has refined this product by offering, in addition to the conventional form, electronic features (ePZA). As the electronic variant is possible only with a minimum annual volume of 10,000 pieces per year and customer, the Chamber was able to approve rates of € 5.10 (10,000 to 29,999 pieces per year) and of € 5.07 (from 30,000 pieces per year) until 31 December 2006 in both cases. The decision to approve the rates was based on the fact that the electronic variant bundles certain production steps, thus enabling cost savings. These cost savings, in turn, are greater than the additional costs that arise as a result of the electronic features, so that ultimately, the rates for approval declined compared to the traditional form.

The unweighted average price approved at the end of 2005 was around € 3.70, VAT not included. The trend continued for competitors to further extend their field of activity. DPAG is still asking € 5.60, the approved rate since 2003. The 2005 approvals were largely granted to regional licence holders, although some were for national licence holders, too. There were filings both for new entrants' rates and established providers' changed rates. Altogether in 2005, service of document rates were approved in 209 cases and thus the first steps taken towards making this a competitive field of activity.

Special control of anti-competitive practices

In the course of 2005 the Chamber, as part of its control of anti-competitive practices, gave consolidators the go-ahead to use a new numbering variant enabling parallel numbering and sorting. Doing away with a second processing run means that consolidators, under their agreements, can consolidate larger volumes in the time window between collection from the customer and dropoff at DPAG and tap further customer potential.

In the previous year the Chamber had already ruled in a single case that this kind of consecutive numbering had no disadvantages for DPAG as regards verifying the total volumes posted and that refusal to accept mail was therefore anti-competitive. This decision was extended to include all consolidators.

Further, the Agency had issued an order in several cases for consolidators to be given non-discriminatory access to the network. DPAG is obliged in particular to align the consolidators' contractual conditions with those in customers' contracts. Divergent arrangements were then only allowed if the Chamber had expressly recognised the objective justification for them. These orders removed further market entry barriers and enabled mail to be prepared for dispatch considerably more efficiently.

As regards the general arrangements for dropoff at 15:00 hours at mail centres, the Chamber was not able to establish any unjustified hindrance, provided DPAG granted consolidators later dropoff times under their existing capacity and equal treatment with large customers

and feeds from their own network were basically secured.

In response to several complaints, the Chamber investigated the prices for counter parcels with an eye to cross-subsidisation. Assessment of DPAG's cost statements showed that the charges contained no discounts, nor were they discriminatory. Nor did anything come to light in response to further, general criticisms to justify the assumption of unfair or anti-competitive cross subsidisation.

Chamber cases	Number
Rates regulation	210
Abuse	4
Interconnection	4
Invitations to attend proceedings	1

International activities

Universal Postal Union

In consultation with the Federal Economics Ministry, the Agency plays an active role in international postal affairs at all levels, attending the annual conferences of the Council of Administration and the Postal Operations Council of the Universal Postal Union, a UN specialised agency for postal affairs with 189 member countries.

European Committee for Postal Regulation (CERP)

Within the 45-country-strong European Conference of Postal and Telecommunications Administrations (CEPT), the European Committee for Postal Regulation (CERP) is the body that addresses postal issues. The Agency takes part in its biannual plenary meetings and provides input for the Policy Issues WG (priority areas: international liberalisation trends, WTO, definition of the postal sector), Economic Issues WG (priority areas: post office branch network, cost accounting) and for the overarching Steering Group. It has chairmanship of the Supervision/Market Data WG, through which CERP exercises its influence on the European Committee for Standardization (CEN).

European Union (EU)

The EU Directive provides for a committee composed of representatives of the Member States to assist the Commission. Germany is represented in this committee by the Federal Economics Ministry and the Federal Network Agency.

European Committee for Standardization (CEN)

Under the EU Directive, quality of service and technical standards must be specified and harmonised. Determining the measuring methods (principles and minimum standards) is one of the tasks of CEN's Technical Committee (TC 331), which works to the EU. The regulatory authorities and – for the most part – the postal providers are represented in the relevant bodies.

Administrative court proceedings

Regarding the question of what services constitute higher quality within the meaning of the Postal Act and hence to which DPAG's prerogative does not apply, was dealt with by the courts as follows.

DPAG has meanwhile accepted standardised cases such as same-day delivery, day-certain delivery, and track and trace services, provided these are as published in the Official Gazette order (15/2004, page 829 ff, item B1 of Annex 2), and has withdrawn its appeals. However, the company continues to contest all the licences granted by the Agency to providers of overnight delivery or integrated logistics services.

In matters of overnight delivery the Federal Administrative Court (BVerwG) granted DPAG's appeal against the ruling by Münster higher administrative court affirming the lawfulness of the licences solely on procedural grounds, and handed the case back to the Münster court. The oral proceedings were held before the Münster court on 7 December 2005. The question of the lawfulness of the licence for time-certain delivery was no longer the subject of the appellate proceedings, because – according to the adjudicating senate in the reasons for the judgment – it had not been the subject of the proceedings on appeal on points of law. In its judgments of 7 December 2005 the Münster court confirmed its initial decision, essentially giving the same reasons. However, for all three constituent facts in the Postal Act it now regards the normative requirements of the Universal Service Ordinance as the uniform benchmark, as this enables a comparison throughout that is free of subjective influences. In its ruling of 6 October 2003 the court still used the postal service actually provided against which to assess "special features" and "higher quality". The appeal on points of law allowed this. The legal action in the matter of integrated logistics service is at the first court hearing concerning the case.

A ruling from the Federal Cartel Office has opened up access to worksharing services for commercial enterprises providing mail preparation services for letters below the weight and price limits of the exclusive licence and widened the scope for competitors' operations in the letter markets. Following this ruling, access to worksharing services for consolidators/competitors granted solely outside the area of the exclusive licence unfairly discriminates against companies bundling mail from a number of senders (in the area of application of the exclusive licence) and dropping it off, presorted, at DPAG's mail centres. DPAG was forbidden to refuse these

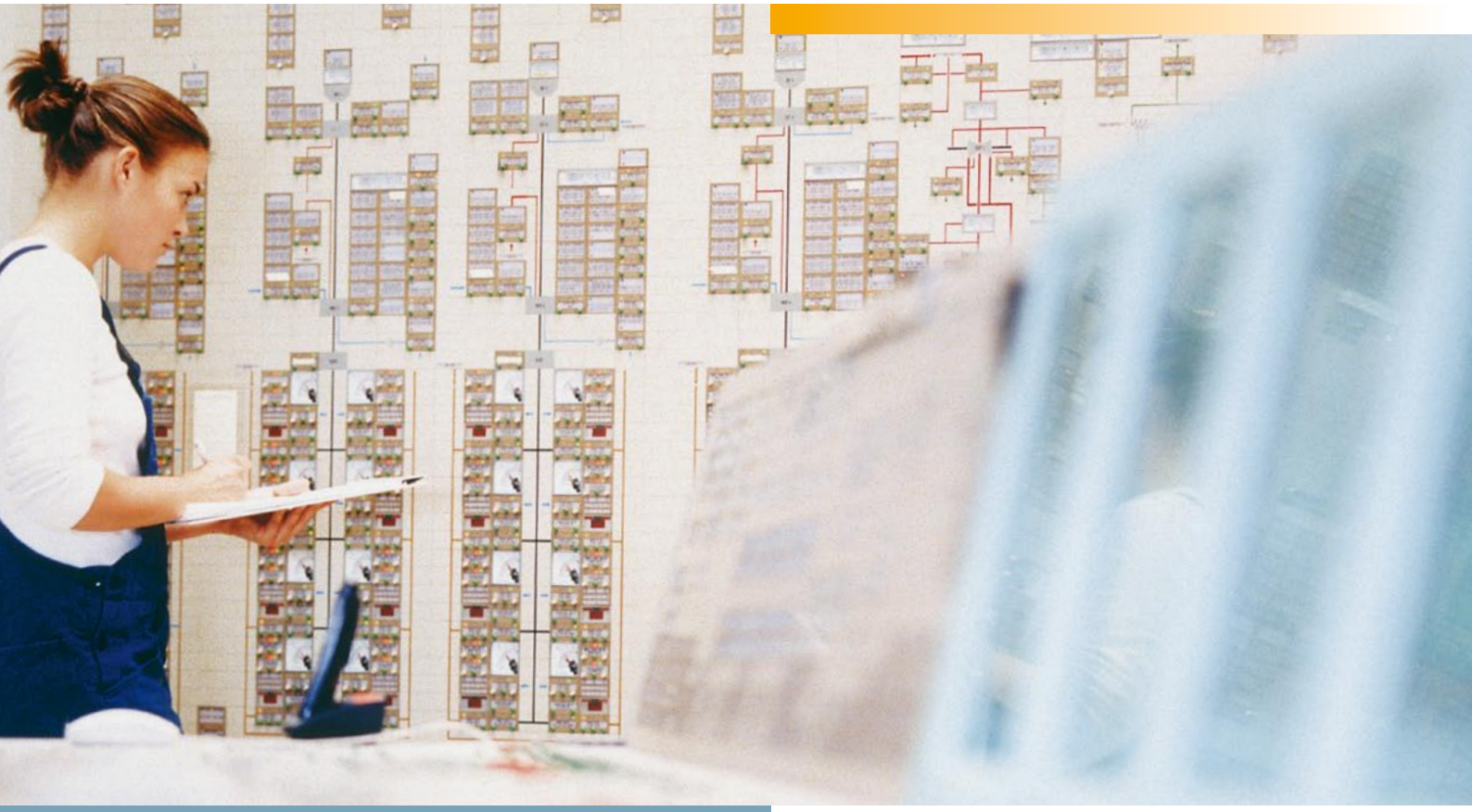
companies access to worksharing services and to grant them discounts; moreover, the ruling was to take effect straightaway. The Düsseldorf higher regional court provisionally confirmed the Cartel Office's decision in summary proceedings. In a ruling on 13 July 2005 the Düsseldorf court ordered a suspension of proceedings on the main issue until two parallel, similar cases before the European Court of First Instance and the European Court of Justice (EuGH) had been decided.

The first of these is about a breach of contract. In its decision of 20 October 2004 the European Commission called on Germany to take measures to stop commercial mail preparation firms from being disadvantaged in accessing worksharing services by not being granted quantity-based discounts for feeding self-prepared mail directly into DPAG's outbound and inbound mail sorting centres. The Commission stated that certain provisions of the German Postal Act breached the EU competition rules and the Postal Directive. Mail preparation firms in Germany were being discriminated against through being denied discounts that large customers feeding self-prepared mail to sorting centres enjoyed. The case brought by the Federal Republic of Germany and DPAG against the Commission's decision is currently before the European Court of First Instance.

In a further case, Cologne administrative court suspended proceedings (action taken by a consolidator against a ruling by the Agency on refusal of access to worksharing services) in order to obtain a preliminary decision from the European Court of Justice. However, the action has now been withdrawn and the order of 30 June 2004 to refer the matter to another court repealed on 21 November 2005 by a ruling from the Cologne court, as the legal issue raised was no longer relevant to the action.

In two – essentially identical – rulings issued on 10 May 2005 the Cologne court rejected complaints from DPAG customers about access to worksharing services ordered by the Agency's Ruling Chamber 5. They had sought mailing terms beyond those ordered (including sorting, minimum mailing volumes, level of charges). The court made some fundamental pronouncements on access orders. Accordingly, an order that concerns contract terms is an adminstrative act that shapes a private law relationship, and is not divisible either as regards the service and the discount or as regards the form the service takes. This also applies to the rates. In the court's view, DPAG has decision-making scope in drawing up the standard terms and conditions that regulate the access details. The rulings also included pronouncements on the question of whether section 44 of the Postal Act, which refers to provisions of the Telecommunications Act of 25 July 1996, is considered a dynamic reference. In the Chamber's view, section 44 of the Postal Act – at least for procedural law (and presumably also for law of administrative procedure before the Agency's Ruling Chambers) – refers to the relevant provisions of the Telecommunications Act of 22 June 2004. In this legal view, the possibility of appeal and thus of one trial court ceases to apply in Chamber proceedings in the postal sector, to allow legal certainty to be created more rapidly. The Chamber allowed the appeal on questions of law that had been lodged against one of the rulings.

Energy



Regulation in Germany

The European requirements of the Acceleration Directives (electricity and gas, 2003) were implemented with the renewed amendment of the energy statutes; on 13 July 2005 the Second Energy Statutes Reorganisation Act took effect with a completely reworked Energy Industry Act (Energy Act). The departure from the negotiated access approach marked a paradigm shift in third party access.

Regulated are not the energy markets as such, that is to say the generation, procurement and sale of gas and electricity. Rather, the grid is the object of regulation under the new Energy Act. As a rule, this constitutes a natural monopoly and is in the hands of the established utilities. This being so, just the system-bound nature of energy transport poses a serious obstacle to market entry. Regulation therefore aims to open up the energy markets to competition by securing low-cost, non-discriminatory third party access. Regulation of the network should then lead to competition at other levels of the value chain.

