Monitoring Report 2010

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Federal Network Agency
for Electricity, Gas, Telecommunications,
Post and Railway (Bundesnetzagentur)
Monitoring
Tulpenfeld 4
53113 Bonn
Tel.: +49 228 14-5920
Fax.: +49 228 14-5973
harald.doerr@bnetza.de

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President's message

The Monitoring Report 2010 contains much that is encouraging. Particularly important for Germany as an industrial location is the fact that its energy networks are reliable. There has been a further fall in power outages, year-on-year. In the gas networks, interruptions to supply are virtually non-existent.

This fact is remarkable in light of the fundamental changes in energy supply since 2009, the period of review for this report, both in electricity and gas.

Wind turbines and photovoltaic facilities are playing a rapidly growing part in electricity generation. Many of these facilities are set up far from where consumption takes place, however. Thus the electricity has to be transported over longer and longer distances to reach the consumer. Companies have done much to make this possible, supported by the Bundesnetzagentur, which gives them the authorisation they need and recognises the costs they have incurred. Electricity networks need to be funded on a solid basis but, in the consumers' interest, we must resist ever new calls for ever higher returns.

The real problems, however, lie not in the willingness to invest. Most people are definitely in favour of sustainable generation – when asked in general terms. But when it comes to a mast being set up near their home, their agreement is often retracted. The desire for an open landscape on their doorstep often outweighs theoretical support for global protection of the environment. Much needs to be done here to persuade people otherwise. The Bundesnetzagentur is aware of its responsibility in helping to win acceptance. Cross-sectoral approaches might be one way of doing so. If a high voltage mast can bring high speed Internet to the countryside, resistance may turn into its opposite.

There has been much fundamental change in the gas sector, too, as competition begins to unfold. Market areas are undergoing a process of merger, there has been a revolution in the balancing arrangements, and switching processes have been standardised. Countless actors have taken the step of entering the market. And an international glut has proved a positive contribution to the opening of the markets. While many established shippers are coming under pressure, consumers are happy that they can now, at last, change their gas supplier – even though far too few are doing so. Of course, competition takes place mainly in the wholesale markets and focuses on the industrial customers, but domestic customers, too, can exert pressure through their actions. Not taking action costs them a lot of money, given that savings of as much as 300 euros a year are currently possible.

We can see customer inertia in the electricity market, too. Too little use, by far, is made of the opportunity of switching supplier. Perhaps many still believe that the electricity price is set – as it used to be – by state-run offices.

The coming years will see further development of the energy landscape. Happily, change is almost routine for the Bundesnetzagentur, nothing to get worked up about: change as manifested in opening the markets to competition, integrating wholly new technologies, nationwide network build and rollout, for example. All these are changes that we are familiar with from the telecommunications sector. And if the energy grids soon become "smart", then perhaps the two will converge. We look forward to this!

Matthias Kurth
President of the Federal Network Agency
for Electricity, Gas, Telecommunications,
Post and Railway (Bundesnetzagentur)

Part I Important market developments

The structure of this Monitoring Report – now in its fifth edition – from the Bundesnetzagentur has been modified. Part I presents the key issues in the eyes of the Bundesnetzagentur regarding the German electricity and gas markets,and identifies the report's core statements. Part II provides additional detailed information on the important topics from part I of the Report. In addition, further topics from the individual areas in the electricity and gas value chains will be presented with detailed information and explanatory text.

Important developments in the electricity market

Summary

In 2009, the electricity generation sector was dominated by a significant increase in capacities on the basis of renewables, comprising around 80 percent of the total gain in generation capacities. The increase in energy from renewable sources was based in particular on the strong growth of solar power systems, along with the increased wind energy capacities. As a result of the rapid rise in such systems, in 2009 solar power operators were remunerated in total with an amount comparable with that for wind energy, although energy feed-in from wind power systems was almost six times that of solar power feed-in. This sharp increase in solar generation capacities is also expected to continue in future. This had consequences for the EEG surcharges in 2010 and 2011.

The integration of renewable energies – for which there is a legal obligation to connect and purchase – leads to fluctuating generation that is increasingly load-independent, along with an increasing tendency towards mid-range transportation distances, as many generation installations are located in rural regions low on consumption. This already creates particular challenges for the network operators. These will continue to grow as a result of expansion plans for both onshore and offshore wind farms and photovoltaic systems.

The generation capacities receiving payment in accordance with the Renewable Energy Sources Act (EEG) are currently for the most part connected on a distribution system level in a decentralised manner. In 2009 a marked increase could be observed in the number of distribution system operators undertaking network optimisation, reinforcement and expansion measures in order to take up the higher energy volumes from renewable sources. Large wind farms, especially those offshore, are always connected to the transmission systems, which as a result must also invest in reinforcing the network.

As in previous years, the electricity networks were a highly reliable provider for network users and final consumers. Although the integration of generation from renewable sources poses new technical challenges to the system operators, down-time on the network has fallen again. The network infrastructure in the electricity sector remains stable and secure. If energy generated from renewable sources cannot be taken up by the system operator as no conventional power station can be adjusted to compensate, the operator has the option of adjusting EEG installations to a lower level. So far, this has only been necessary to a small degree in the course of feed-in management.

In order to maintain the current high level of supply security, the main challenges in the network sector can however only be surmounted through increased investment activity across all network levels. The Power Grid Expansion Act (EnLAG) aims to make the necessary

expansion measures considerably easier, with the Act directly citing 24 projects which are to be given priority. Nevertheless, clear delays to the commissioning of many of the 24 EnLAG projects can be observed, with the intended commissioning date being exceeded by several years in some cases. The respective status of the EnLAG procedures is summarised in the first part of the Report, while the second documents them individually according to the information of the network operators.

The transmission system operators' network expansion planning reports currently indicate a total of 37 delays out of 139 expansion projects. The investment data supplied by the transmission system operators provide details in this context of the new build and expansion projects in their sector that have fallen significantly behind schedule.

Delays can also be seen in investments in larger generation capacities, in addition to network expansion. Within one year, 25 larger investment projects saw their planned start date for commercial electricity feed-in postponed.

The overall amount of electricity generated fell in 2009, while the amount of energy generated from renewables increased. Electricity trade in 2009 was also marked by a decrease in international cross-border volumes, as well as in the volumes traded on the EEX and EPEX Spot energy exchanges. As a result, 2009 represents a similar price level to 2007 following the peak in 2008. A clear increase in trade volumes on the exchanges could be observed in the first half of 2010, along with a moderate rise in price levels.

Since 1 January 2010, sales of electricity for which tariffs are payable under the EEG take place on the exchange. These direct sales of EEG electricity are expected to produce market signals which are to link generation (supply) and consumption (demand) more closely. In this context, a marked increase in spot market volumes can already be observed on the EPEX Spot for the market area Germany/Austria, underscoring the growing significance of exchange trading in the integration of renewable energy sources.

The volumes traded on broker platforms, which have increased for the first time, give an impression of the significance of over-the-counter (OTC) electricity trading for Germany on such platforms which exceeds trading volumes on the exchange almost by a factor of twelve, not taking into account OTC transactions cleared on the EEX. The high OTC volumes on the broker platforms emphasise the necessity of extending efforts to increase transparency in energy trading to include all OTC trade, in addition to trading on the exchange. Improved transparency and greater liquidity of the exchange have immediate significance for consumers, as deficits are reflected in risk premiums, leading to an obvious forecast error in the long-term prices in comparison to the spot market prices, which in turn results in unnecessary costs for sales of renewable energy.

In addition to generation and trading, electricity sales in Germany fell by approx. seven percent in 2009 compared to 2008. This can be traced to the decrease of around 14 percent in sales to industrial customers. In contrast, electricity sales to domestic and business customers remained stable in 2009.

Like industrial and business customers, domestic customers similarly saw electricity prices rise between 2009 and 2010. Despite the fall in wholesale prices from the latter half of 2008, the average electricity prices for domestic customers rose by around three percent. The reason behind this is, on the one hand, the long-term procurement strategies predominantly practiced by energy utilities, and the as yet insufficient competitive pressure. On the other hand, the surcharge payable under the EEG increased markedly in 2010 (mainly as a result of the fall in wholesale prices). In addition, the EEG surcharge was also increased by the fact that the cost of integrating renewable energies has been transferred from the network tariffs to the EEG surcharge. This transfer in turn is a reason for the 2010 network tariffs being at the same level as in the previous year.

In 2010, consumers can in some cases achieve significant savings by switching supply contract or supplier. Universal supply continues to be the most expensive form of electricity supply; it is more price-effective for consumers to make use of their possibility to change and select another tariff from their default supplier or a tariff from another electricity supplier. However, around 45 percent of domestic customers have not yet taken advantage of this option. The reasons for this are not to be found in a lack of market conditions facilitating effective and genuine competition. Today, every supplier has non-discriminatory access to German final customers, meaning that domestic customers already have the choice of 124 suppliers on average in each network area.

However, it can also be observed that in the domestic customer sector, established energy utilities operate a strategy of customer retention rather than customer acquisition. Likewise, many consumers decide for themselves to remain with their original supplier instead of switching. It is increasingly difficult for new competitors to gain new customers who are not already considered to be in the consumer group that is open to changing. This led to the number of supplier changes in 2009 stagnating in comparison to the previous year. If domestic customers do decide to switch supplier, in the main a certain handful of utility companies can profit from this. Almost half of all customers who switch are acquired by one of Germany's four largest suppliers[1]. In national terms, this means that the dominating market conditions prevail, and on a regional level too, despite the rising number of suppliers, local dominance by the respective default supplier remains intact.

As domestic customers often remain with their existing default supplier, despite average potential savings of around €160 per annum, the potential for lower prices remains unexploited in many areas. It would be desirable from a competitive perspective if domestic customers, in particular, more often made use of the savings potential offered by a change of a supplier. In light of this, the Bundesnetzagentur – along with the Bundeskartellamt (Federal Cartel Office) – would once again encourage all domestic consumers to find out about switching supplier so as to benefit from the opportunities competition brings.

Generation

Connection of electricity generators to transmission and distribution system operators, according to energy source[2]

A picture of the total installed generation capacity in Germany is provided through the data on all generation installations connected to TSOs and DSOs by energy source[3] (excluding installations eligible for payment in accordance with the EEG) gathered in the 2010 monitoring survey, as well as through the EEG data collection.