Monitoring the unbundling of network operations from the other areas of activity of energy supply, creating clear, non-discriminatory arrangements for third party access by means of determinations and the control of anti-competitive practices, and applying efficiency-oriented cost controls to the rates are the first effective instruments the Energy Act has made available to the Federal Network Agency and the state regulatory authorities.

Cooperation with the state regulatory authorities

Regulation of the energy networks (gas and electricity) in the Federal Republic of Germany was included in the remit of both the Federal Network Agency and the state regulatory authorities by the mediation procedure in the legislative passage of the Energy Act. Major energy suppliers and those operating on a wider regional basis are subject to supervision by the Agency under the arrangements of the Energy Act. Smaller suppliers (with fewer than 100,000 customers) and companies operating exclusively within the borders of a federal state come under the remit of the regulatory authority of that particular state. The Agency works very closely with the state regulatory authorities in order to secure the consistent implementation of the Energy Act and to achieve the aims of regulation, both for the companies affected by regulation and for the consumer. The aim of this cooperation is to unify and standardise energy regulation processes and proceedings.

To achieve this aim, themed consultation groups and working groups have been set up. In these groups, representatives from the state regulatory authorities and the Federal Network Agency consult on issues and tasks

and work out common positions. The most important of these is the committee of federal state representatives, set up at the Agency under section 60 a of the Energy Act and comprising representatives from the state regulatory authorities responsible for performing duties under section 54 of the Act. In the year under review, the committee met for several sessions, addressing mainly the issues of incentive regulation and access to the gas networks.

Cooperation with the Federal Cartel Office

The Agency works closely with the Cartel Office in all areas of energy regulation. A lively, fruitful exchange takes place between the two organisations at all levels. The exchange covers both the issues themselves and the organisational arrangements to achieve results-oriented cooperation in the area of application of the Energy Act and the Competition Act (GWB). Issues-based and processes-based working groups form the basis for targeted, harmonised and consistent decision-making by the two authorities. Under section 58(3) of the Energy Act the Federal Network Agency and the Federal Cartel Office must work towards a consistent interpretation of the Energy Act to preserve the context of the Competition Act.

International cooperation

The Federal Network Agency performs its duties in the international, and in particular the European, arena to promote the development of an internal market for electricity and gas in the European Union. This involves, amongst other things, cooperation with the European Commission and the regulatory authorities of the other Member States, and the application of Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity.

The following work items were addressed in the period under review:

- assistance in meeting the European Commission's reporting requirements,
- work in international bodies,
- EC Regulation on cross-border exchanges in electricity,
- international trade in gas.

Reporting to the Commission

Together with the Federal Economics Ministry and the Cartel Office, the Agency, at the request of the Directorate-General for Energy and Transport (DG TREN), drew up a national report on the integration of the electricity and gas markets, based on the directives and setting out national developments. The reports from the national regulatory authorities provided a module for the Commission's report on progress in creating the internal gas and electricity market ("5th benchmark report") of 15 November 2005. Further, the Agency responded to a request for information from the Directorate-General for Competition (DG COMP) on 14 June 2005 as part of a sector inquiry.

Cooperation with other regulatory authorities

The Federal Network Agency is a member of the European Regulators Group for Electricity and Gas (ERGEG) and the Council of European Energy Regulators (CEER). While ERGEG acts as the Commission's formal advisory group, CEER is an informal platform for an exchange on all the relevant issues under the responsibility of its members. Duplicated work is avoided by close cooperation and agreement. Consultation on CEER working papers, as far as ERGEG and the Commission believe these to be of general interest, is carried out via ERGEG.

The Agency is closely involved in the tasks addressed by ERGEG and CEER. Thus in early 2005 it agreed to head the group Workstream Efficiency Benchmarking in the Information Exchange & Benchmarking Task Force. It assists in virtually all the other CEER and ERGEG working groups.

CEER's Single Energy Market Working Group dealt with two working papers on which

ERGEG had held a public consultation. The first was about the development of regional electricity markets, while the second was concerned with a roadmap for a competitive single gas market in Europe. These projects will be continued in 2006 in the ERGEG Regional Electricity Markets Task Force and the Gas Market Integration Task Force. Within CEER's Information Exchange & Benchmarking Task Force, the Agency exchanges experience with other European regulatory authorities in order to take forward the national incentive regulation concept. Further, the Task Force made a comparative analysis of the status, resources and responsibilities of 27 regulatory authorities in Europe in its CEER Regulatory Benchmark 2005.

ERGEG's Ad Hoc Reporting Task Force supported the Commission in defining the reporting requirements for the 5th Benchmark Report and made an analysis of the development of the European energy market, based on the national contributions submitted.

The Agency is also involved in the activities of the Florence Electricity Forum and the Madrid Gas Forum. The participants are national regulatory authorities, the Commission, government representatives and industry and consumer representatives. They meet twice yearly to discuss the problems arising in implementing the internal market, to exchange experiences and to draw up standards.

INCENTIVE REGULATION

The Agency is tasked under section 112 a(1) of the Energy Act to present a report to the federal government, by 1 July 2006, on the introduction of incentive regulation pursuant to section 21 a of the Act setting out a concept that is executable under the statutory provisions. The report is to be drafted with the participation of the federal states, academia and the economic circles affected, and should also take account of international experience of incentive regulation systems.

The Agency's energy regulation start-up team had already paved much of the way (both as regards the methodology and the data collection and evaluation). Once the Energy Act took effect, this work could be continued specifically in line with the legal mandate.

The participation of academia is secured basically through the award of advisory reports and projects. Under the 2005/2006 research programme the Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste GmbH (WIK Consult) was commissioned with four advisory reports. Tenders were invited for four further reports and two advisory projects. The award proceedings for the national tenders were completed on 14 October 2005 and those for the international tenders on 28 October 2005. Invitations to tender are currently invited for a further project.

International experience of incentive regulation systems

International experience of incentive regulation systems is taken into account not just by being the subject of an advisory report, but also by being the subject of an intensive exchange of experience with other regulatory authorities that takes place both at bilateral level and also within a working group of the Council of European Energy Regulators (CEER) on efficiency benchmarking.

Workshops were held under the aegis of this working group on 12 September 2005 and 17 November 2005 with a high turnout from the European regulatory authorities. Moreover, the Agency provides the chair of the corresponding Task Force.

Consultation process

The participation of the federal states and the economic circles affected is secured via a broad-based consultation process that goes beyond just the agreement called for in section 112 a(2) of the Energy Act. A monthly series of discussions and consultations began on 16 August 2005 in two main bodies. In one, the Agency

gives public sector representatives its work on the fundamentals of the incentive regulation system for discussion. In the other, presentations of the Agency's work to the energy associations and operator and user groups are increasingly being made with specialist input from the economic circles affected.

Consultative documents are prepared on particular issues. The first (Price Cap/Revenue Cap) was presented to the consultation group on 8 December 2005, after being agreed beforehand with the members of the discussion group. The second (General Productivity Trends) will be presented in January 2006.

The consultative documents and the responses will inform the Agency's draft report. Comments will also be invited on the draft. Subsequently, the report will be finalised in accordance with section 112 a of the Energy Act and provided to the federal government on 1 July 2006.

Data collection

Essential to the development of a concept of incentive regulation is a large-scale, reliable data base. To minimise the need to collect data from the companies themselves, the use of further sources (eg state statistical and geological offices) is envisaged alongside the surveys themselves. The surveys undertaken so far were linked with the surveys for the electricity (22 September 2005) and the gas benchmarking exercise (26 September 2005), as most of the data requested were also needed for the report on incentive regulation. Further data, needed solely for incentive regulation purposes, were also requested in the electricity benchmarking survey.

UNBUNDLING

Organisational unbundling

The unbundling provisions of section 6 ff of the Energy Act are based on the EC Directives on liberalising the internal electricity and gas markets. As stated there, the precondition for a fully operational and competitive internal market is affordably priced, non-discriminatory and transparent access to the network. To achieve this, the European, just as the German, lawmakers consider it vital that operation of the transmission and distribution system is kept separate from the production and supply activities of the vertically integrated energy supply company.

This requirement, which in some cases involves considerable restructuring for companies in the industry, was analysed in depth in the first few months of the Agency's widened remit and discussed with operators and market players in the upstream and downstream markets. Addressed, in particular as regards legal unbundling (section 7 Energy Act) and operational unbundling (section 8 Energy Act), were questions on measures and definitions to secure the necessary independence of management and those with management functions in the operating companies.

As regards the use of information (section 9 Energy Act), it was a matter, in particular, of setting questions for an analysis of business processes and identification of the economically relevant data. The requirements of section 9 of the Energy Act, which affect all energy supply undertakings irrespective of their size, will not allow the current architecture of the EDP systems in energy data management and billing to be fully continued. How far the requirements of the new IT landscape go was investigated at the detailed level of individual business processes and explored in an intensive dialogue with the undertakings, software manufacturers and new market players in order to find suitable solutions.

Equal treatment programme

Under section 8(5) of the Energy Act, energy supply undertakings have to establish an equal treatment programme for their employees in network operations. This obligation does not apply to companies with fewer than 100,000 customers ("de minimis" companies). The

equal treatment programme incorporates binding measures on conducting the business of the system in a non-discriminatory way. The aim is to give employees practical help about what the unbundling arrangements mean for them in their day-to-day work in network operations.

Both employees and the Agency must be notified of the equal treatment programme. The obligation to submit such a programme arose when the Energy Act took effect on 7 July 2005. The Agency then published a Communication in its Official Gazette calling on energy suppliers to comply with this requirement.

The next step for energy suppliers is to draw up a report setting out all the measures taken to implement the programmes. The Agency will work together with the industry in developing efficient, common standards for the reports, which are to be presented annually.

Electricity

SECURITY AND QUALITY OF SUPPLY

One focus of the Agency's work is security of supply/interruptions to supply. Alongside voltage and level of service quality, security of supply is the central component of quality of supply. Following enactment of the amended Electricity and Gas Supply Act on 13 July 2005, energy supply system operators, under section 52 of the Act, have to present to the Agency a report on all the breakdowns in supply that have occurred. These reports must be presented by 30 June each year for the previous year. The Agency, in close consultation with the association of German network operators (VDN), has drawn up requirements as regards the content and form of these reports. The Agency was keen to be guided by international standards and to minimise the burden on the operators. The data for the report are thus limited to the main facts needed to describe an interruption, such as time, duration, extent and cause.

With reference to its responsibilities under section 65 of the Energy Act in conjunction with section 11 ff to monitor security of supply, one of the Agency's recent tasks has been to look into the major disruption to RWE's energy supply in and around Münster in December 2005. Together with the Federal Economics Ministry and the regional energy authorities the Agency is endeavouring to clarify the course of events and is investigating indications of possible problems with the construction material for the pylons (Bessemer steel). The Federal Institute for Materials Research and Testing (BAM) in Berlin has been commissioned to draw up a report on this issue by way of assistance for the Agency.

SYSTEM CHARGES

Regulation of system charges will be fundamental in securing competition. System charges account for around one third of the retail price. It is the Agency's aim in regulating these to enhance operator efficiency and thus achieve suitable prices.

Once the Energy Act took effect on 13 July 2005, charges for access to supply networks became subject to approval by the regulatory authority under section 23 a of the Energy Act, until an ordinance specifies that system charges are to be determined by way of incentive regulation. Also, consolidating this, intervention against anti-competitive conduct on the part of the operators is possible under section 31 of the Act. Additionally, with certain special forms of use of the system, individual charges for access must be approved on a case by case basis, provided the legal requirements are fulfilled (section 19(2)

Electricity Network Charges Ordinance [StromNEV]).

Approval of general charges

Under section 54 of the Energy Act the Agency is responsible for approving the general charges for access to the electricity networks of transmission and distribution operators to whose distribution networks at least 100,000 customers are connected, directly or indirectly, or whose distribution network crosses a federal state border. The Agency has general responsibility, within the meaning of section 54 of the Energy Act, for approving the charges of 100 operators.

Parallel to the passage of the legislation, the Agency's energy regulation start-up team has begun devising a price regulation concept. As part of the preparations for approval of the charges, the associations of both operators and users have been involved at an early stage by way of a consultation procedure. A draft electronic data collection sheet was posted on the Agency's website to standardise entry of the data needed for approval of the charges. The electronic data collection sheet has been agreed with all the federal states in the committee of federal state representatives and will be used for all the network operators in Germany.

So as to receive data from the network operators in as structured and standardised a form as possible, the Agency, on 5 October 2005, set out further requirements regarding the structure and content of the report to be presented under section 28 of the Electricity Network Charges Ordinance and on the form and time of its transmission. A section 28 report on calculation of the system charges and the electronic data collection sheet are an integral part of the application referred to in section 23 a(3) of the Energy Act. The process of collecting data began on 14 October 2005 when the electronic data collection sheet was made available on the Agency's website. The network operators then had until 31 October 2005 to submit their applications. The Agency has six months, from the time the documentation is received in full to decide on approval of the charges. The first decisions are expected in spring 2006.

Benchmarking (electricity) under section 21(3) Energy Act

To monitor operators' business management efficiency, the Agency is empowered to carry out regular benchmarking under section 22 ff of the Electricity Network Charges Ordinance. Benchmarking is incorporated in the approval procedure as a starting point for assessing efficiency. Data on grid structures, supply and demand structures, system charges and their revenues, and operator costs are requested from operators in all parts of the country.