Of the total capacities of 152.7 GW as of 31 December 2009, 52 percent (79.6 GW) are connected to the transmission systems and 48 percent (73.1 GW) to the distribution systems. While the largest share of capacities based on non-renewable sources of energy are connected to the transmission systems (with the exception of natural gas), connection of renewable energy capacities is on a distribution system level in the main.

[1] Calculated using the dominance method (see glossary).

[2] Further information can be found in part two of this Report under the heading "*Erzeugung; Anschluss Elektrizitätserzeuger bei Übertragungs- und Verteilernetzbetreibern nach Energieträgern (Elektrizität*)" (available in German only).

[3] Generation installations physically connected directly or indirectly (eg via an area or industrial network) to transmission and distribution systems (all network and substation levels). For details on market coverage, see part two under the heading *Einzelhandel; Marktdaten (Elektrizität)* (available in German only).

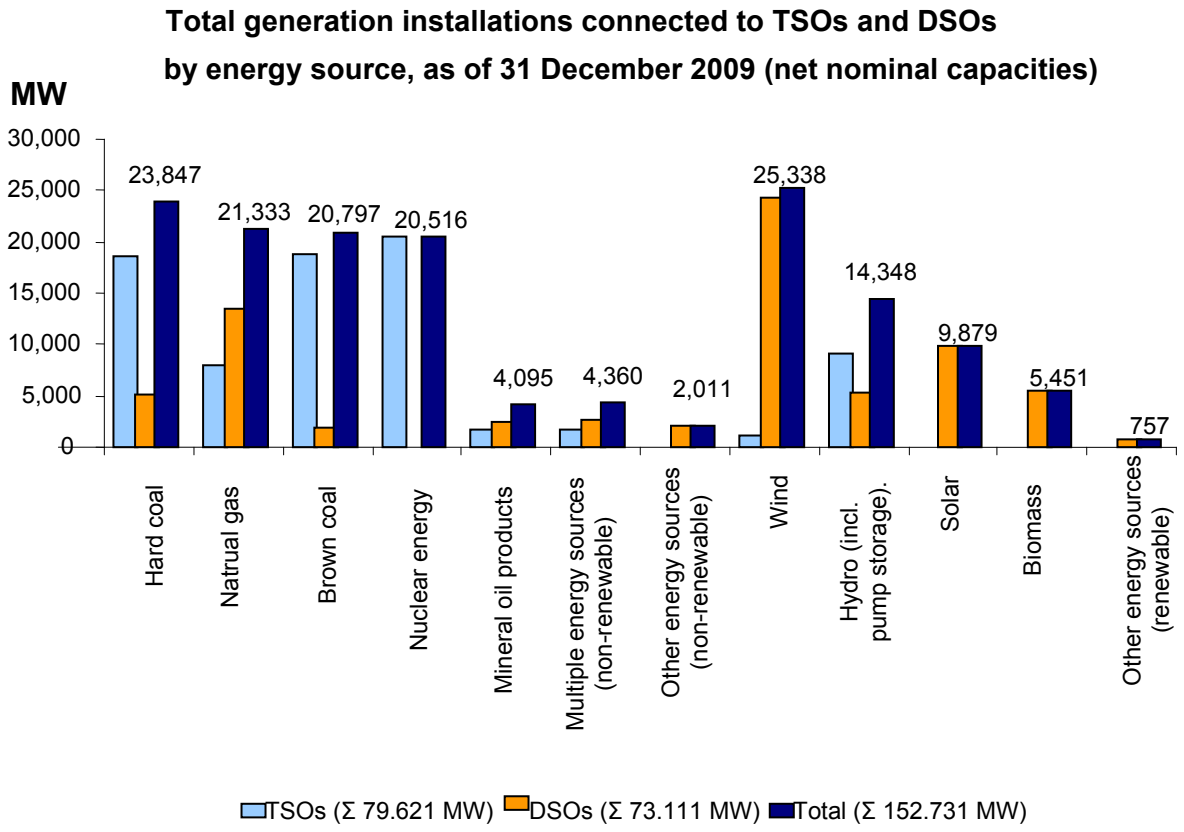


Fig 1: Total generation installations connected to TSOs and DSOs by energy source as of 31 December 2009 (net nominal capacities[4])

Of the overall capacities as of 31 December 2009 (152.7 GW), 41.2 GW originates from installations receiving payment in accordance with the EEG, along with a further 18.8 GW from generation installations as defined in section 2 of the Combined Heat and Power Act. In 2009 the annual peak load occurred on 2 December at 6 pm and measured 73.0 gigawatts (GW).[5]

Of the generation capacities newly connected in 2009 (a total of 9.6 GW), 7.6 GW (79 percent) were connected to the distribution systems and 2.0 GW (21 percent) to the transmission systems. The majority of newly connected capacities in 2009 were based on the renewable sources of solar (+ 3.9 GW) and wind power (+2.7 GW), along with capacities of 1.9 GW with natural gas as a source. 2009 also saw renewable energies predominantly connected to the distribution systems.

Only a very small number of rejected requests to connect (excluding installations eligible for payment in accordance with the EEG) were reported by the network operators for 2009 (2.2 MW natural gas for DSOs).

[4] Net capacity is the power supplied from a generating unit to the supply system (transmission and distribution networks, consumers); nominal capacity is the permanent capacity of a generation, transmission and consumption facility, as commissioned in the supply contract (see glossary).
[5] Source: Rating of public electricity supply in Germany at the time of the annual peak load according to BDEW.

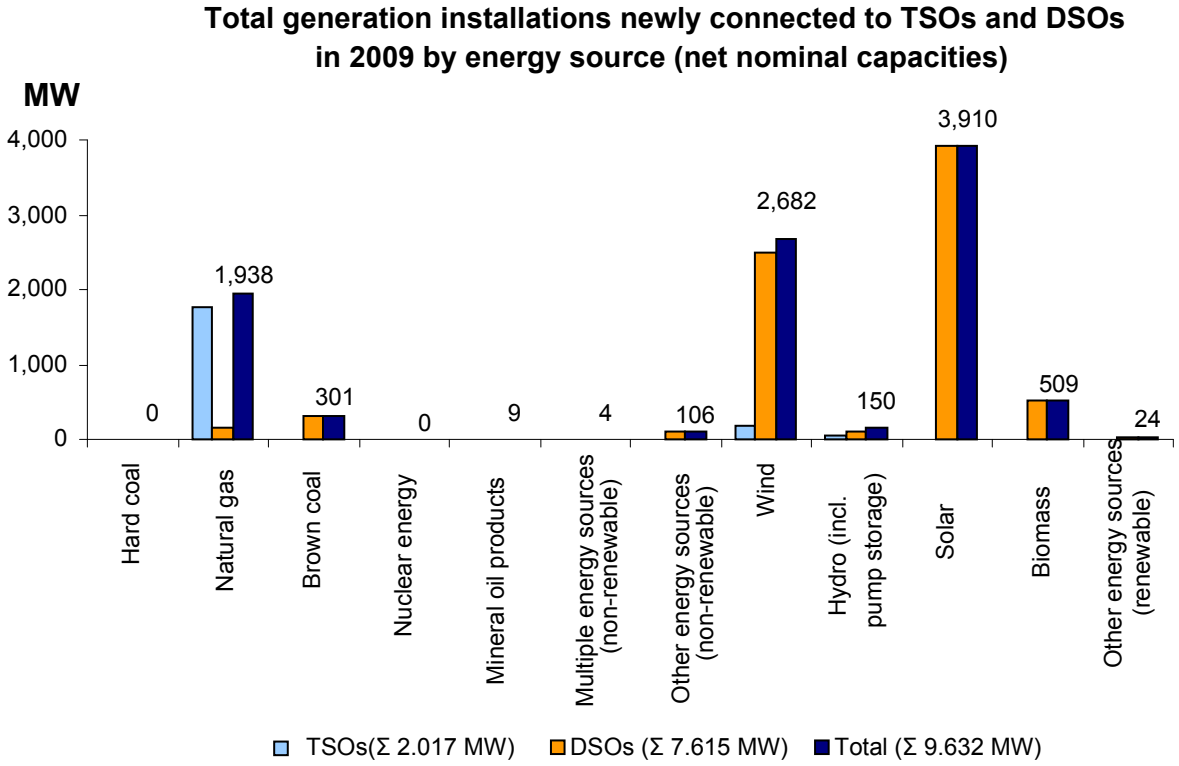


Fig 2: Total generation installations newly connected to TSOs and DSOs in 2009 by energy source (net nominal capacities)

The connection of new generation capacities of 9.6 GW in 2009 was accompanied by the decommissioning of 1.1 GW, occurring only on the distribution system level. This results in an increase in the total installed capacity of 8.6 GW from 144.2 GW (31 December 2008) to 152.7 GW (31 December 2009).

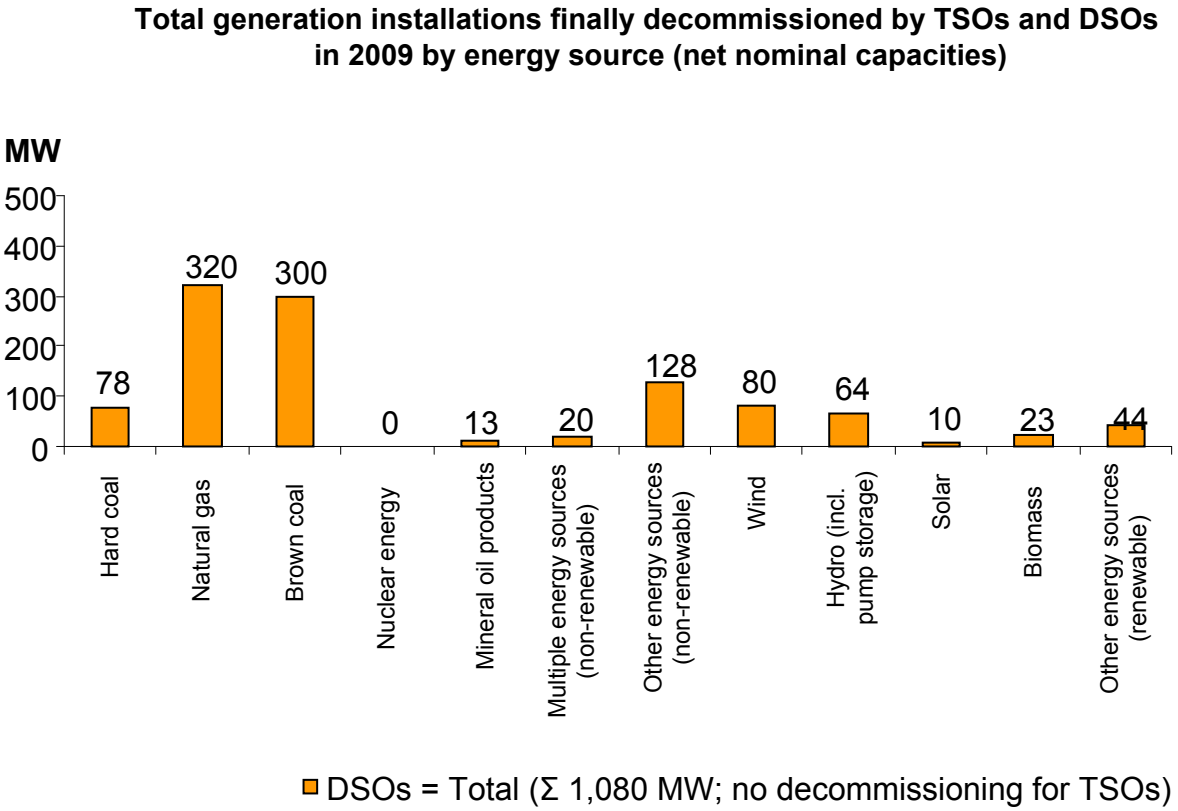


Fig 3: Total generation installations finally decommissioned by TSOs and DSOs in 2009 by energy source (net nominal capacities)

The share of installations with a net nominal capacity of at least 100 MW in the capacity installed on 31 December 2008 (144.2 GW in total) amounts to 92.4 GW (64 percent). 97 percent of the total capacities connected to the transmission networks (77.6 GW) and 25 percent of those connected to the distribution networks (66.6 GW) have a net nominal capacity of at least 100 MW. By contrast, in 2009 newly connected capacities were predominantly under 100 MW, with those of at least 100 MW or over accounting for 19 percent of new connections.

Development of electricity generation receiving payment in accordance with the EEG[6]

As part of its monitoring role under the Renewable Energy Sources Act (EEG), the Bundesnetzagentur annually collects data from distribution system operators (DSOs), transmission system operators (TSOs) and electricity suppliers. In 2010, approx. 880 DSOs, the four TSOs and around 1,060 electricity suppliers were requested to send their EEG data for the 2009 accounting year to the Bundesnetzagentur. This year's Monitoring Report also sees the integration of provisional EEG accounting data for the immediately preceding accounting year, allowing figures for 2008 and 2009 to be presented here.

As of 31 December 2009, the total installed capacity of installations in Germany receiving payment in accordance with the EEG was approx. 41.2 GW (31 December 2008 approx. 34.2 GW).
The installed capacity of all installations receiving payment in accordance with the EEG therefore increased by approx. seven GW in 2009. This signifies relative growth of around 21 percent in one year.

[6] Further data can be found in part 2 of this Report under the heading "*Erzeugung; Entwicklung nach EEG vergüteter Erzeugung (Elektrizität)*" (available in German only).

As of 31 December 2009, the EEG installations' share in the total capacity of all generation installations connected to TSOs and DSOs (152.7 GW) was 27 percent, or 41.2 GW. As of 31 December 2008, the EEG share was 23.7 percent, or 34.2 GW of the total 144.2 GW.

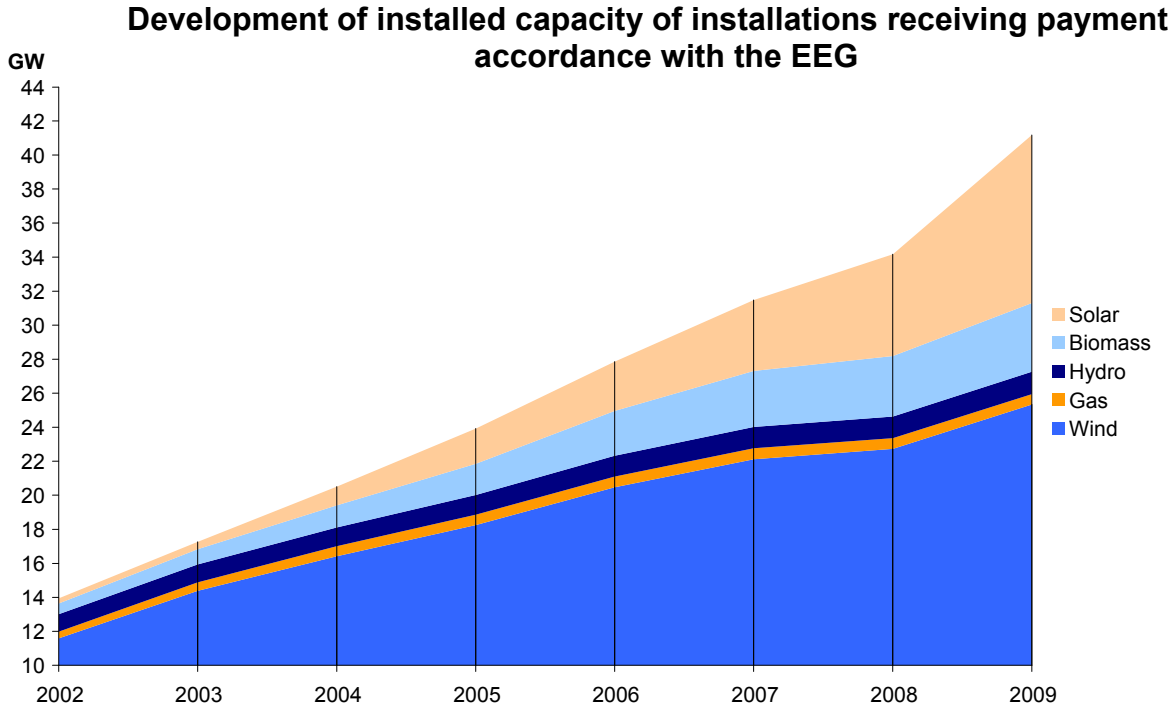


Fig 4: Development of installed capacity of installations receiving payment in accordance with the EEG from 2002 to 2007. [7]
Due to the low amount, "geothermal energy" is not shown.

The rapid increase in solar power systems over the last two years breaks the previous years' trend of only moderate EEG installation construction. In 2009 alone, solar power systems with a capacity of approx. 3.9 GW were newly installed (in 2008 it was approx. two GW). This can be translated into a growth rate of around 65 percent in 2009 (approx. 50 percent in 2008).

The installed capacity of wind power systems increased by 2.6 GW in 2009 (2008: 0.8 GW), corresponding to a growth rate of 11 percent in 2009 (four percent in 2008).

The capacity of the other EEG installations increased overall by 0.5 GW in 2009, which can be almost entirely traced to the growth in biomass installations.

In line with expectations, the distribution across the federal states of all photovoltaic systems installed in Germany as of 31 December 2009 with a capacity of around 9.9 GW proves to be very heterogeneous. Some 40 percent of installed capacity can be found in Bavaria, with Baden-Württemberg following some way behind, yet nevertheless with around 18 percent.

[7] Here, energy source gas means landfill, sewage and pit gas.

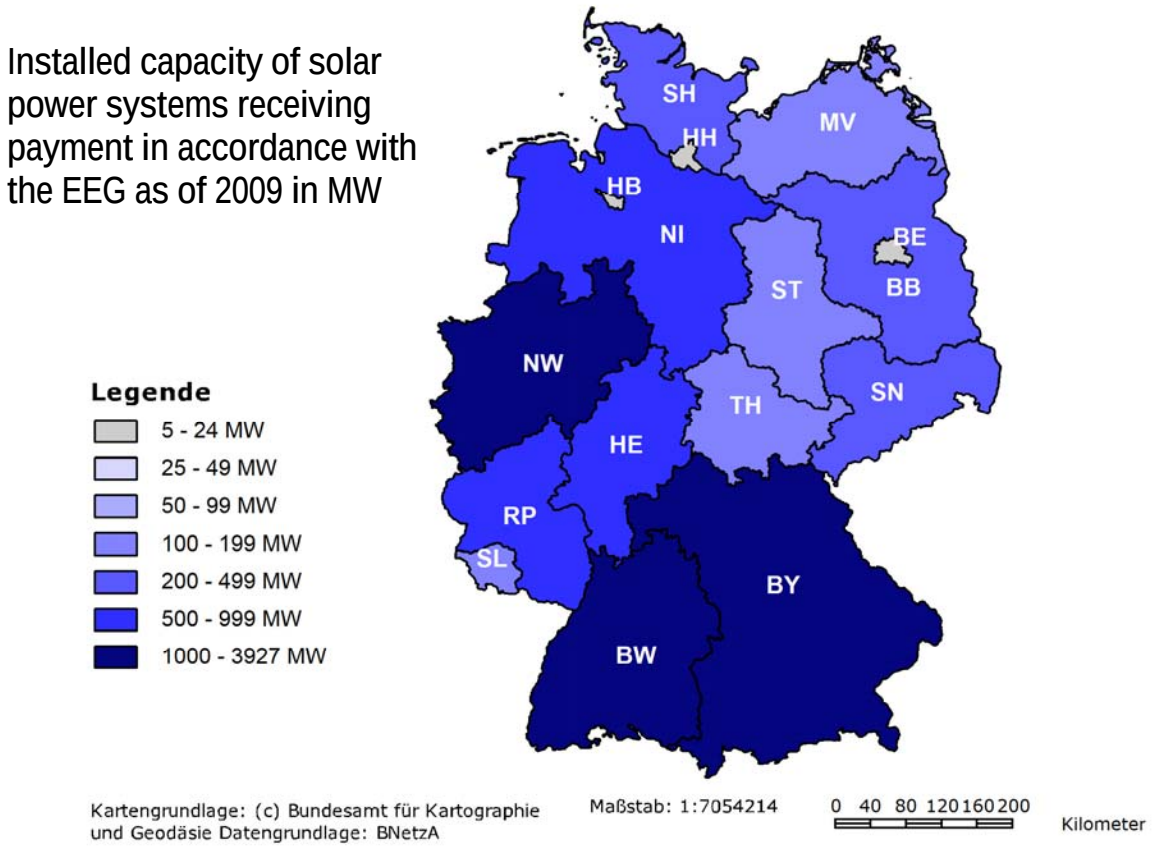


Fig 5: Installed capacity of solar power systems receiving payment in accordance with the EEG as of 31 December 2009 in MW by federal state.