Based on the data collected, various indicators are defined per operator – separately for each network and substation level – whose "ranking" basically constitutes the comparison. Standardised units (eg costs per km circuit length) are compared with one another to take account of the different dimensions of the facilities. Also, operators are put into structural classes (for each network and substation level from high voltage downwards). Comparing operators like this gives the Agency valuable indications of efficiency. Thus, under section 21(4) of the Energy Act, there is a presumption of inefficiency if the benchmarking shows that the indicators under comparison exceed the average figures of the indicators of comparable operators.

In its determination of 21 September 2005 the Agency ensured that it would receive the data it needed from the operators in a form that was as structured and standardised as possible. Data collection for the first round of benchmarking, concerning the financial year 2004, was completed by 1 November 2005. The results of the current benchmarking exercise will be published in 2006 in the Agency's Official Gazette.

Approval of individual system charges

If it is clear from available or forecast consumption data or as a result of technical or contractual factors that a final customer's part of the maximum load will differ significantly from the annual maximum load of all withdrawals from this network or substation level ("atypical grid usage"), operators of energy supply networks must offer this final customer an individual charge under section 19(2) sentence 1 of the Electricity Network Charges Ordinance, in derogation of section 16. Agreeing the application of individual charges is subject to approval by the regulatory authority (section 19(2) sentence 5 of the Ordinance). Last year saw a total of 52 individual charges approval proceedings opened in connection with atypical grid usage.

The Agency is currently holding talks with the operator and user associations on the subject of an appropriate methodology for calculating individual system charges for atypical grid usage. The aim of the talks is to develop cost accounting conventions that accommodate all the important electricity industry aspects. The solutions reached will be incorporated in the decisions to be taken under section 19(2) sentence 1 of the Ordinance in the first few months of 2006.

Under section 19(2) sentence 2 of the Ordinance a final customer must be offered an individual charge when the electricity taken from a general network for their own consumption at a withdrawal point reaches the figure of 7,500 hours per year and when the power consumption at this point was more than 10 gigawatt hours in the preceding calendar year. Agreeing the application of such individual charges requires the approval of the regulatory authority (section 19(2) sentence 5 of the Ordinance).

Since the Ordinance took effect on 29 July 2005, 23 cases have been opened to approve agreement of the application of individual system charges.

Four decisions taken on 24 November 2005 marked the first affirmative responses to applications for the approval of individual system charges.

Special anti-competitive proceedings

Under section 19(3) of the Ordinance, an operator of a network or substation level must offer a user whose use of the facilities in the network or substation level is solely own-purpose, at their request, an appropriate charge for use of these facilities. While such charges are not subject to approval, any refusal by an operator to make such an offer may invoke section 31(1) of the Energy Act, giving the user the right to submit an application to the regulatory authority to investigate the operator's conduct. Under special anti-competitive proceedings the regulatory authority can then issue an order for measures to secure the operator's compliance with the obligations of section 19(3) of the Ordinance.

At the end of 2005 seven cases of abuse pursuant to section 31 of the Energy Act in conjunction with section 19(3) of the Ordinance were awaiting completion.

THIRD PARTY ACCESS

Connection to distribution networks

In the period under review the Agency handled complaints connected with refusal to provide connection as per section 17(1) of the Energy Act. Municipal utilities and companies had sought connection at a higher voltage level than the one they were already connected to, or connection to a customer's substation. In this latter case, the complaint was withdrawn following agreement between the company and the operator. The review of the complaints concerning connection at a higher voltage level had not been completed by the end of 2005. Also, on the issue of system connection, a number of complaints on the costs and on the contributions to the infrastructure were dealt with. Connection costs are the costs for creating a new connection to the system.

Contributions to the infrastructure, by contrast, are charged for the provision of a particular connection capacity. Here, too, the Agency considers whether or not the charges are reasonable.

Contractual form of third party access

Third party access is not the same as connection to the system. Under section 23 ff of the Electricity Network Access Ordinance (StromNZV), supplier agreements/network usage agreements are to be concluded between operators and those entitled to access. These agreements must accommodate the provisions of the Energy Act and the above Ordinance and comply with the minimum requirements of section 24(2) and section 25(2) of the Ordinance. Under section 115(1) sentence 2 of the Energy Act, agreements on connection to the grid and access to energy supply systems with a longer duration must be conformed to the provisions of this Act and the relevant ordinance at the latest six months after the effectiveness of an ordinance enacted under sections 17, 18 or 24, as far as one of the parties to the agreement requests this.

The Electricity Network Access Ordinance took effect on 29 July 2005. Thus supplier agreements and network usage agreements with a longer duration than six months after enactment of the Energy Act must be conformed to the new legal situation as from 29 January 2006 at the request of one of the parties. Numerous enquiries on the legality of the supplier agreements and other usage agreements were received by the Agency in the period under review. The Agency has not examined the agreements individually, but is preparing general clarification of the fundamental issues contested by the market players.

Change of supplier, business processes, data exchange

Competition in the electricity market is fundamentally restricted by a lack of, or inefficient, business processes between the market players. Business processes concern the time limits and formats for data that have to be provided, for instance when a customer switches supplier. Section 14 of the Electricity Network Access Ordinance sets out requirements on changing supplier as a core business process, while section 22 contains the Agency's obligation to specify a nationwide, uniform format for the data transfer. Powers to take decisions on business processes and data formats are set out in section 27(1) subparas 8, 11 and 17 of the Ordinance. Since extensive negotiations between the network operators and the user associations on common business processes have not been successful, the Agency is now drawing up the requirements; these will include binding data formats with which to handle the processes.

Access to transmission networks

The German electricity transmission network comprises the very high voltage and the high voltage interconnectors in the interconnected network of the four German transmission system operators (TSOs): E.ON Netz GmbH, RWE Transportnetz Strom GmbH, Vattenfall Europe Transmission GmbH and EnBW Transportnetze AG. The aim of regulation is to enable non-discriminatory competition between suppliers in the power supply system. The Agency is concerned, as far as is necessary with a view to competition and within the scope provided by the new legislation, to improve conditions for energy trading within single control areas and among the four control areas. The Agency's transmission network access activities since the Energy Act and the Electricity Network Access Ordinance took effect have basically covered the following: addressing principles for procuring and billing control energy and addressing questions of balance group management and intraday schedules.

Control energy

To secure reliable operation of the electricity system, the same amount of power as matches consumption must be provided at all times. Thus unforeseen fluctuations in the energy

fed into and drawn from the system must be balanced out by the TSOs in their particular control area by increasing or reducing power from the power plants or the industrial consumers at short notice. The control energy needed is obtained from the suppliers by way of competitive tendering. A distinction is made between three different forms of control energy: primary, secondary and minute reserve.

The Energy Act and the Electricity Network Access Ordinance call for control energy to be obtained by competitive tendering. A condition set by the Federal Cartel Office in 2001 led to the introduction of this market-based form of obtaining control energy. The Cartel Office's requirement that tenders be invited for primary and secondary balancing energy for a period of six months and daily for the minute reserves has been successively met by all four TSOs. The legislative purpose, set out in section 1 of the Energy Act, is a secure and low-priced supply of electricity for society as a whole. Accordingly, the TSOs, bearing in mind their responsibility for their respective systems, are obliged under section 22(2) of the Energy Act to cooperate to reduce expenditure on control energy. Fundamental to this cooperation is the establishment of a joint Internet platform for inviting tenders for control energy. The transitional provisions in section 30 of the Electricity Network Access Ordinance state that the Internet platform is to be set up for minute reserves by 1 January 2006, and for primary and secondary balancing energy by 1 July 2006.

In December 2005 the TSOs submitted a concept to the Agency on a joint invitation to tender for minute reserves. The Agency then consulted on this with the market players concerned.

Balance group management

To enable trading in a TSO's network to take place and power supplies to be handled, traders and suppliers need to conclude a so-called balance group agreement. This agreement regulates the relationship between traders and TSOs in dealing with energy supplies via a balance group. To be able to supply customers throughout the country, power suppliers need a balance group in every control area, as a rule. Clearly, traders are interested in a nationally standardised form of these agreements, in order to reduce the transaction costs. Many traders consider it a good time to take this step because an adjustment of all the balance group agreements is necessary anyway to effect compliance with the requirements of the Energy Act and the Electricity Network Access Ordinance.

The Electricity Network Access Ordinance gives the Agency wide-ranging powers to specify individual arrangements in the agreements for the TSOs (powers to make determinations as provided for by section 27 of the Ordinance). Alternatively, the Agency can follow the procedure set out in section 28 in respect of reference offers, by means of which the balance group agreements can be comprehensively settled.

The initiative taken by one of the four TSOs to present a new agreement to the balancing group managers in its own control area has come in for widespread criticism. Here, the Agency has managed to have various passages in the agreement, for instance that concerning abuse caused by too big or two small feeds, reworked by the company. Also, the TSO will approach the three others to consider the possibility of standardising all four agreements. Such a consensual solution might make complex reference offer proceedings superfluous. However, the outcome of the negotiations is not yet clear.

Separately, the settlement periods for balancing power that the TSOs have to observe in relation to the balancing group managers are currently under discussion. Under the wording of section 8(2) of the Ordinance, TSOs must settle for balancing power with the

balancing group managers not later than two months after the particular billing month. Yet all four TSOs have taken up the option provided for in section 8(2) of the Ordinance to request an extension of this period. The Agency is currently considering whether and for how long an extension can be granted.

Scheduled intraday trading

At present, traders can announce schedules informing TSOs of their planned electricity supply and trading transactions for the particular day (on the basis of quarter-hourly figures), until 14:30 hours of the day before. Section 5(2) of the Electricity Network Access Ordinance, however, states that schedules within a control area and schedules extending beyond a control area can be changed every quarter of an hour, at least three quarters of an hour in advance.

The TSOs submitted a compliance concept to the Agency providing for implementation by the end of 2006. The TSOs kept to their proposal to set up an interim solution pending final implementation of the legal requirements. Following assessment of the responses of the market players surveyed, the Agency, carefully monitoring the situation (requiring monthly reports) began putting the interim solution into effect in January 2006. Implementation of the legal requirements is expected to begin not later than 1 January 2007.

CROSS BORDER TRADE IN ELECTRICITY

The Agency is involved in a number of bodies at international level. In September 2005 it was represented for the second time at the European Electricity Regulatory Forum in Florence. The Agency's presence is welcomed by the German power industry, as it is keen to make the special features of the German network structure known in the European debate. Forum 2004 saw the emergence of regional discussion fora, the so-called Mini Fora. These were held for the first time in late 2004/early 2005 and focused particularly on congestion management. Forum 2005 then decided on their continuation. Thus the second round of Mini Fora will begin in early 2006. The issues, besides congestion management, will be the further development of cross border intraday trading and control energy markets.

The issues the European Electricity Regulatory Forum is addressing also occupy the attention of the CEER Electricity Working Group and the ERGEG Electricity Focus Group, with the following topics being dealt with in the individual Task Forces:

- The Electricity Infrastructure Task Force has drawn up uniform criteria for granting special licences for new interconnectors. The Electricity Market Task Force has drafted recommendations on uniform transparency arrangements and compared the role of the energy exchanges in matters of congestion management. The Quality of Service Task Force has prepared an annual Europe-wide report, the "Benchmarking Report on quality of electricity supply".

- The Cross Border Trade & Inter Transmission System Operator Task Force drafted guidelines for the establishment of a new compensation mechanism for cross border flows between TSOs. The System Operation Task Force in 2005 drew up congestion management guidelines that have been incorporated in the comitology procedure. Further, issues such as the integration of control energy markets, the comparison of rules on the reliability and security of the individual synchronous network areas and aspects of congestion management were addressed by this Task Force.

Performing the responsibilities under the cross border exchanges in electricity Regulation

The Agency's duties in cross border trading in electricity derive primarily from Regulation (EC) No 1228/2003 on conditions for access to the network for cross border exchanges in electricity. The Regulation standardises the

conditions for organising cross border trading for the Member States of the European Union. Section 56 of the Energy Act mandates the Agency with performing the regulatory responsibilities.

The aim is to promote the creation of a real internal market in electricity by intensifying cross border trading. In 2005, this chiefly meant for the Agency monitoring the introduction of new allocation mechanisms at the German borders in three country-related areas: France, Switzerland and Poland/Czech Republic. The beginning of 2006 saw an improvement in the allocation methods for scarce transmission capacity at these borders. To take the situation forward, the Agency held consultations on award proceedings in the three regions, together with the French regulatory authority CRE for French/German capacity award. All the interested players had the opportunity to put forward proposals on improving the proceedings. The many responses from the players were incorporated in the Agency's comments to the TSOs on the auction rules submitted.

In its comments the Agency also called for further development of the methods to award transmission capacity in the course of 2006. This includes the possibility of secondary trading of the capacity acquired by players as from mid-2006, introduction of intraday capacity trading on the German-French border at the beginning of 2007 and further development of intraday capacity trading on the German-Swiss border in early 2007 at the latest. Also, by the end of 2006, the methods for calculating transmission capacity are to be improved with the aim of maximising available capacity. Putting these requirements into practice will be one of the Agency's main tasks in this connection.