When fed in to the public network, the EEG electricity generated by the installation operators is remunerated by DSOs with a tariff laid down by law, which differs greatly for the individual forms of generation. The highest tariffs are paid for photovoltaic systems.

According to the EEG data collected, the total annual energy feed-in from EEG installations was 74,153 GWh in 2009 (71,148 GWh in 2008), with the total minimum tariffs paid to the installation operators totalling €10,709m (2008: €9,016m). This means that the feed-in from all EEG installations increased by around just four percent between 2008 and 2009 (around six percent between 2007 and 2008), while the total amount paid on the other hand has risen by approx. 19 percent (approx. 14 percent between 2007 and 2008).

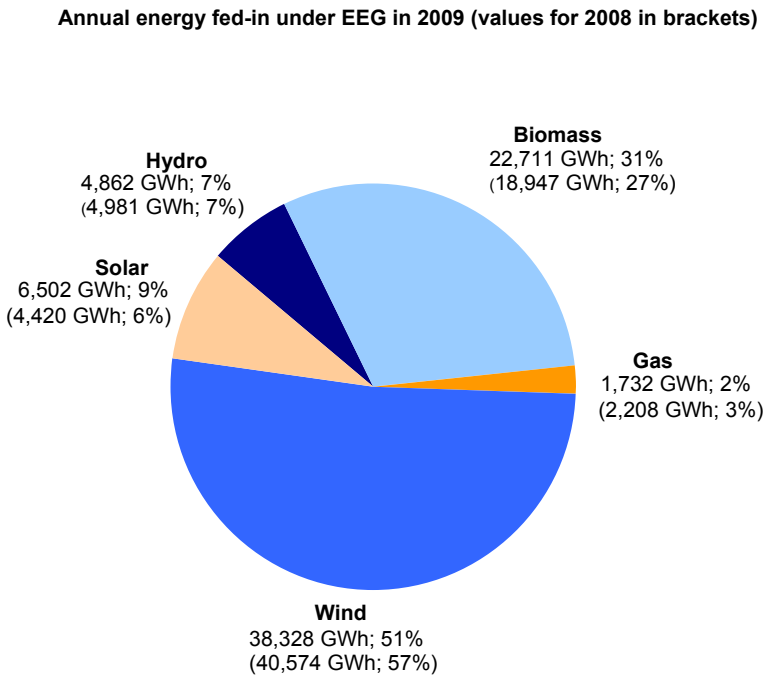


Fig 6: Annual energy fed in under EEG in 2009 by energy source, absolute and proportionate (values for 2008 in brackets).[8] Due to the low amount, "geothermal energy" is not shown.

Feed-in development compared to 2008 differs greatly for each individual energy source. For example, wind power stations fed in approximately six percent less energy into the network in 2009 compared to 2008, meaning that the minimum compensation paid sank by the same scale. The reason for this was the relatively low wind level in 2009, which was below the ten-year average.

[8] Here, energy source gas means landfill, sewage and pit gas.

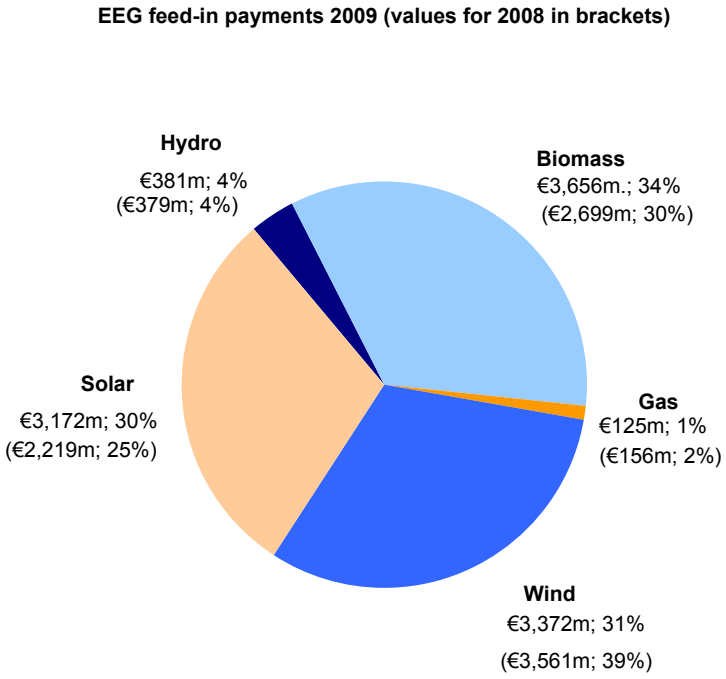


Fig 7: Compensation for energy fed in under EEG in 2009 by energy source, absolute and proportionate (values for 2008 in brackets).[9] Due to the low amount, "geothermal energy" is not shown.

With the strong increase in solar power systems in 2009, both the annual energy feed-in with a total of 6,502 GWh and the amount paid (€3,172m total) have once again increased significantly from the previous year. However, in total, solar power systems contributed just approx. 9 percent to the entire EEG feed-in for 2009, and in terms of sales to final consumer in 2009 this is just around 1.4 percent.

In contrast, with 30 percent, solar energy makes up a considerable share of the EEG tariff payments. The significant reductions in the tariffs for solar power systems on 1 January and 1 July 2010 have done nothing to change this. These were generally compensated by falling module prices, ensuring that investment in EEG-supported solar power systems continues to have high profit potential, and meaning that further strong growth of these systems can be expected in future. As tariff payments are guaranteed for 20 years following connection of a system, and the level of tariff does not change during this period, payments made to solar power system operators will remain at a very high level and will increase over the coming years.

In addition to the significant increase of €953m in tariff payments for solar power systems in 2009, payments for biomass have increased by €957m. With 3,800 GWh, growth in electricity feed-in from biomass sources is however almost twice that of solar powered electricity, which has seen growth of approx. 2,100 GWh.

It can also be expected for the years ahead that large offshore wind farms will start to produce electricity production. Here, too, high tariffs will be paid out. As these farms feature large capacities and a comparably high number of full load hours, payments for wind-generated electricity will increase markedly over the next few years.

[9] Here, energy source gas means landfill, sewage and pit gas.

Based on this development, the EEG surcharge for 2010 was forecast at 2.047 cent/kWh in the year under review. This proved to be far too low. On 15 October 2010, the EEG surcharge for 2011 was forecast at 3.53 cent/kWh.

Connection of electricity generators to transmission and distribution system operators, according to KWKG and EEG

In the 2010 monitoring survey, DSOs were asked to provide data about the generation installations as defined by section 2 of the Combined Heat and Power Act (KWKG)[10] connected to their network – broken down according to the net nominal capacity of the installation. Around seventy percent of the total installed CHP capacity on the distribution network level is accounted for by CHP systems with a capacity of over 1,000 kW each. However, when it comes to the ratio of generation installations connected before 2009 to those connected in 2009, an increasing share of small distributed generation installations – particularly installations of 30 kW or less (47 percent) – can be observed.

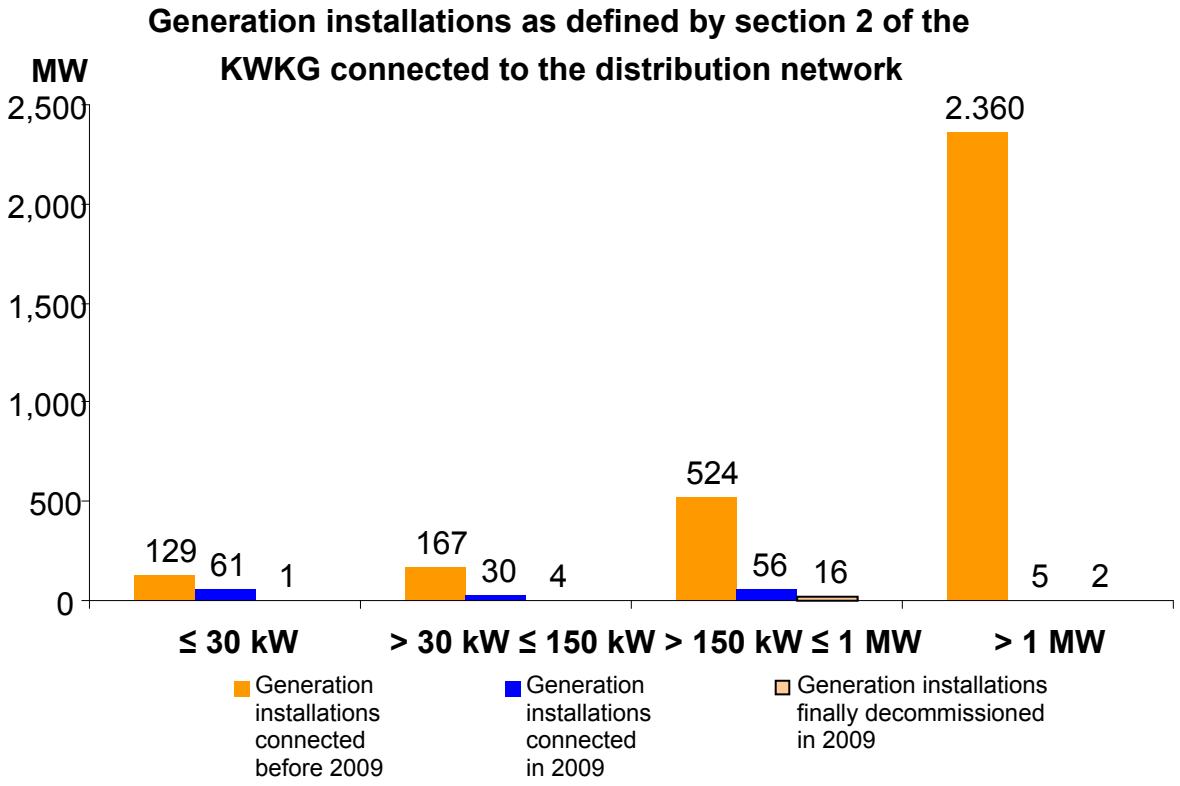


Fig 8: Generation installations as defined by section 2 of the KWKG connected to the distribution network (net nominal capacity)

The following graph provides an overview of the generation installations within the meaning of the EEG connected to the distribution network, according to their specific net nominal capacity. For these installations too, as with those under section 2 of the KWKG, an increasing share of small, distributed installations, ie installations of 30 kW or less (48 percent) and between 30 kW and 150 kW (62 percent), can be observed for 2009.

[10] Generation installations as defined by section 2 of the KWKG physically connected directly or indirectly (e.g. via an area or industrial network) to the distribution network (all network and substation levels). This also included installations as defined by section 2 of the KWKG which do not receive any payment under the KWKG but whose output is sold directly. For details on market coverage, see part two under the heading **Einzelhandel; Marktdaten (Elektrizität)** (available in German only).

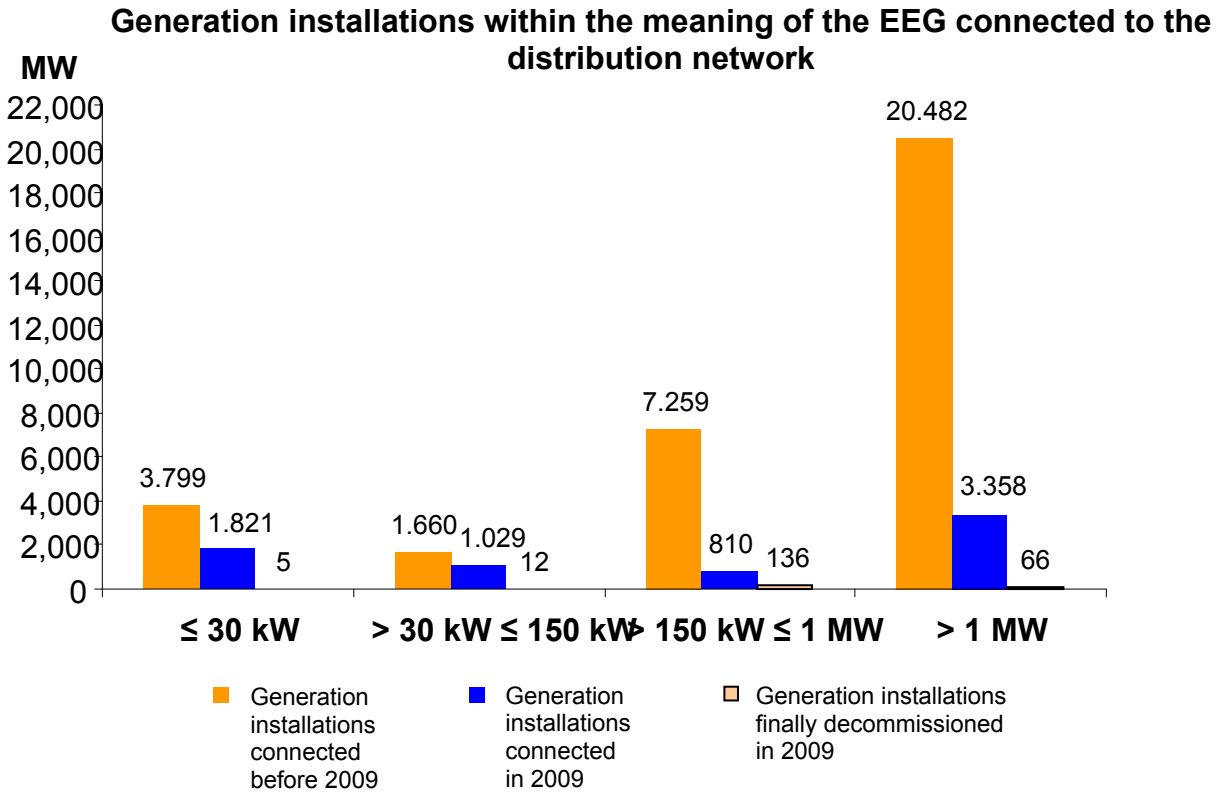


Fig 9: Generation installations within the meaning of the EEG connected to the distribution network (net nominal capacity)

Moreover, the number of installations connected in 2009 is several times higher than those decommissioned the same year – both in terms of the generation installations as defined by section 2 of the KWKG and, in particular, the installations withing the meaning of the EEG Due to the enduring trend towards distributed generation and the legal obligation to connect KWKG and EEG generation installations regardless of the network's capacity to absorb, network optimisation, reinforcement and expansion measures on the part of the DSOs are often inevitable.

Overall in Germany, as of 31 December 2009, generation installations as defined by section 2 of the KWKG[11] with a net nominal capacity of 18.8 GW were connected to both the transmission and distribution systems (TSOs: 15.5 GW, DSOs: 3.3 GW). In addition, generation installations within the meaning of the EEG were connected with a net nominal capacity of 41.2 GW (TSOs: 1.2 GW, DSOs: 40.0 GW) overall.

[11] Generation installations as defined by section 2 of the KWKG physically connected directly or indirectly (eg via an area or industrial network) to the distribution network (all network and substation levels). This also included generation installations as defined by section 2 of the KWKG which do not receive any payment under the KWKG and whose output is sold directly.

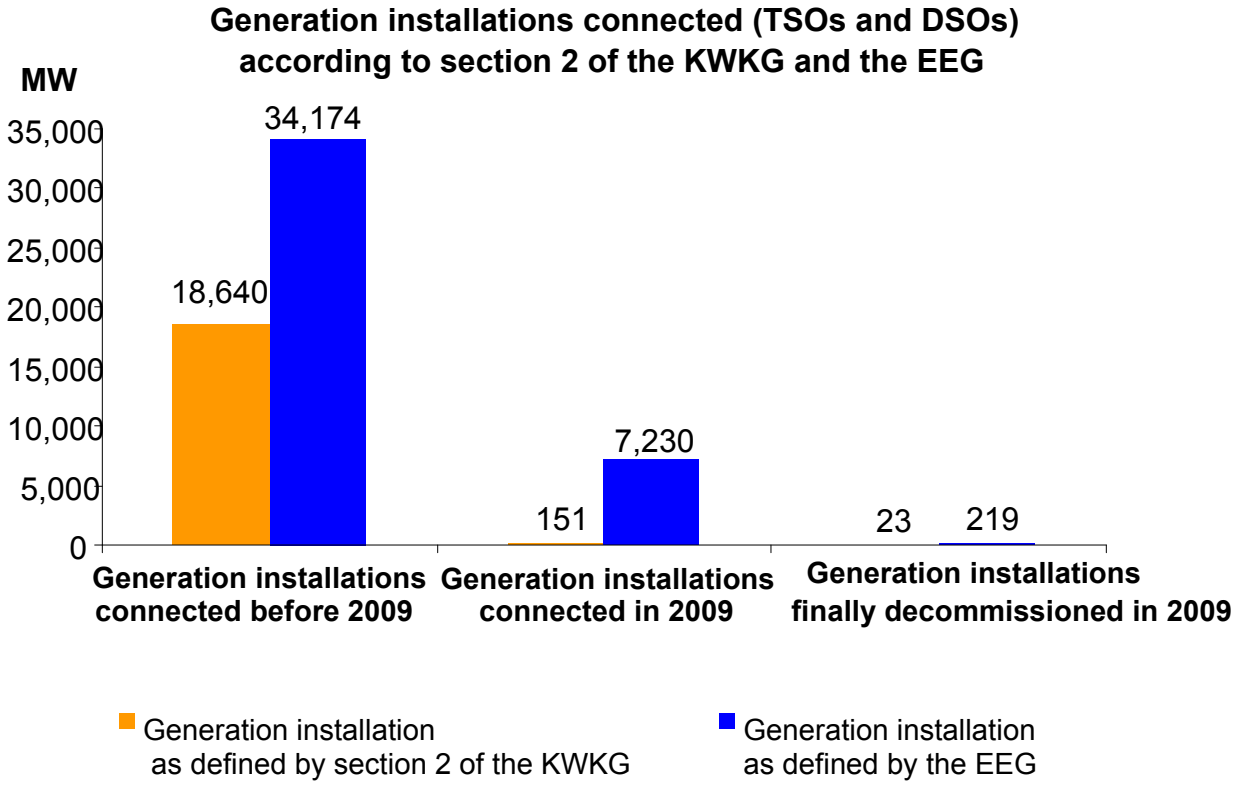


Fig 10: Generation installations according to section 2 of the KWKG and by the EEG connected to transmission and distribution system operators (net nominal capacity)

Structure of generation sector

In 2009, feed-in to the public supply network from the generation capacities included in the monitoring survey with a net capacity[12] of at least five MW decreased by around 58 TWh or twelve percent from approximately 490 TWh to 432 TWh. In terms of recorded capacities (103.9 GW as of 31 December 2009 without industrial generation capacities)[13], the share of the four largest generators (E.ON, EnBW, RWE and Vattenfall) calculated using the dominance method has fallen by around four GW from 85 percent to 79 percent. Feed-in to the public supply network from the four largest generators decreased by approximately 64 TWh in 2009, reducing the share from 86 percent to 83 percent.

[12] Net capacity is the power supplied from a generating unit to the supply system (transmission and distribution networks, consumers); maximum capacity is a generating unit's maximum permanent capacity under normal conditions (see glossary).

[13] Of the total power generation capacity connected to the TSOs and DSOs as of 31 December 2009 – 152.7 GW according to the 2010 monitoring data – 68 percent recorded a net capacity of at least five MW (excluding industrial generation capacities).