At national level the various aspects of congestion management are discussed in the congestion management study group, established at the Agency as a consequence of the first round of Mini Fora at the end of 2004/beginning of 2005. A focus of the discussions between the four TSOs, the German energy exchange European Energy Exchange AG (EEX) and representatives from associations of traders, users and network operators, the Economics Ministry and the Agency is the possible further development of the currently established explicit auctions.

Gas

SYSTEM CHARGES

Currently, 778 gas network operators are registered in Germany with the Federal Network Agency. These operators charge gas suppliers for access to the networks. Charges are calculated on the basis of the specifications of the Energy Act (section 23 a) and the Gas Network Charges Ordinance (GasNEV), and constitute a significant part (around a third) of the prices final customers have to pay. Regulatory price controls are thus important as regards limiting energy costs for final customers in Germany. The Federal Network Agency has specified the structure and content of the reports that network operators are required to present for the approval procedures, including a data collection sheet for supply network operators, in order to have a proper picture of the cost and revenue situation for efficient consideration of the applications for approval of the charges. Following in-depth consultation with the industry associations, network operators and state regulatory authorities, the Agency, in a decision taken on 20 December 2005, was able to finalise the operators' reporting requirements and the details of the applications.

Applications for approval of access charges must be submitted by 30 January 2006. Currently, 72 network operators come under federal responsibility. For around 160 others, the charges are approved by the Agency through an official delegation of powers, that is to say the federal states concerned have opted to delegate their regulatory powers to the Agency.

In 2005, talks were held between the various players, with input from the Agency, with a view to finding a uniform charging system for the local distribution networks. So far, the discussions have centred around an approach under which similar customers should pay similar charges, irrespective of the actual access situation.

Benchmarking (gas) under section 21(3) Energy Act

In the first round of benchmarking for the gas industry, a large volume of company-specific data had to be sent to the Agency by 1 November 2005. Often, the data received were incomplete, so that the process of consolidating and plausibility checking continued well beyond 2005. In some cases, complaints were filed with the higher regional court in Düsseldorf. Some companies had found the time for providing the data too short, or the extent of the data requested excessive. These complaints had not been settled by year's end. A second round of benchmarking is scheduled for 2006.

Applications for exemption from cost-oriented approval under section 3(2) GasNEV

Exempted from the approval requirement of section 23 a of the Energy Act are operators of supraregional transmission systems that calculate their charges in accordance with section 3(2) of the Gas Network Charges Ordinance and that have notified the Agency accordingly, without delay, after 1 January 2006. When providing notification they must also demonstrate that their transmission system, for the most part, is exposed to effective existing or potential pipeline competition. Network operators demonstrate this to the Agency by showing compliance with the minimum requirements (as per section 3(2) of the Ordinance) and other conditions. In 2005, in agreement with the Federal Cartel Office, extensive preparations were made for assessment of the notifications. Additionally, "the existence of effective or potential competition" must be demonstrated.

The Agency has 13 such notifications to hand. To help it with its assessment, it has sent requests for information to gas traders in Germany and other countries, to industrial customers and to municipal utilities. The requests for information comprise questions on users' practical experience of competition. This information is important if the assessment of pipeline competition is to be placed on a broad information base accommodating both sides of the market.

Operators not able to demonstrate that their transmission network is, for the most part, exposed to effective existing or potential pipeline competition are required to carry out cost-oriented charging. If there is effective competition, the Agency carries out a separate benchmarking exercise limited to the charges and revenues. This then provides the basis on which the charges of the companies operating in this competitive environment are created.

SYSTEM ACCESS

Access to the gas supply system is regulated in section 20(1b) of the new Energy Act. This provision lists the rules for access. The Gas Network Access Ordinance (GasNZV) then took effect a few days after the Energy Act was adopted, and provides the details of access. Autumn 2005 saw the establishment of a consultation group in which all the relevant industry associations and groups were included, whose mandate was to implement the legal provisions and draw up a concrete access model. The group met four times in 2005, addressing issues such as the establishment of market areas/subnetworks, the integration of storage facilities, the creation of efficient balancing mechanisms and the realisation of capacity trading options, besides agreeing a practicable, non-discriminatory access model complying with the requirements of section 20(1 b) of the Energy Act.

A working group was also set up at the same time as the consultation group to discuss, with representatives from the Economics Ministry and the federal states, the issue of a generally binding access model. Also, the Specialist Group for Regulatory Issues (Wissenschaftlicher Arbeitskreis für Regulierungsfragen, or WAR) met on 17 November 2005 to debate the economic consequences of the new legal situation. Bilateral talks were held between the Agency and particular industry associations and business analysts about the details of access and other special aspects of the new energy framework. The aim is to apply, within the implementation period set in section 20(1 b) of the Energy Act, a generally recognised access model at every supply level, in order to stimulate competition, to facilitate switching supplier and thus to introduce more elements of the market economy to the pipeline market.

Non-discriminatory access to storage facilities is also important for healthy competition. An important precondition for this is the

publications that the storage facility operators are required to effect under section 28(3) of the Energy Act. All operators, many of whom have not been compliant, have been sent a letter reminding them of their duties. Their compliance continues to be monitored.

Important for the creation of transparency for all market players is the publication, required under sections 20 and 21 of the Gas Network Access Ordinance, of information relevant to the system and to use of the system. All operators have been called upon, in letters and in a publication in the Official Gazette, to comply with this requirement. In all its letters the Agency pointed out that it would have to take supervisory measures under section 65 of the Energy Act in the event of non-compliance.

Relevant to obtaining a general view of the capacity situation and to the possible issue of an access order is the operators' duty to notify the Agency of each instance of refusal to provide access. This requirement is anchored in section 20(2) of the Energy Act and was met in 2005 in rudimentary form only. Hence a letter has been sent to the operators urging regular compliance with their notification duties.

INTERNATIONAL GAS TRADING

A main focus here is cooperation with the European Commission and the regulatory authorities of the other EU Member States in the CEER and ERGEG working groups. In the gas sector, the main issues addressed in the period under review were monitoring the implementation of the Guidelines for good TPA practice for storage system operators, the development of balancing principles, discussion of the preferred approach in calculating available capacity and a comparison of the European TSOs' costs and charges.

The main findings were presented and discussed at the Madrid Gas Forum in September 2005. The following issues were addressed, in line with the groups' terms of reference and the topics additionally introduced by the international industry associations:

- balancing principles,
- a concept for regional energy markets as a step towards the European internal market,
- interoperability issues of gas quality, and
- a report on the monitoring of the storage guidelines.

Market watch

The Federal Network Agency has begun its monitoring activities as per section 35 of the Energy Act. Monitoring is concerned with market conditions and the situation as regards competition. Market watch, one of the activities, will be the subject of the monitoring report required under section 63(4) of the Energy Act. It should help to create market transparency and test how effectively the Energy Act is working.

Structure of the electricity market

Overall, the electricity market is highly concentrated. This applies to both sales and power plant capacity. Electricity sales in Germany are characterised by the vertical division into nationwide related utilities, regional supply companies and local municipal utilities. The wholesale level can be divided into the spot market and the futures market on the one hand, and into the bilateral OTC (over the counter) market and the energy exchange on the other. The volume of trade at the German energy exhange EEX has been rising steadily since its establishment.

With regard to downstream distribution, E.ON and RWE both hold between 25 and 30 percent of the market, Vattenfall Europe below 25 percent and EnBW less than 10 percent. Power traders have captured more than 15 percent in all. In the market for supplying active power end customers the four main companies likewise have the highest shares. The two leading companies RWE and E.ON not only have high market shares, but their importance is further increased by the large number of stakes they hold in other power supply companies (municipal utilities in particular). These often give them a decisive influence on the competitive behaviour of the associate companies. Local suppliers still account for over 90 percent of final customers supplied on the basis of a standard load profile.

In summer 2003, according to the Federal Economics Ministry's monitoring report, there were around 20 new companies in the market supplying households in all parts of the country. There are no indications that this number has significantly changed in the meantime.

Since the market was opened between 1998 and 2004 the following rates of change have been found in the individual segments:

Market segment	Change of supplier	Better contract with the existing supplier
Households	5%	25%
Small industrial customers	7%	50%
Large industrial customers	41%	59%

An important point is that a new contract with an existing supplier is a sign of competition also. A new contractual offer is always a response to competition. There are higher rates of change with large industrial customers. Here, all the customers have either changed supplier or concluded a new agreement with their current one.

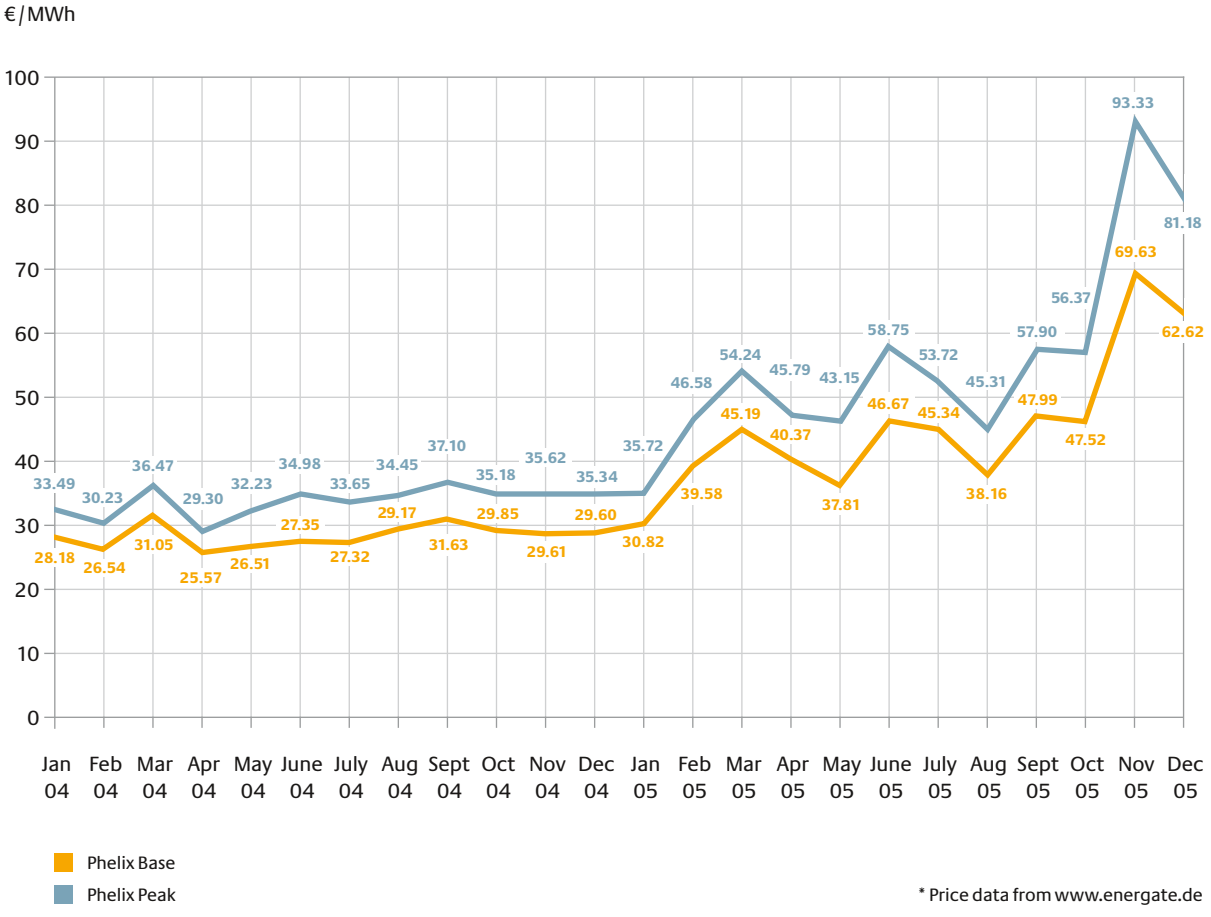
Electricity price trends

Wholesale electricity prices have climbed rapidly and are currently in the spotlight. The chart below shows the spot market prices on the EEX energy exchange for the period January 2004 to December 2005 using the monthly averages of the spot market indices Phelix Base and Phelix Peak. Phelix stands for **Ph**ysical **El**ectricity **I**ndex. Phelix Base is the simple average of the prices of all 24 individual hours on the EEX spot market. Phelix Peak is the simple average of the prices of the hours 8 to 20 (8:00 hours to 20:00 hours) on the EEX spot market.

There was a clear increase in the monthly average of both the Phelix Base and the Phelix Peak over the given period. The Phelix Base average for 2005 was € 45.97/MWh and thus some 61 percent up on the 2004 average of € 28.54/MWh. The Phelix Peak average for 2005 was € 55.99/MWh and thus some 65 percent up on the 2004 average of € 34.02/MWh.