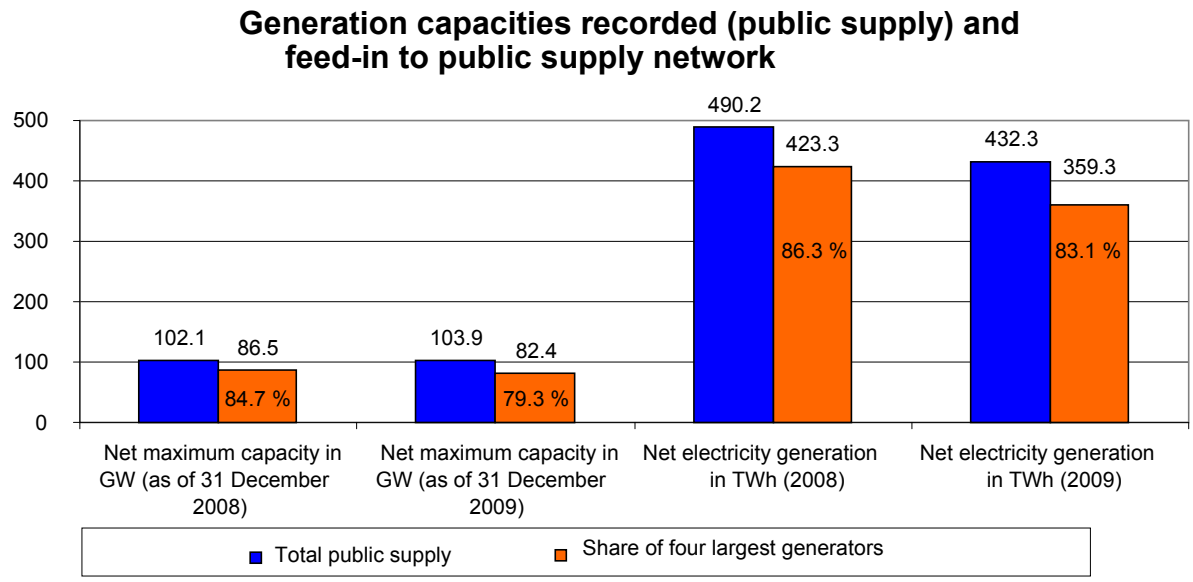


Fig 11: Generation capacities recorded with a net capacity of at least five MW

Investment in generation capacities[14]

For the period up to 2012, a decrease from 21.5 GW (as of 1 April 2009) to 15 GW (as of 1 April 2010) can be observed in the total investment projects reported to the Bundesnetzagentur by the generators in the monitoring survey[15] featuring generation installations with a net capacity of at least five MW. The majority of these investment projects – 13.6 GW (as of 1 April 2010) – are already under construction. This means that those projects have increased from the 2009 Monitoring Report by 0.8 GW for the period up to 2012.

[14] Further data can be found in part 2 of this Report under the heading "*Erzeugung; Investitionen und endgültige Aufgabe (Elektrizität)*" (available only in German).
[15] As of 31 December 2009, the recorded generators' installations with a net maximum capacity of at least five MW produced a total 107 GW, accounting for around 70 percent of the total generation capacities connected to the TSOs and DSOs of 152.7 GW (as of 31 December 2009) according to the 2010 monitoring data.

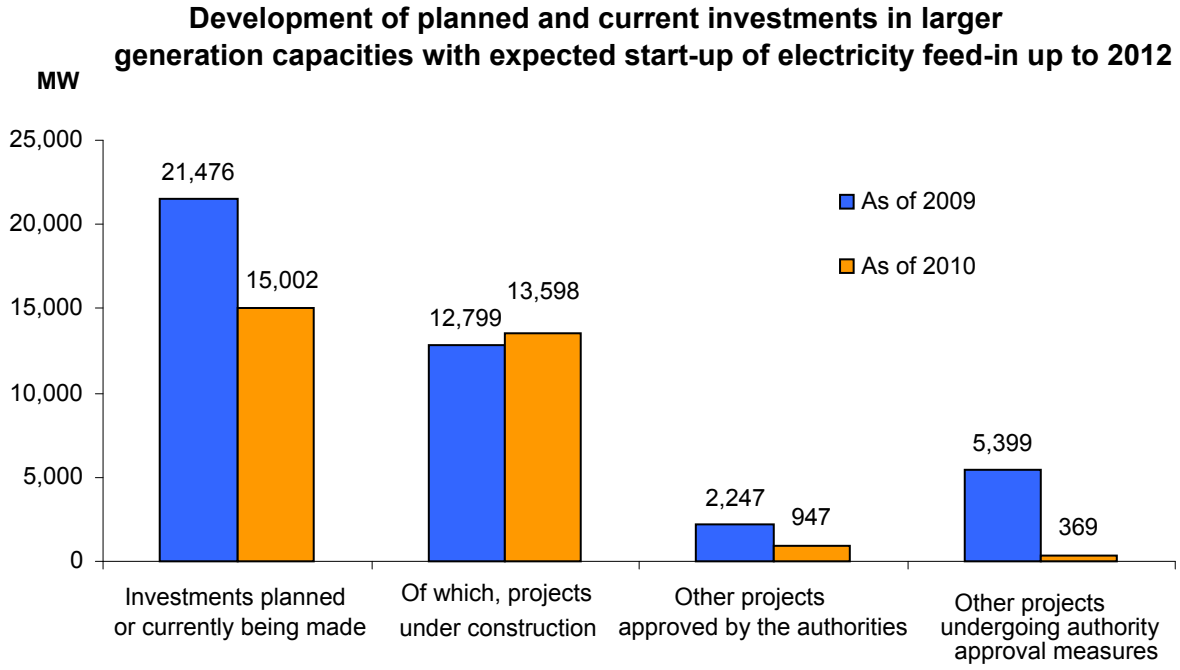


Fig 12: Development of planned and current investments in generation capacities (net maximum capacities) with expected start-up of electricity feed-in up to 2012 (net maximum capacity at least five MW)

While investment projects up to 2012 decreased by 6.5 GW, the total recorded investment projects for the period 2013-2020 saw an increase of 5.2 GW, from 25.2 GW to 30.4 GW. Recorded projects have therefore fallen from a total of 46.6 GW (2009 Monitoring Report) to 45.4 GW (2010 Monitoring Report). Of these, around 97 percent each year (45.3 GW in the 2009 Monitoring Report; 44.1 GW in the 2010 Monitoring Report) are projects with a net maximum capacity of at least 100 MW.

The reduction of investment projects up to 2012 and the increase from 2013 is due amongst other things to capacities of around five GW which in the 2009 Monitoring Report were indicated for completion in 2012 and which are now intended to be completed between 2013 and 2015. Projects with completion planned post-2013 are for the most part in the planning and approval phase, construction has already begun only for capacities of 1.1 GW.

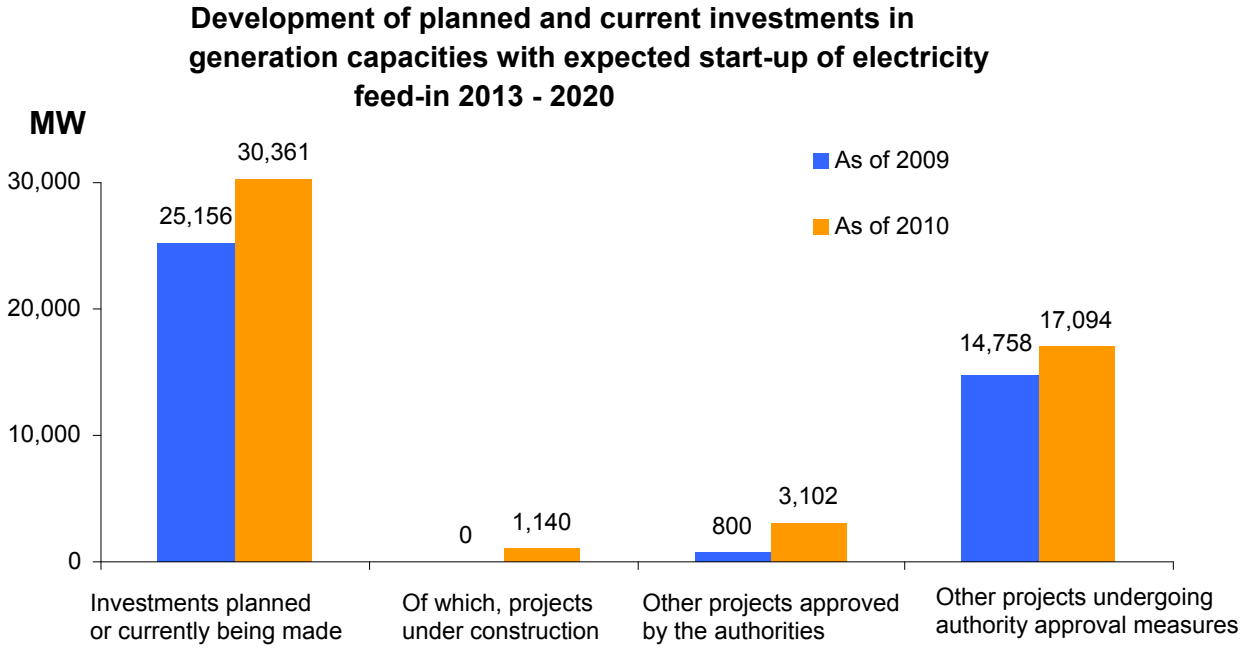


Fig 13: Development of investments planned or being made in generation capacities (net maximum capacities) with expected start-up of electricity feed-in 2013 - 2020 (net maximum capacity at least five MW)

In the 2010 monitoring survey, 58 investment projects in the generation sector (44.1 GW) with a net maximum capacity of at least 100 MW were reported, 50 of which (40.2 GW) were also recorded in the 2009 monitoring survey. A comparison of the expected starting dates for electricity feed-in documents the delays in planning and implementing that have been incurred for these 50 projects within one year. For 25 projects (18.5 GW) a later starting date for beginning commercial electricity feed-in has been indicated in the 2010 monitoring survey. An early starting date was seen in only two projects (2.4 GW). For 21 investment projects (16.7 GW) the same starting date was stated and for two plants (2.7 GW) the year was not indicated in the 2010 monitoring survey.

The delays that will be particularly incurred from 2012 onwards become clear in the cumulative presentation of the aforementioned 50 investment projects, listed according to expected start-up of electricity feed-in. A comparison between the starting dates cited in the 2010 and the 2009 monitoring surveys indicates delays totalling up to 9.4 GW in 2013. After that year, delays will decrease and are significantly reduced from 2015 onwards. However, the information for the period from 2015 onwards is no longer meaningful, as only time frames or no provisional completion dates have been provided for certain larger investment projects in the 2010 monitoring survey.