The chart on page 127 shows the prices for the baseload and peakload futures traded on the EEX derivatives market for the front year (2005 in 2004, 2006 in 2005). Again, the monthly average was taken. The development

Prices on the EEX spot market from January 2004 to December 2005*



* Price data from www.energate.de

of these two indices is particularly important for the German electricity market as they are often used as a reference for retail pricing. The prices on the derivatives market reflect players' expectations of price trends and thus act as pointers for local suppliers' and industrial customers' supply contracts, for instance.

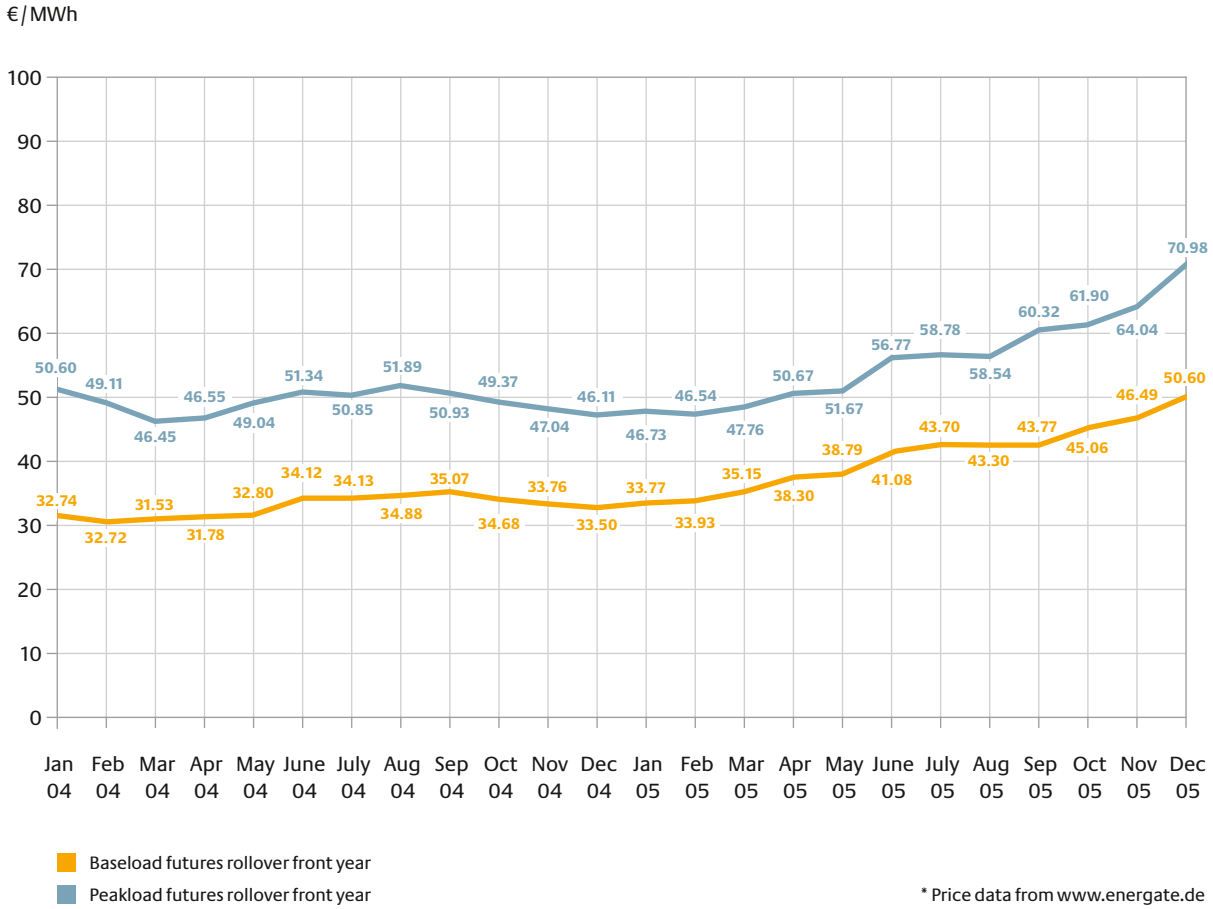
The comparison of average annual figures shows the baseload future for the front year to have risen from € 33.49/MWh in 2004 by around € 7.8/MWh to € 41.27/MWh in 2005 and the peakload future for the front year from € 49.13/MWh in 2004 by around € 7.2 /MWh to € 56.35/MWh in 2005.

The clear increases in the wholesale market are also reflected in the retail price trends. Thus a list of electricity prices drawn up by the Federal Association of Energy Users (Bundesverband der Energie-Abnehmer, or VEA) shows price increases of between 1.1 ct/kWh and 1.7 ct/kWh for eight typical cases in a comparison of the price levels for 12 December 2005 with those for 13 December 2004. The prices in the list are market prices such as those in new or extended contracts with a duration of one year.

Structure of the gas market

The Agency's monitoring report will also provide a detailed analysis of the structure of the gas market; thus little can be said here. Germany's main sources of natural gas are 16 percent own production with imports from Russia (35 percent); Norway (24 percent); the Netherlands (19 percent); United Kingdom, Denmark and others (6 percent). Six companies

Prices on the EEX derivatives market
Futures rollover front year
January 2004 to December 2005*



* Price data from www.energate.de

have an estimated share of at least 5 percent of the German wholesale gas market. The three largest companies account for some 80 percent of available gas capacity.

To increase liquidity in the gas market, Ruhrgas AG, under a special requirement, will auction a total of 200 billion kWh of natural gas from its long term supply contracts over a period of six years (gas release programme). There will be six separate yearly auctions, starting in 2003. Natural gas is being provided for three auctions in Bunde/Emden and three in Waidhaus. May 2005 saw the third auction, with the delivery point in Bunde/Emden.

Liquidity in the national gas market is insufficient. Unlike in the electricity sector that has the EEX energy exchange in Leipzig, the domestic gas market – except for the auctions in the gas release programme – has hardly established itself as a trading centre. According to the operating company, the Eurohub Bunde gas trading hub deals in marginal quantities only.

So far, the appearance of new suppliers has had little effect on the market structure. New national and European energy trading companies such as Trianel, Natgas, BP, Sempra, Essent and Nuon have not yet fundamentally changed the structures of the gas market. The new regulatory framework for access to the networks and storage facilities is essential to improving liquidity and to making natural gas eligible for quotation on the exchange.

Gas price trends

The border price published by the Federal Office of Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle, or BAFA) is the statistical average price of all gas suppliers' imports to Germany and shows the price of natural gas at the German border. As a rule, it follows the price for mineral oil, with a slight delay. The border price is derived from the volume and value of the imported gas, and does not include tax on natural gas. According to provisional calculations by the Federal Office, the border price per TJ natural gas in October 2005 was 43.3 percent higher at € 4,976.04 (this accords roughly with 1.79 ct/kWh) than the price in October 2004. The average border price rose by 29.9 percent in the period November 2004 to October 2005 from € 3,190.34 (approx 1.15 ct/kWh) to € 4,145.85 (approx 1.49 ct/kWh) per TJ natural gas, compared to the period November 2003 to October 2004.

The border price increase can also be seen in the municipal utilities' kilowatt-hour rate, published by energate, an estimated price at which the utilities obtain gas, free "citygate", from long distance importers. The estimate is based on an HEL (light heating oil) index. The price is adjusted every quarter, the time lag in indexing is three months and the average price is formed over a period of six months. The price does not include tax on natural gas, but the standard discount on it. Thus the kilowatt-hour rate on 1 October 2004 was 1.45 ct/kWh, contrasted with 2.27 ct/kWh on 1 October 2005, up some 57 percent.

The higher prices that importers and downstream distributors have to pay have also led to marked increases in the retail prices. Thus a list of industrial gas prices published by the Federal Association of Energy Users (VEA) showed price increases between 1 October 2004 and 1 October 2005 of between 0.35 ct/kWh and 0.89 ct/kWh in the individual categories.

The European comparison of gas prices published by the UK consultant Energy Advice Ltd likewise shows price rises for Germany on the same scale. The comparison of gas prices includes both domestic and industrial supplies. In the domestic area, the price of 4.71 ct/kWh in October 2004 with a volume of 30,000 kWh/year rose by 0.71 ct/kWh or approx 15 percent to 5.42 ct/kWh in October 2005.

Consumer Advice service

The Energy Act brought with it the introduction, by the Agency, of a consumer advice service for electricity and gas customers. In the first few months, most of the queries had to do with energy prices. As the Agency is responsible for regulating access to and charges for use of the system, it can advise only on these issues. It does not advise on gas and electricity tariffs. It provides both individual advice for consumers and, on its website, answers to frequently asked questions (FAQs), a glossary on the energy industry, and further useful links.

Railway

Part of the Agency's remit is supervision of compliance with the legislation on access to rail infrastructure.

The relevant legal norms were amended in 2005 to implement Community requirements.

The number of companies and authorities with access entitlements and the number of companies with obligations was extended by the General Railway Act (AEG). Rail network operators and service facilities operators, under the provisions of the Act, must calculate their charges for access to train paths, service facilities and associated services in such a way that competition is not inhibited. Most notably, charging may not favour particular companies or authorities with access entitlements over others with such entitlements, without objectively justifiable reason.

The Rail Infrastructure Usage Regulations (EIBV) detail the right of access to infrastructure and services and, in particular, the legal claim to non-discriminatory treatment, addressing the following:

- right of non-discriminatory access to rail infrastructure,
- charging issues (basis of calculation, calculation criteria, discounts),
- giving infrastructure operators and those with access entitlements a sounder basis on which to plan.

The new Regulations include both a multi-stage dispute resolution procedure and more transparent arrangements for dealing with conflicting requests for train paths and facilities. Such conflicting requests are dealt with in three stages:

- weighing the situation with reference to the priority criteria specified in the Regulations,
- allocation based on the higher regular costs price,
- allocation based on a bid above the level of the regular costs (highest price).

Also included in the Regulations are incentives to improve the efficiency of rail traffic and to strengthen intermodal competition. Accordingly, rail track operators must grant their customers, those with access entitlements, rebates if the infrastructure service falls below the agreed standard.

Under the legislation, the Agency can open cases on its own initiative and upon application. In particular, probes can be made of

- the rail network conditions of use and the service facilities conditions of use,
- the arrangements on the levels or structure of an infrastructure company's infrastructure or other charges.

The rail regulatory functions were transferred to the Federal Network Agency on 1 January 2006. Proceedings on access disputes opened before that date have been taken over by the Agency.

Agency's functions, structure and core tasks

The Federal Network Agency was set up on 1 January 1998 as the – now defunct – Regulatory Authority for Telecommunications and Post (RegTP) as a higher federal authority within the scope of business of the Federal Economics Ministry (BMWi). It took over the responsibilities of the former Federal Post and Telecommunications Ministry (BMPT) and the Federal Post and Telecommunications Office (BAPT). A challenge for the Agency now lies in taking over the functions flowing from the new Energy Act, which came into force on 13 July 2005. Reflecting this, the name Regulatory Authority for Telecommunications and Post was changed to Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway.

First and foremost, the Agency's remit is, through regulation, to promote competition in the telecoms, postal and energy markets, to ensure the provision of appropriate and adequate services across the country, to guarantee non-discriminatory network access and to provide frequency regulation arrangements. These responsibilities are detailed in the Telecommunications Act (TKG), the Postal Act (PostG) and the new Energy Act (EnWG), and are regulated additionally in ordinances and other implementing provisions. On 1 January 2006 the Agency also assumed responsibility for supervising compliance with the legislation on access to rail infrastructure under the General Railway Act (AEG).

Further tasks flow from other specialty laws such as the R & TTE Act (FTEG), the Amateur Radio Act (AFuG) and the EMC Act (EMVG). The Agency is the competent authority under the Electronic Signatures Act and as such is tasked with setting up and monitoring a secure and reliable electronic signatures infrastructure. The Agency was given powers by enactment of the new TKG on 25 June 2004, in particular, with regard to number misuse (eg diallers), putting it in a position to make a yet greater contribution to consumer protection.

The following is an outline of the Agency's remit.

The Agency's tasks and workflows are complex and wide in scope. They range from highly specialised cases addressed in quasi-judicial proceedings in its core regulation areas, right down to its nationwide presence for technical trouble-shooting.

Its task-oriented organisation, enabling the Agency to deal with these tasks efficiently, is described in the following.

The regional offices are mainly responsible for technical matters. They provide advice, for instance, on compliance with the TKG and with electromagnetic compatibility provisions (EMV and EMVG). They are also responsible for frequency assignment for mobile radio and PMR systems, for instance. Another important area is the resolution of radio interference using state of the art facilities, monitoring compliance with regulations generally and carrying out radio monitoring and inspection orders. The regional offices' responsibilities also cover monitoring compliance with the terms and conditions of postal licences. As a result of certain tasks (such as the processing of medical allowances for all the staff, call centres) being transferred to the regional offices, the headquarters can focus on its core tasks and local staff are meaningfully employed.

Streamlined organisation, achieved by a reduction in the number of regional offices, is to enhance efficiency and service provision. Decisions on the closure and concentration of particular regional offices take account of fundamental aspects such as infrastructure, closeness to the customer and the market, nationalwide presence, and cost. Staff levels are adapted to requirements in a socially acceptable manner.

Human resources

A modern staff management system is a priority at the Agency. When there are constraints on staffing levels, it is even more necessary to deploy staff optimally. It is only possible to do so if staff planning takes account of work requirements and the skills and inclinations of the staff in equal measure. Only when both elements – pro-active, requirements-dictated deployment on the one hand and motivated staff on the other – are made to coincide, can the Agency's functions be performed cost-effectively and efficiently even in times of tight budgetary resources.

This staff management system, coupled with the recruitment of new employees particularly qualified for the tasks ahead, enabled the Agency in 2005 successfully to assume the wide-ranging duties of energy regulation.

The Agency's highly disciplinary field of activities requires experts from a wide range of backgrounds. These include law, economics, engineering, mathematics, information technology and administration. The Agency has 2,358 members of staff whose posts are taken from four civil service grades (senior, upper, medium, basic). These grades are also applicable to staff who are not civil servants.

Analysis of staff by grades:

Senior grade
(around 12 percent of those employed)
These posts are filled by legal experts and economics and business economics graduates with various specialisations. Many are communications engineers. A small number are graduates in other disciplines specific to their particular field of work.

Upper grade
(around 35 percent of those employed)
Most of the non-technical staff are administrative and business economics graduates from higher education colleges. Most of the technical staff are communications engineers.

Medium grade
(around 50 percent of those employed)
The large majority of non-technical staff have completed civil service traineeships in administration. The technical staff have had vocational training as telecoms mechanics or communications technicians.

Basic grade
(around 3 percent of those employed)
These staff, most of whom have completed apprenticeships, work in a variety of areas such as internal administration or messenger services.

The Agency has also been providing places for trainees since 1999. In 2005, a total of six young people joined the Agency as office communication trainees. Since 2003, traineeships in electronic equipment and systems have been offered; 13 of these places have been taken up, four of which are provided for the first time in Magdeburg, the new training centre. Thus in 2005, a total of 61 young men and women were trained at the Agency in these two occupations.

Budget

The Agency's income and expenditure is budgeted for in section 09, chapter 0910 of the federal budget.

The table below shows the expenditure for the years 2005 (target and performance) and for 2006 (budget).

The income for 2005 includes collections subsequently made because of legal disputes and changes in the law.

The chart below shows the expenditure (target for 2006 in line with the first government bill).

Type of income	2005 target €'000	2005 performance €'000	2005 target €'000
Telecoms fees, contribution and other charges	93,450	155,453	71,390
Fees and other charges under the Postal Act	90	139	100
Other administrative income, rents, disposals	890	2,396	1,060
Administrative income	**94,430**	**157,988**	**72,550**
Other income	15	10	17
Total income	**94,445**	**157,998**	**72,567**

Type of expenditure	2005 target €'000	2005 performance €'000	2005 target €'000
Staff costs	88,440	88,353	104,447
General administrative expenditure and appropriations	32,471	29,915	35,939
Investments	11,515	11,533	10,227
Total expenditure	**132,426**	**129,801**	**150,613**

Specialist Group for Regulatory Issues (WAR)

The Agency is regularly advised by, amongst others, the Specialist Group for Regulatory Issues (WAR). Its members are experts in scientific, economic, business management, socio-political and legal policy matters. Last year, the Group met with the President and Vice Presidents and other members of the Agency six times.

The following issues were addressed:

- taxes in the Energy Act,
- unbundling under the Energy Act,
- incentive regulation tendering,
- report on access to gas networks/gas network access consultation group,
- WIK presentation on modelled networks and unbundling,
- incentive regulation (focusing on price cap and revenue cap, general productivity in the incentive formula, scheduling),
- problems of establishing a reasonable fictitious return on equity,
- updating frequency usage plans 226 and 227,
- presentation of the UK regulator OFCOM's telecoms unbundling model,
- regulatory questions in connection with broadband optical fibre (Group's report).

Also, the Group drew up a statement on DTAG's optical fibre access network extension project.

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Strategic plan 2006

TELECOMMUNICATIONS

Promoting the development of the European Union internal market

In furtherance of the European regulatory framework, market definition and market analysis procedures will be carried out in 2006 and the regulatory orders based on them drawn up, as far as this has not been completed. Cases in point are the leased lines market, access and call origination on public mobile telephone networks, international roaming in mobile networks and broadcasting transmission services. It also involves national consultations on the drafts and the consolidation procedure in Brussels, bearing in mind the scope for deregulation. Markets that are not included in the Commission Recommendation but in respect of which there are indications of the need for regulation must also be defined and analysed. In this connection there continues to be a number of legal, economic and technical issues.

The Agency's experience with the consultation and consolidation procedure, in particular, will be available to the Federal Economics Ministry, allowing it to bring the whole of the experience base to the international debate. This includes the Agency's input in amending the legislation. Participating in the IRG and the ERG, the Agency also takes an active part in implementing the ERG Work Programme.[1] This is mainly concerned with reviewing the regulatory framework (2006 Review) and the regulatory challenges posed by, for instance, Next Generation Networks (NGNs).

In addition to the market analysis procedures and the issue of regulatory orders, eg on bitstream access and termination of calls to mobile networks, the Ruling Chambers will also revisit reference offers for interconnect access services as per section 23 of the TKG, as far as companies are obliged to make reference offers. Decisions must also be taken in a number of rates regulation cases such as those concerned with the phasing out of the EBC interconnection charges and rates for the terminating services of alternative operators.

Encouraging efficient investment in infrastructure and promoting innovation

Defining and analysing the bitstream access market and the debate on the rollout of DTAG's optical fibre network show clearly how important the subject of innovation and regulation is. There is a conflict of interests between access to wholesale products for broadband services on the one hand and the call for a limited exemption from access regulation on the other. The Agency is hoping initially for voluntary agreements between

1 The ERG Work Programme can be downloaded from www.erg.eu.int/workprog/index_en.htm

those concerned and a dialogue between all the players. It will also be necessary to note whether, in each case, the criteria for a "new market" are really met. The Agency is planning to consult on the drawing up of criteria to identify new markets and of guidelines and interpretation principles for the regulatory treatment of new markets.

Taking the framework conditions for Voice over IP (VoIP) forward

In September 2005 the Agency published key elements on the regulatory treatment of VoIP. These were the first framework conditions for this dynamic market segment. The Agency is working on the assumption that the market in and around VoIP will continue to experience rapid change, and considers it a major challenge to be able to respond quickly and flexibly to regulatory requirements as and when they arise. Thus the framework conditions will be amended and refined to reflect developments.

Broadband services and broadband infrastructure

The importance of broadband services such as VoIP, broadband Internet access, and video and TV services will continue to grow, which is why the provision of broadband network infrastructure services and their regulatory treatment is an important issue. The provision of broadband wholesale products is key to further growth in these markets. Thus the analysis will look at how the individual wholesale products are to be shaped. The interaction between these (regulated) wholesale products will be examined, as will any possible interaction with other wholesale products offered on a voluntary basis.

The Agency is also considering whether there is a need for regulatory action in the retail broadband markets. Market definition and market analysis procedures will be carried out for the broadband access and the Internet access markets on the basis of the data surveys made of the actual market conditions. Should a company be found to have significant market power (SMP), a decision on suitable regulatory measures will be taken. These market analyses could also provide a basis on which to assess access resale products under possible regulatory decisions.

Next generation networks and the interconnection of IP networks

Future network structures discussed under the heading of Next Generation Networks will be based on the principle of packet switching. End users will then be connected to NGNs over a variety of access technologies (UMTS, DSL, possibly WIMAX, etc) and use a variety of services (voice, data and, in future, possibly TV services too). NGNs enable changes in the value added, since value can be added at the functional levels (access, transport, control and service) by different providers.

Until the transition to NGNs is complete, there will be a relatively long migration phase from circuit switched networks to the new network structures. For the Agency, this will present a host of regulatory challenges.

- The question arises of how IP networks should be interconnected in practice. To answer this, the Agency has set up an advisory project group whose terms of reference are to investigate the framework conditions for interconnecting IP net-

works, using a set of questions with which to do so, and then to develop possible scenarios. One of the main work items is to draw up a new interconnect regime for voice telephony. The project group, headed by the Agency and involving distinguished telecoms experts, began work in August 2005 and has set itself a period of one year. It will publish its findings in a final report.

- Another issue is service interoperability. Questions of access and of guaranteeing interoperability will feature more prominently in the production processes of future network structures with their potential for a greater division of labour. The Agency is therefore likely to have to resolve more and more questions of access, eg to database services or to billing services, in section 18 TKG procedures.

Spectrum management

The following projects are planned to encourage competition and innovation:

- implementation of an E-GSM concept, ie
  - shifting some of the frequency usages in the E networks to the 900 MHz band with a view to further developing mobile communications,
  - extending the frequency assignments of D1, D2 and E1 to 2016,
  - launching a consultation on released spectrum at 1800 MHz,
- preparation of an award concept for 3G (1.9 and 2.6 GHz),
- agreeing spectrum trading arrangements,
- evaluating the study on flexibility in spectrum management and drawing up concepts to adapt and redesign spectrum management,
- preparing international conferences and meetings, most notably
  - Regional Radiocommunication Conference (RRC 06) for the revision of Stockholm 1961,
  - World Radiocommunication Conference (WRC) 2007,
  - meetings of the high ranking EU Radio Spectrum Policy Group (RSPG), the EU Radio Spectrum Committee (RSC) and the CEPT Electronic Communications Committee (ECC),
- monitoring and assessing compliance with the coverage requirement of at least 50 percent of the population in the UMTS networks,
- DRM, or Digital Radio Mondiale, a digital system in long wave, medium wave and short wave, drawing up key elements for awarding spectrum for DRM,
- demand-driven provision of transmission capacity for broadcasting and multimedia services, most notably mobile TV,
- provision of frequencies for the 2006 World Cup,
- launching award proceedings for Broadband Wireless Access applications in the band 3,400 to 3,600 MHz.

Standardisation

A precondition for the introduction of innovative services is standardisation at national and international level. Standardisation is a market process of enormous strategic importance. Members of the Agency provide input for the standardisation bodies, eg the International Telecommunication Union (ITU), the European Telecommunications Standards Institute (ETSI). The Agency's contribution in 2006 will focus on the following activities:

- the structure and features of NGNs, including interoperability, convergence aspects, open interfaces, separation of transport, network control, service and applications, availability, security, end to end quality, consumer protection,
- use of fixed network numbers in the Internet environment (ENUM project),
- consideration of the emergency calling facility in the new network and service structures (emergency calls using VoIP, location information for emergency calls, emergency calls from vehicles, so-called e-calls); communications structures in crises and disasters (warning the popula-

tion using radio-based communications technologies),
- broadcasting transmission technologies and access platforms (interfaces for open access),
- electromagnetic compatibility of cable TV networks, broadcast receivers and multimedia equipment (standards, emission limits).

Securing fair competition and promoting markets with sustainable competition

Basic rates regulation issues

A trend towards more complex tariff structures can be noted. In particular, the greater importance of bundled offers and flat rates is making it necessary to tighten up the criteria of section 28 of the TKG. Notes were published in August 2005 on objectively unreasonable bundling within the meaning of section 28(2) para 3 of the TKG. This will be followed up by issues of unjustified discounts and margin squeezes being addressed more closely, in light of practical experience to date. The aim is to enable, for instance, criteria to be defined on the basis of which the replicability by efficient competitors of offers from the dominant company can be judged. This, in turn, is vital if the risk of market power being leveraged is to be effectively countered and sustainable competition in the retail markets promoted.

The last rates regulation case showed the need, in costing efficient service provision, to consolidate the basis for establishing non-infrastructure costs (operating costs, rentals, common costs). In rates proposals, the percentage of costs that cannot be allocated directly is very high and also subject to considerable fluctuation. Thus further studies on the level of non-infrastructure costs and relevant markup rates will be carried out in order to generate reliable findings on how to attribute these cost components and in order to refine the methodology for efficient costing with reference to alternative cost models for the Agency's future decisions.

Consistency requirement

Consistent pricing is an essential part of a competitive environment enabling fair competition between companies with different network and service concepts. The principles for securing consistent rates regulation must therefore be further developed accordingly. Independently of individual cases on central aspects of the consistency requirement, it is planned to concretise and communicate positions so as to give players planning certainty. In this connection, it will also be necessary to take account of how the rates are drawn up for the case of a resale obligation.

Safeguarding user and consumer interests

Consumer protection will be an important issue in 2006 as well. Below are some of the concrete projects:
- continuing the "Basic telephone" project,
- widening the range of information provided on the Agency's website on topics of interest to consumers,
- assisting in the amendment of the consumer protection legislation set for 2006 in the telecoms sector and drawing up prohibition measures to deal with company breaches,
- introduction of online procedures for mediation as per section 35 of the Telecommunications Customer Protection Ordinance (TKV) and conceptual further development after the initial experiences have been analysed.