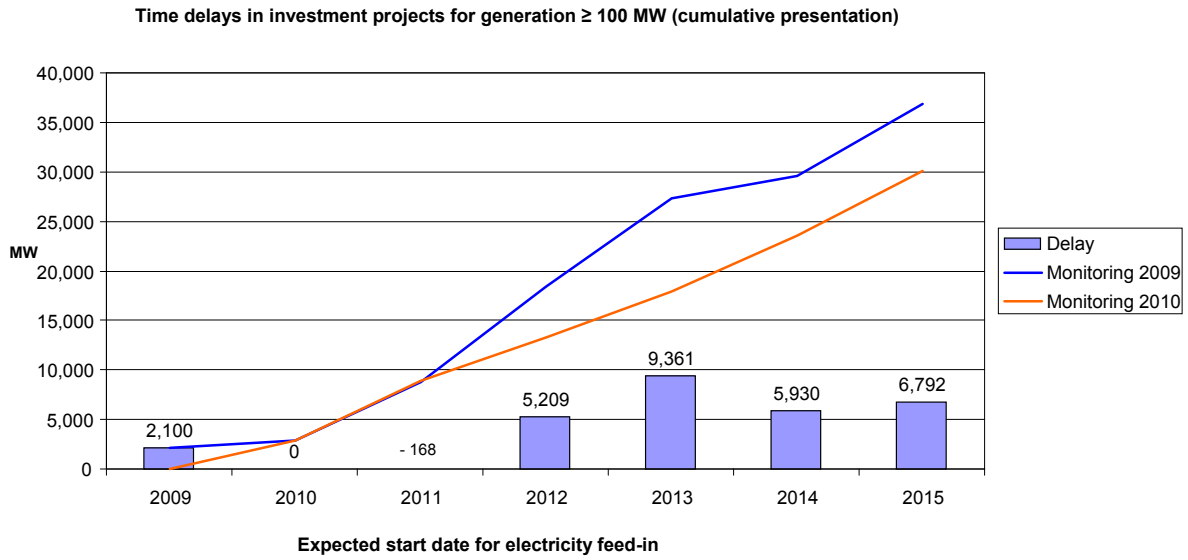


Fig 14: Time delays in investment projects with a net maximum capacity of at least 100 MW or more as stated in the 2010 monitoring survey (as of 1 April 2010) in comparison to the 2009 survey (as of 1 April 2009).

In addition, six projects (4.1 GW) with a net maximum capacity of at least 100 MW recorded in the 2009 monitoring survey were no longer reported by the respective companies in 2010. In contrast, however, eight projects with a total of 3.9 GW that had not been reported in 2009 were mentioned in the 2010 monitoring survey.

Overall, projects under construction have increased by 1.9 GW from 12.8 GW (as of 1 April 2009) to 14.7 GW (as of 1 April 2010). The majority of projects under construction concern the energy sources hard coal (8.0 GW), brown coal (2.8 GW), natural gas (2.7 GW) and offshore wind energy (0.7 GW). The share of the four largest generators in the total projects under construction (14.7 GW) is 10.5 GW or 71 percent and is therefore less than the current share of these companies (79 percent) in overall capacities with a net maximum capacity of at least five MW (excluding industrial generation capacities).

An evaluation of the location of all 45.4 GW of investment projects reported in 2010 according to federal state shows that the vast majority of projects are to be found in North-Rhine Westphalia (14.9 GW or 32.8 percent). In addition, investment projects in the following states exceed three GW: Lower Saxony (4.5 GW), Baden-Württemberg (3,8 GW), Schleswig-Holstein (3.4 GW) and Mecklenburg-Western Pomerania (3.3 GW). In comparison to the investment projects reported in 2009, totalling 46.6 GW, the most dramatic change is to be found in the state of Lower Saxony, which has lost three GW, falling from 7.5 GW (2009 monitoring) to 4.5 GW (2010 monitoring). Changes of more than one GW could also be observed in Brandenburg (an increase of 1.3 GW from 1.6 GW to 2.8 GW) and North Rhine-Westphalia (an increase of 1.2 GW from 13.7 GW to 14.9 GW).

The planned final decommissioning of generation capacities (excluding nuclear energy) with a net maximum capacity of at least five MW remains virtually unchanged, with the 2010 reference value for the period 2010 to 2020 being 9.3 GW, compared to 9.4 GW in the 2009 survey.

The completion of generation projects (start-up of electricity feed-in to commercial operations) with a capacity of 0.7 GW in 2009 was accompanied by the final decommissioning of generation capacites totalling 0.5 GW. The growth of 0.2 GW in capacities with a net maximum capacity of at least five MW is therefore less than the recorded annual increases since 2005, which ranged from 0.6 GW (2006) to 1.7 GW (2005). Furthermore, the completion

of 0.7 GW in 2009 was lower than the planned completion for that year of 2.8 GW as per the 2009 monitoring data. The growth of 0.2 GW also constitutes only a small share of the overall growth of 8.6 GW recorded by the generation installations (seven GW of which came from EEG installations) connected to the TSO and DSO networks in 2009.

Networks

Power Grid Expansion Act – EnLAG project status

With the introduction of the Power Grid Expansion Act (EnLAG) in August 2009, the lawmakers responded to the necessity of expanding the transmission networks. The expansion was made necessary in particular by the increasing transportation distance and the increased use of renewable energy sources (eg offshore wind farms). The EnLAG requirement plan includes 24 expansion projects which are to be realised as soon as possible.

It cannot yet be fully evaluated whether the EnLAG has resulted in faster planning and approval proceedings, due to the short time elapsed since the Act came into power. Clear delays to the commissioning of many of the 24 EnLAG projects are expected, with the intended commissioning date being exceeded by several years in some cases. In their quarterly reports updating the network expansion planning report (Q2 2010), the transmission system operators state that there are “problems leading to delays” for one in three EnLAG projects. It is already to be expected that at least seven EnLAG projects will not be able to meet their original commissioning dates, either completely or at least in sections.

Among the 24 expansion projects, the EnLAG provides for four pilot projects in the extra-high voltage network with cables running partially underground: Ganderkesee-St.Hülfe, Diele-Niederrhein, Wahle-Mecklar and Altenfeld-Redwitz.

The target year 2010 cannot be adhered to for the Ganderkesee-St. Hülfe section (TenneT TSO). Construction is planned to begin at the end of 2010, with completion unlikely before 2012. In its quarterly report, TenneT TSO states that the delays are due to changes to the legal framework (Underground Cable Law of Lower Saxony and the EnLAG) and the resulting adaptations to planning and approval documents. The project developers and planning & approval bodies are in dispute regarding the extent to which cables will be laid underground.

As regards the Diele-Niederrhein section (TenneT TSO and Amprion), the original target year of 2015 remains achievable at present. However, TenneT TSO expects that delays will be caused by changes to the legal framework and the taking into consideration of additional planning variables resulting from the planning approval process in North Rhine-Westphalia. The regional impact assessment is to begin in autumn 2010 for the TenneT TSO section; the documents for the planning approval procedure are in preparation for the Amprion section.

TenneT TSO also reports planning delays for Wahle-Mecklar caused by the Underground Cable Law of Lower Saxony and the EnLAG, however the target year of 2015 remains intact. The regional impact assessment was started on 25 May 2010.

In contrast, considerable delays can be observed for Altenfeld-Redwitz (50Hertz and TenneT TSO). Planning approval can only begin in Bavaria once the impact assessment is completed in Thuringia. The date for this is currently unclear. The original target year of 2010 cannot be maintained.

Delays can also be observed or expected in other EnLAG projects. For example, the Hamburg/Krümmel-Schwerin project (50Hertz) is dependent on completion of the planning approval procedure in Schleswig-Holstein; the original target year was 2007.

For many of the EnLAG projects, the approval process has either not yet commenced or is not completed, meaning that potential delays are currently unclear. For example, for Lüstringen-Westerkappeln (Amprion), preliminary talks are currently being held with the regional planning authority and local authorities. The target year for this project is 2019. The regional impact assessment has not yet begun for the Weier-Villingen (EnBW) EnLAG project, and there is currently no target date. A full list of the status of the projects in the requirement plan as per section 1(1) of the EnLAG can be found in part two of this Report under the heading "*Netze; Energieleitungsausbaugesetz (Elektrizität)*" (available in German only).

To date, transmission system operators have not indicated to the Bundesnetzagentur any problems with delays to the approval process for investment budgets in any of the EnLAG projects. The Bundesnetzagentur has already approved the respective investment budgets for 17 of the 24 projects in the EnLAG requirement plan. These approvals include acquisition and production costs totalling €3.7bn. Applications for five further projects are being processed, with four of these to be approved shortly. For two EnLAG projects, investment budget applications have not yet been submitted to the Bundesnetzagentur.

The existing EnLAG regulations are necessary for needs-oriented expansion of the transmission networks, but still insufficient. It is not enough to determine energy needs in order to counter the delays described. Regulations must also be established that open up the necessary space and/or areas to the routes. This should be achieved in open and transparent proceedings governed by federal law.

From the perspective of the Bundesnetzagentur, the possibilities of limiting legal protection under the Acceleration of Planning Procedures for Infrastructure Projects Act and the EnLAG have been largely exhausted.

There is still a lack of broad acceptance among citizens for expansion of electricity lines, although support for wind energy often meets public approval. A further increase in profits is rather counter-productive for network expansion in light of the consequences for the acceptance of the companies and their activities. Experience in other countries has however shown that appropriate compensation to local authorities for the use of the scarce resource of land does help. This type of compensation payment should be restricted to the use of overhead cables.

In the view of experts who were invited by the Bundesnetzagentur to a workshop with the title "Technology options for covering capacity networks in transmission networks" on 9 July 2010, there are no realistic alternatives to the 24 expansion projects cited in the EnLAG. New technological options, particularly HVDC technology[16], but also others such as alternating current at 16.7 Hz are a feasible alternative for additional requirements beyond those covered by the EnLAG.

Network status and expansion planning – transmission systems

The TSOs are required to report on the implementation status of their network expansion projects – particularly those up to 2014. For this period, as of Q2 2010, a total of 139 expansion measures are planned (Q2 2009: 148), including 14 measures for connecting offshore wind farms (Q2 2009: 16). Of these, as of the end of Q2 2010 a total of 37 expansion measures (Q2 2009: 54) have experienced delays or a postponement to the timescale, according to the TSOs. The principal reasons for delays are:

[16] HVDC: High voltage direct current transmission

- delays to authority approval process (eg due to resistance from the local population)
- complaints about planning approval decisions
- necessary changes to the authority approval process due to changes to the legal framework (eg caused by the Underground Cable Law of Lower Saxony)
- supply bottlenecks at system manufacturers, and
- persisting uncertainties in the offshore projects.

Furthermore, twelve projects planned by the TSOs involve border crossing and therefore aim to expand transmission capacities at the cross-border interconnectors from Germany to the respective European neighbours. The individual projects can be found in the "Community-Wide Ten-Year Network Development Plan" from the European Network of Transmission System Operators for Electricity (ENTSO-E).

Of these twelve projects, seven (cross-border interconnectors to the Czech Republic, Denmark, Belgium, Norway and Austria) are currently still in the pre-planning or preliminary stages. Precise statements on the planned start-up date and on the implementation of the projects are therefore not yet possible. In four projects (cross-border interconnectors to Poland, France and the Netherlands), start-up is expected between 2010 and 2015. In addition, one project concerning Germany, Austria and Switzerland is planned between 2015 and 2022.