Continuing its activities to combat the abuse of premium rate numbers, the Agency in 2006 will observe and evaluate the effects of the changed minimum requirements for diallers, in particular new business models and abuse scenarios as a corollary. Due to the discontinued use of 0190 numbers on 31 December 2005 and greater use of the 0900 range for premium rate services it will be important to monitor compliance with the Agency's stipulations and the requirements of section 43 b in conjunction with section 152(1) of the TKG (including pricing information requirements).

Securing efficient and interference-free use of frequencies

Frequency usage plan

One of the spectrum management activities is updating the frequency usage plan as part of implementing the Frequency Band Allocation Ordinance.

Market surveillance under the EMC and the R&TTE Directive

Equipment is increasingly being placed on the market via electronic sales platforms (Internet). The Agency will therefore draw up and implement a concept for the systematic inclusion of these sales platforms in the market surveillance system.

Technical compatibility

Advancing digitisation and broadband signal transmission are calling for new technical compatibility criteria and coordination methods, currently under study and development by the Agency. They will then be placed on the agenda of national and international bodies for discussion and agreement.

The main work items for 2006 are:

- terrestrial digital video broadcasting (DVB-T) planning for the ITU Regional Radiocommunication Conference 2006,
- aspects of compatibility with bands for next generation mobile and WLAN,
- assisting with the EMC standard on emissions from wired telecoms networks,
- further developing models to derive limits for permissible emissions from equipment, systems and installations,
- compatibility studies for new road transport telematics.

The Agency's aim is to facilitate the introduction of new technologies and services through technical compatibility. It is important that current applications are given adequate protection and new applications can function properly.

EMF monitoring

Under the activities to protect persons exposed to electromagnetic fields, the prototype of a transportable EMF monitor was devised in 2005 for independent measurements over a period of several weeks. In 2006 it is planned to put several of these into operation and to make the results available for the general public in the Agency's EMF database on its website. The findings will supplement the Agency's long-running measurement programme, the findings of which can also be viewed in the database (so far, only "snapshots" of the emissions are possible).

Protection of public safety interests

Technical implementation of intercepts

The Agency is on hand in the standardisation bodies to advise on the activities for interception systems in connection with Internet access (DSL, cable and WLAN) and VoIP. For 2006 a new version of the technical directive specified in section 110(3) of the TKG (TR TKÜ) is planned.

Automated information procedures

In carrying out automated information procedures under section 112 of the TKG, the Agency is making a valuable contribution to protecting public safety. Following the issue of a new ordinance under section 112(3) of the TKG, a technical directive will be drawn up with the participation of the associations concerned, telecoms companies and the authorised bodies, providing details of procedures.

Securing the efficient use of numbering resources

As technologies and the markets advance, changes in the structure and organisation of the German numbering space are constantly needed if the regulatory aims are to be achieved. Separate measures are to be placed in context in the form of an overall concept. This will secure quality regulation by taking account of the economic implications of numbering for the market and stakeholders' interests in respect of transparency, planning

certainty and meeting demand in the long term, heeding the requirements for efficient use of numbers. In drawing up this concept the Agency intends to involve network operators, service providers and consumer representatives. Work on it is due to begin in 2006.

ELECTRONIC SIGNATURE

Electronic signature is a key element of the government's entire BundOnline and eCard strategy. The Agency is pushing the development of the necessary infrastructure, particularly in view of its long term nature (eg archives) and ever more rigorous security requirements. It also has a role in the government's major projects, for instance the activities in the Economics Ministry's international strategy, and national and international projects. An important activity is preparing for the emerging mass market.

POST

Basic rates regulation issues

The Agency has set the criteria for the price cap for the period 2003 to 2007. Subject to the price cap are postal services that require a licence (= conveyance, on a profit-oriented basis, of letters up to 1,000g in weight); for this, the services are grouped into three baskets (basket M: monopoly services, basket W: services provided in competition, basket T: work-sharing services). Rates for services requiring a licence and not included in the baskets are approved on a case by case basis. Rates that do not need to be approved – eg those for parcel services – may be subject to ex post price controls if the provider is dominant.

In rates regulation, a number of issues will need clarification. For the most part, these stem from expiry of the price cap on 31 December 2007 and expiry at the same time of the statutory exclusive licence. For the price cap, the baskets must be redesigned and new criteria set. Further individual approval procedures are likely to be necessary. Also, a shift from ex ante approvals to ex post price controls can be expected. A prominent part is played in all these developments by efficient service provision costing. The Agency will address these issues early on in readiness for the new situation.

Assessing quality of service in a multi-provider environment

One of the Agency's tasks is to monitor compliance with quality criteria, including quality of service levels (section 11(2) of the Postal Act, or PostG). Currently, in light of the legal arrangements (DPAG's exclusive licence and universal service obligation), the letter market is characterised by the existence of one universal service provider (DPAG). In the parcels market, the relevant services are delivered by a number of providers, DPAG included, who is currently under a legal obligation to provide universal service. Once DPAG's exclusive licence has expired and the obligation lapsed on 31 December 2007, however, universal services are likely to be delivered by a number of providers. In view of this, the Agency will develop procedures with which to assess quality of service levels in a multi-provider environment.

Collecting market data in multi-stage downstream production processes

In the postal market – particularly the letter market – a growing number of multi-stage downstream production processes (eg cooperation schemes, consolidation) can be noticed. The Agency regularly makes studies of the development of competition in the postal services market (regulatory aim set out in section 2(2) para 2 of the Postal Act) and of the job situation. In doing so, it is increasingly encountering a typical problem, multiple data collection. At present, this statistical effect can neither be avoided nor its effect on the result estimated. Thus the Agency is looking to develop a procedure that avoids, or at least reduces, multiple data collection. The extent to which jobs created, say, by a subcontractor for a postal service provider can be statistically recorded will also be looked at.

Analysis of adjacent markets

In the letter market in particular, there is increasing demand for one stop shopping created by integrating upstream or downstream parts of the value added chain into the traditional conveyance service. One of the reasons for this is the repositioning of companies offering, more and more, services all along the value added chain; another is the trend towards full outsourcing. Thus there is a risk of market power being leveraged to the upstream and downstream markets. It is therefore necessary to analyse the markets for upstream services (eg mail preparation) and for downstream services (eg address management) as well as the postal services markets themselves.

Ruling Chamber cases

The following important rates regulation cases are expected:

- access to change of address information for competitors as per section 29(2) of the Postal Act. This involves the efficiency of the black box method being checked and the corresponding rates being approved,
- review of the conditions for access to P. O. box facilities for competitors as per section 29(1) of the Postal Act and approval of the corresponding rates,
- approving rates for service of documents, in particular approving new rates for DPAG. At the same time, there will be an ongoing examination of the compatibility with the Postal Act of constantly changing new service delivery rates models,
- review of compliance with the changed requirements arising from price cap regulation and carrying out approval procedures for the fifth price cap period for 2007,
- approving rates for DPAG's subsidiaries operating under their own licence in the market for licensed postal activities.

With regard to abuse cases, current developments indicate that the Chamber will need to address the details of access conditions and corporate and rates structures in respect of access to worksharing services.

ENERGY REGULATION

Promoting the development of the EU internal market through the introduction of a new regulatory framework

The Second Energy Statutes Reorganisation Act took effect on 13 July 2005. Section 1(3) of the Energy Act states as a further legislative purpose the transposition and implementation of European Community law in the area of the line-bound supply of energy. Putting these new legal requirements into practice represents a new duty for the Agency, which it will continue to perform with vigour.

EC Regulation on cross-border exchanges in electricity

Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity has been directly applicable in the EU since 1 July 2004. It empowers the European Commission to issue guidelines on the main issues, ie on the principles for harmonising the tariff systems, for congestion management at cross-border interconnectors and for a compensation mechanism for cross-border supplies. ERGEG (European Regulators Group for Electricity and Gas), with input from the Agency, has already prepared draft guidelines for congestion management and harmonisation of the tariff systems. The guidelines are expected to take effect in early 2006. The Agency will follow through and monitor their implementation.

The guidelines on a compensation mechanism will be drawn up by ERGEG in 2006. The Agency will have a part to play and will discharge the resulting functions.

The European Commission set up seven regional Mini Fora on various aspects of congestion

management in late 2004/ early 2005 with a view to coordinating congestion management within the respective regions. The Agency represents Germany in four of the seven Mini Fora groups. At least one more round of the Mini Fora is to take place in 2006, as there are still concrete tasks pending. The establishment of cross-border intraday trading markets and the harmonisation of the balancing markets will also be discussed at these meetings. As these issues are important steps in the creation of a European internal market in electricity and designed to intensify trading, the Agency is called upon here too to represent Germany's interests in the European debate. Coordination of the national interests takes place within the congestion management study group set up at the Agency, whose members include, besides the Federal Economics Ministry, the four TSOs, EEX, the German energy exchange, and the industry associations EFET, VIK, VDEW and VDN. In 2006 the study group will continue its work on the congestion management methods developed so far, taking into account developments in the other Member States and the requirements set by the European Commission. Thus the EEX AG has drawn up a concept on Open Market Coupling, to be concretised and taken forward by the study group. To this end, the Agency has invited tenders for two reports. These will address the legal issues for setting up the auction office assumed by the model, the economic assessment of different congestion management methods and economic aspects of establishing an auction office under the open market coupling model. The EEX AG, for its part, is commissioning a report on the technical feasibility of the concept. One of the Agency's main tasks in 2006 will therefore be to push the development of the concept within the study group, in accordance with the findings of the reports, and to encourage its takeup in the neighbouring European states.

Cooperation in international bodies

The Agency is a member of both ERGEG and CEER (Council of European Energy Regulators) and is highly involved in the activities of both. Thus in 2005, it assumed the chair of the Efficiency Benchmarking working group. It also provides input for nearly all CEER's and ERGEG's other working groups. For Germany as a major energy market at the heart of Europe, the creation of an internal market in gas and electricity means that diverse action is needed. Thus the Agency's work in these two organisations is of great importance.

The Agency is also active in the Madrid Forum and the Florence Forum. Twice a year, national regulatory authorities, the Commission, government representatives and industry and consumer representatives meet to discuss the problems arising in implementing the internal market, to exchange experiences and to draw up standards.

Ensuring effective and genuine competition

Under section 1(2) of the Energy Act, regulation of the electricity and gas supply systems serves the goals of ensuring effective and genuine competition in the supply of electricity and gas and ensuring efficient and reliable operation of energy supply systems for the long term. The aim is to give all energy suppliers non-discriminatory access to the network. Unbundling, efficiency-oriented cost controls and clear access arrangements constitute the first set of tools provided by the legislation with which to achieve this.

Basic energy regulation issues

Clarification of a number of basic issues will be needed, mainly as a result of implementing the new Energy Act. These activities will include looking at the economic and business management implications of regulatory systems, advising on the energy industry aspects of current legislative procedures, coordinating the subjects of research and advisory reports and generally coordinating positions on a whole range of energy regulation issues.

Unbundling
The Energy Act, in sections 6 ff, seeks to secure non-discriminatory access to the networks through a variety of unbundling provisions. Accordingly, there must be legal unbundling, operational unbundling, unbundling in terms of use of information and accounts and internal bookkeeping between network operators and vertically integrated undertakings' sales and generation activities. The Agency plans to provide interpretation principles to give companies legal certainty and the market planning certainty.

Rates regulation
Rates regulation will make a vital contribution to securing competition. System charges make up roughly a third of the retail price. The Agency's aim is to encourage efficient service provision among the operators through regulating the charges and thus to lower them. Part and parcel of this is developments in upstream and downstream activities such as generation, wholesale business and sales.

In early 2006, approval of the system charges will feature prominently in the Agency's work. The Agency will review all the charges of companies falling under its national remit. Grid operators are required to submit their first application for approval of their charges no later than three months after enactment of the Electricity Network Charges Ordinance. Gas network operators must do the same no later than six months after enactment of the Gas Network Charges Ordinance. Even before expiry of these time limits, any increase in charges is subject to approval. Six months after receipt of the application in full marks expiry of the period for approval. Charges approved are maximum prices; this means that reductions are possible without further approval. In these cases, however, the Agency will examine whether the reductions are sufficiently large. In addition, section 3(2) of the Gas Network Charges Ordinance provides an intermediate step for supraregional TSOs, under which, upon application, the Agency must establish whether the TSO can be exempted from cost-oriented charging on account of the existence of competition. This is an important examination the Agency must make.

Here, the federal states can opt to delegate their regulatory powers to the Agency. When they do, the Agency takes a decision in its own name but acts as a "body" of the federal state concerned. The details of such delegation of powers are set out in an administrative agreement between the federal government and the respective state, whereby another 300 networks could be dealt with by the Agency.

The Agency will carry out a benchmarking exercise in 2006 for the first time to make sure that access charges are oriented by the costs of operations management within the meaning of section 21(2) of the Energy Act. The comparison will be based on system charges, revenues or costs. Cost-oriented charging will then accommodate the results. Operations management will not be considered efficient when an operator's charges, revenues or costs are higher than the average figures identified in the benchmarking exercise.

Access to the gas and electricity supply networks
The aim of section 20(1b) of the Energy Act is the creation of a single, non-ownership-related market area across the country. The provision states that before gas supply systems can be accessed, a contract on feed-in capacity is required with the operator into whose network gas is to be fed. In addition a contract on output has to be signed with the operator from whose network the output of gas is to take place. All operators of gas supply systems are required to cooperate with one another to the extent necessary for transport customers to need to sign only one feed-in and one output contract for handling transport through a number of interconnected networks, unless this cooperation is not technically possible or is economically unreasonable.

The Gas Network Access Ordinance took effect on 29 July 2005. Its main focus is a flexible entry-exit model. Gas supply network operators must therefore offer feed-in and output capacity that can be used and traded separately, without transport customers having to restrict themselves to a particular, transaction-dependent transport path.

So far, central questions of the implementation of section 20(1b) of the Energy Act and the Gas Network Access Ordinance have not been finally settled. One of these is cooperation between the system operators, required under section 20(1b) of the Act, and whether the time limit set out in section 118(1a) of the Act (1 February 2006) should also apply to parts of the Ordinance. The Agency will hold a consultation with the stakeholders to make final implementation as broad based as possible. The consultation will, it is hoped, deliver a consensual solution to all the main points of drawing up the contracts and the cooperation obligations with regard to 1 February 2006 and will introduce implementation stages until that time. Regulatory precautions must be taken for the event of failure.

A special set of problems is categorising the networks in line with the Energy Act and the gas ordinances into transmission system and distribution system groups. There could be a third group in the form of a supraregional transmission level, with up to six companies, depending on the criteria used. Discussions on this within the Agency and with the operators, in particular, have only just begun. Drawing up criteria that clearly distinguish between transmission and distribution systems is fundamentally important, not just in view of information requirements but also in view of the resulting access models and use of system charges.

Attention should also be drawn, in connection with the implementation of a new gas network access model for the German market, to the problem of switching supplier. This is explicitly codified in section 20(1b) sentence 9 of the Energy Act. Competition in the gas market will only unfold effectively, efficiently and transparently if switching supplier can be done in an uncomplicated and non-discriminatory manner. Here, the lawmakers are following the "backpack" principle, under which a new supplier, under certain conditions, can claim the feed-in and output capacity reserved with the old supplier. Implementation of this principle at distribution upstream levels must be examined and taken further.

The Energy Act and related ordinances largely take over the access procedures introduced by the Associations' Agreement II plus. New areas have to do with inviting tenders for control energy, energy dissipation, and metering and measuring liberalisation. For the first time, TSOs are obliged to invite tenders, not restricted to control areas, for the different types of control energy on a common Internet platform. The Agency has extensive powers to make determinations, to enable it to secure the necessary degree of efficiency and transparency in the control energy market in particular. Developing the necessary measures will be high on the Agency's agenda. Also planned is to bring consistency to the access contracts – supplier framework contracts, use of system contracts and balance group contracts. Here, the Agency will initially make determinations on the most pressing issues and then consider whether it is necessary to introduce standard contracts. It will be necessary at any rate to introduce standards for the business processes between traders and operators as regards supplying customers with electricity, and the data formats to be used. The Agency will support the market's ongoing attempts at agreement and push ahead with giving legal form to the results, which all the market players want. Also central are the tasks falling to the operators as regards responsibility for their systems and securing transparency for the players. Compliance with these requirements will be monitored by the Agency.

Devising a form of incentive regulation for the German market

The Agency is mandated to develop a form of incentive regulation that meets the specific requirements of the German energy market. To this end, the Agency will present a report to the federal government by 1 July 2006, in accordance with section 112 a of the Energy Act. An ordinance will settle the details of its concrete implementation. This will be drawn up by the federal government, with the Economics Ministry responsible for coordination, and issued by the federal government with the consent of the German Bundesrat.

The Agency will draft the report with the participation of the federal states, academia and the economic circles affected, and will also take account of international experience of incentive regulation systems.

A consultation process was launched to secure the participation of business and the federal states in devising incentive regulation. One consultation group was set up comprising representatives from six federal states (North-Rhine Westphalia, Bavaria, Hesse, Baden-Württemberg, Thuringia and Saxony-Anhalt). Another was established to which 15 energy associations were invited. These two bodies will also meet monthly in 2006.

The participation of academia is secured basically through the award by the Agency of advisory reports and projects. The Agency has invited tenders on four issues: study of the practice and details of the international application of incentive regulation methods; analysis of the cost drivers in the electricity and gas markets for the identification of suitable benchmarking parameters from the technical and economic viewpoints; analytical cost models in the energy industry, and consideration and assessment of network reliability and quality of supply in incentive regulation. Two advisory projects were also commissioned, one for the development of methodological approaches on the plausibility of the data received by the Agency, and the other on supporting the Agency in the development and execution of calculations and sensitivity analyses for the efficient benchmarking of German operators. A detailed study of international practice and the extent to which it can be incorporated in the German system will feed into the concept.

Market watch

Besides its regulatory tasks, the Agency constantly monitors important aspects of market activity as set out in section 35 of the Energy Act. This also includes the implications for the final customer. To obtain the necessary information, the Agency has the right of request under section 69 of the Energy Act. The monitoring results provide the basis for an annual report (section 63(4) Energy Act), which the Agency will publish in 2006 for the first time.

Consistent regulation: cooperation with the federal states

Under the Energy Act, regulatory responsibility is split between federal and federal state level. Active at federal level is the Agency, and at federal state level, a regulatory authority in each of the states. The form cooperation between the Agency and the federal states should take will therefore feature prominently in 2006 in the interest of consistency. A committee of federal state representatives has already been set up.

Safeguarding user and consumer interests

Advising consumers will be an important activity in 2006. A growing number of complaints and queries from consumers shows that the Agency is called upon in the energy sector, too, and wishes to take special note of the consumer as a market player through its consumer advice service.

The Agency will be involved in the following concrete projects:

- seeing through the ordinances set for 2006 on the general duty of connection (section 18 Energy Act) and the general

prices and conditions of supply (section 39 Energy Act) from the consumer's point of view,
- widening the range of information provided on the Agency's website on topics of relevance to the consumer,
- liaising with the consumer advice centres on current issues and the limits of the Agency's remit with regard to network-related questions.

RAILWAY

On 1 January 2006 the Agency also assumed responsibility for monitoring compliance with the legislation on access to rail infrastructure. This is done on the basis of the Third and Fourth Railway Legislation Amendment Acts, which became effective on 30 April and 11 August 2005. In this, the Agency is subject to the administrative supervision of the Federal Ministry of Transport, Building and Urban Development (BMVBS). Until 31 December 2005 the rail regulatory functions now transferred to the Agency were performed by the Federal Railway Authority (EBA).

These functions are currently performed by the "Network Access" section set up with the Federal Railway Authority. From 1 January 2006, the 12 members of staff will initially continue their work as the Rail Regulation startup team. In all, the Agency will take over 21 established posts which – as far as has not already happened – will be filled straightaway. Subject to the provision of further posts in the budget legislation, the startup team will then become part of the Agency's new Department 7 "Rail Regulation" in the course of 2006.

The rail regulator's powers were widened considerably during the legislative passage. Regulatory activity was extended to cover all the infrastructure companies, and competitors were given greater rights of access to all the service facilities. Preventative regulation is now also in place besides "repressive" regulation, under tight time limits. This "multidimensional" extension of tasks applies to access, the level and structure of infrastructure and other charges included, so that questions of price regulation have become prominent.

Since 2005, a special group at the Agency has been dealing with the extensive organisational, staffing and thematic activities involved in preparing to meet this new challenge. The Agency will draw on its experience of regulating the telecoms and postal markets on the one hand and regulating the energy sector on the other in order to achieve lean and practicable regulatory practices.

List of abbreviations

A

ADSL
Asymmetric Digital Subscriber Line

AEG
General Railway Act

AGB
General terms and conditions

B

BAFA
Federal Office of Economics and Export Control

BAM
Federal Institute for Materials Research and Testing

BAnerkV
Functions Assignment and Recognition Ordinance

BAPT
Federal Post and Telecommunications Office

BEMFV
Ordinance concerning the Controls for the Limitation of Electromagnetic Fields

BKartA
Federal Cartel Office

BLM
Bavarian Regulatory Authority for Commercial Broadcasting

BMPT
Federal Post and Telecommunications Ministry

BMWi
Federal Economics and Technology Ministry

BVerwG
Federal Administrative Court

BWA
Broadband Wireless Access

BOS
Emergency organisations

BZA
Outbound mail sorting centre

BZE
Inbound mail sorting centre

C

CAB
Conformity Assessment Body

CEN
European Committee for Standardization

CEER
Council of European Energy Regulators

CEPT
European Conference of Postal and Telecommunications Administrations

CERP
European Committee for Postal Regulation

COCOM
Communications Committee

CPG
Conference Preparatory Group

CRE
Independent administrative body in charge of regulating the French electricity and gas markets

D

DAB
Digital Audio Broadcasting

DG COMP
Directorate-General for Competition

DG TREN
Directorate-General for Energy and Transport

DMB
Digital Multimedia Broadcasting

DMR
Digital Mobile Radio

DPAG
Deutsche Post AG

DRM
Digital Radio Mondiale

DSL
Digital Subscriber Line

DTAG
Deutsche Telekom AG

DVB-H
Digital Video Broadcasting-Handheld

DVB-T
Digital Video Broadcasting-Terrestrial

E

e
estimated

EBA
Federal Railway Authority

EBC
Element-based charging

ECC
Electronic Communications Committee

EEX
European Energy Exchange

EFET
European Federation of Energy Traders

EFIS
ERO Frequency Information System

EIBV
Rail Infrastructure Usage Regulations

EMC
Electromagnetic compatibility

EMVG
Electromagnetic Compatibility Act

EMVU
EMC and the environment

EnWG
Energy Act

ERG
European Regulators Group

ERGEG
European Regulators Group for Electricity and Gas

ETSI
European Telecommunications Standards Institute

EuGH
European Court of Justice

F

FCC
Federal Communications Commission

FM
Frequency Management

FreqBZPV
Frequency Band Allocation Ordinance

FTEG
Radio Equipment and Telecommunications Terminal Equipment Act

FTTH
Fibre to the home

G

GasNEV
Gas Network Charges Ordinance

GasNZV
Gas Network Access Ordinance

GIS
Geographic Information System

GSDZ
Digital access office

GSM
Global System for Mobile Communications

GWB
Competition Act

H

HDTV
High definition TV

HSDPA
High-Speed Downlink Packet Access

I

ICAO
International Civil Aviation Organisation

ICT
Information and communication technology

IEB TF
Information Exchange und Benchmarking Task Force

IPTV
Internet Protocol Television

IRG
Independent Regulators Group

ISO/IEC
International Organization for Standardization

ISP
Internet service provider

ITE
Information technology equipment

ITU
International Telecommunication Union

ITU-R
ITU Radiocommunication Sector

M

MPEG
Motion Pictures Experts Group

MRA
Mutual Recognition Agreement

MWDG
Premium Rate Services Act

N

NGN
Next Generation Network

NotrufV
Emergency Services Access Ordinance

NSPC
National Signalling Point Code

NTR
National number

O

OVG
Higher administrative court

P

PAL
Phase Alternate Line

PDLV
Postal Services Ordinance

PMD
Radio monitoring and inspection service

PMR
Professional mobile radio

PostG
Postal Act

PUDLV
Postal Universal Service Ordinance

PZA
Formal delivery order

R

RegTP
Regulatory Authority for Telecommunications and Post

RNB
Number block

RSPG
Radio Spectrum Policy Group

R&TTE
Radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

S

SDR
Software Defined Radio

SE
Spectrum Engineering

SRD
Short Range Device

SRR
Short Range Radar

SSBn
Interface specifications

StromNEV
Electricity Network Charges Ordinance

StromNZV
Electricity Network Access Ordinance

T

TCAM
Telecommunication Conformity Assessment and Market Surveillance Committee

TCB
Telecommunication Certification Body

T-DAB
Terrestrial Digital Audio Broadcasting

TDSV
Telecommunications Data Protection Ordinance

TFTS
Terrestrial Flight Telecommunications System

TKE
Telecommunications equipment

TKEE
Telecommunications terminal equipment

TKG
Telecommunications Act

TKV
Telecommunications Customer Protection Ordinance

TR
Technical directive

TSO
Transmission system operator

U

UMTS
Universal Mobile Telecommunications System

UWB
Ultra-wide band

UWG
Unfair Competition Act

V

VDEW
Electricity industry association

VDN
Association of German network operators

VDSL
Very High Bitrate DSL

VEA
Federal Association of Energy Users

VIK
Electricity industry association

VG
Administrative court

VO Funk
Radio Regulations

VoIP
Voice over Internet Protocol

W

WAPECS
Wireless Access Policy for Electronic Communication Systems

WAR
Specialist Group for Regulatory Issues

WIK
Wissenschaftliches Institut für Kommunikationsdienste (consultancy)

WIMAX
Worldwide Interoperability for Microwave Access

WLAN
Wireless Local Area Network

WMV
Windows Media Video

WPV
Universal Postal Union

Z

ZPO
Code of Civil Procedure

ZPOEG
Code of Civil Procedure Introduction Act

Contact points

Practical information and help for those seeking advice

Please use the contact points below for queries on the following:

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