Investments in and expenditure on network infrastructure by the four German TSOs totalled approx. €739m in 2009 (2008: €994m). This also included investments in and expenditure on cross-border connections amounting to approx. €5m (2008: €13m). This means that there is a significant difference again between the actual expenditure on network infrastructure and the planning data provided the year before (planning value for 2009: approx. €1,144m). As was the case last year, the reason for this is primarily the fact that investments in the new build/extension/expansion category were €278m lower than planned. There have been a large number of delayed new build projects in this area.

According to the monitoring data, the TSOs' planning value for total investments in 2009 was €851m (€686m for new builds/expansion/extension and €165m for maintenance/renewal), compared to actual values of just €522m, constituting a shortage of €329m. The actual value for expenditure is €217m, €76m below the planning value of €293m for 2009.

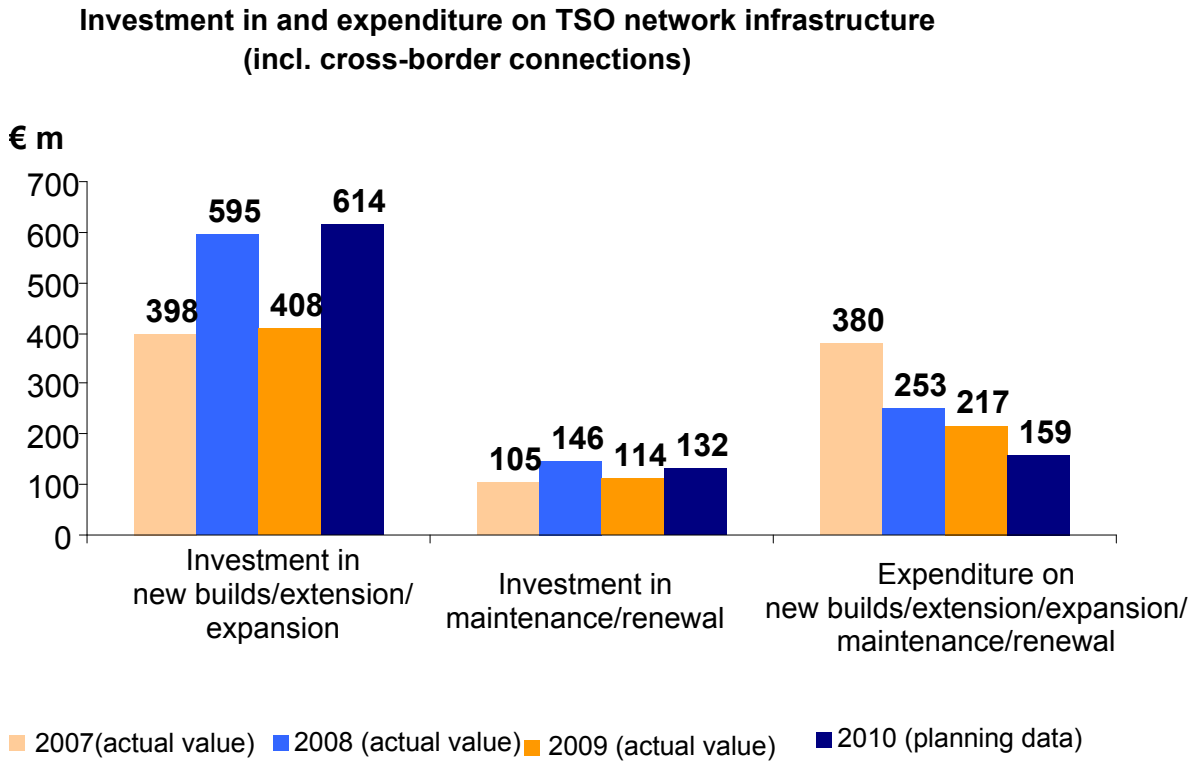


Fig 15: Investment in and expenditure on TSO network infrastructure since 2007 (incl. cross-border connections)

Network connection of offshore wind farms

2009 saw the completion of network connections for two offshore wind farms (OWF) in the North Sea. The first installations of the alpha ventus OWF have fed electricity into the German network via an alternating current connection since August 2009. The OWF was officially put into operation on 27 April 2010. The first installations of the BARD Offshore 1 OWF have been set up since early 2010, allowing the first electricity feed-in to the German network to be expected in the second half of 2010 via the 400 MW direct current connection completed at the end of 2009. Construction of the network connection for the Baltic 1 OWF in the Baltic Sea began in 2009. The Baltic 1 should commence operations towards the end of 2010.

In October 2009 the Bundesnetzagentur published the position paper on the network connection obligation in accordance with section 17(2a) of the EnWG. The paper's requirements – transparent connection criteria in combination with the introduction of key dates – contribute significantly to a structured and swift realisation of OWF network connections. Above all, the position paper enables the fast and timely joint network connection of several OWFs (collective connections) while avoiding stranded investments. Through bilateral and trilateral discussions, the Bundesnetzagentur is in regular contact with the OWF developers, operators and network operators, in order to provide guidance regarding the correct application of the position paper.

In June 2010, following a call to tender, contracts were awarded for an 800 MW collective connection for the Global Tech 1 and Veja Mate OWFs in the BorWin cluster. In July 2010, contracts were awarded for collective connections with capacities of 800 MW and 576 MW linking OWFs in the DolWin and HelWin clusters to the network. A call to tender for a further collective connection for OWFs in the SylWin cluster was made in May 2010.

To date, 17 applications have been made to the Bundesnetzagentur for the approval of an investment budget for the connection of OWFs with a total volume of approx. €7.9bn, of which eleven with a volume of €4.3bn have already been approved (as of 30 June 2010).

Network status and expansion planning – distribution systems

Total investments in and expenditure on network infrastructure by all 749 DSOs who responded to the monitoring survey for 2009 amounted to approx. €5,752m, remaining virtually consistent with the previous year's value (2008: €5,574m). This also included investments in and expenditure for metering/control devices and communication infrastructure amounting to approx. €448m (2008: €421m). Overall, at €5,752m the actual expenditure by DSOs on network infrastructure is only slightly under the planning value for 2009 of €5,767m. Differences of varying size between planning and actual values can however be observed on the various areas:

- The actual value for investments in new builds/extension/expansion is €206m lower than the planning value for 2009.
- The actual value for investments in maintenance/renewal is €21m above the planning value for 2009.
- The actual value for expenditure is €170m higher than the planning value for 2009.

An upwards trend can again be observed in investments in maintenance/renewal for 2009 when compared to 2008, while investments in new builds/extension/expansion stagnate. The €185m gap between actual investments in network infrastructure by DSOs in 2009 (€2,535m) and the relevant planning values from the 2009 monitoring survey (€2,720m) is less than that for the TSOs (€329m).

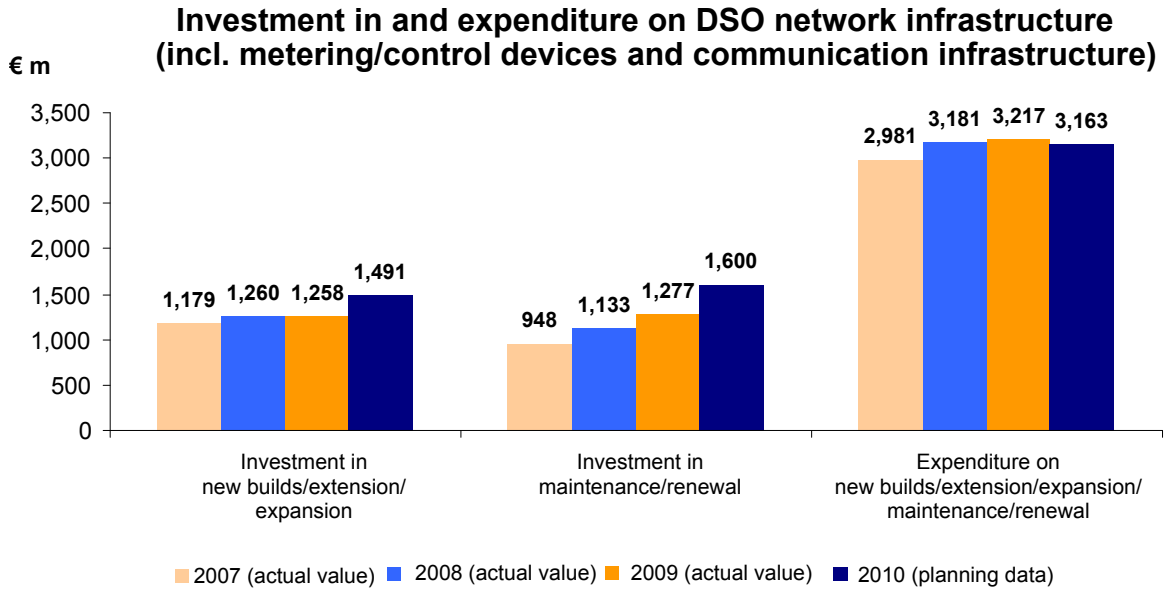


Fig 16: Investment in and expenditure on network infrastructure (incl. metering/control devices and communication infrastructure) by DSOs since 2007

Measures to avoid congestion in distribution systems

The strong growth in regenerative energy generation installations and the legal obligation to connect and purchase regardless of network capacity may result in temporary congestion in the distribution systems. To counteract this development, the DSOs are obliged

under section 9(1) of the EEG to optimise, reinforce and expand their networks to reflect the state of the art without undue delay, in order to ensure the uptake, transmission, and distribution of the electricity from renewable sources or pit gas.

The graph below provides an overview of the extent to which DSOs are undertaking network optimisation, reinforcement and expansion measures. A comparison with the corresponding figures from the previous year shows that the number of DSOs undertaking measures to optimise (as of 1 April 2009: 122), reinforce (as of 1 April 2009: 147) and expand (as of 1 April 2009: 189) the network has grown sharply. This is due to the fact that in many networks, feed-in from volatile EEG installations constitutes an increasingly large part of overall feed-in. It is evident that the EEG installations' feed-in locations often do not reflect the original network architecture. In order to support the necessary distribution system expansion, the Bundesnetzagentur intends to take the additionally connected access points into account in the revenue cap by means of an expansion factor.

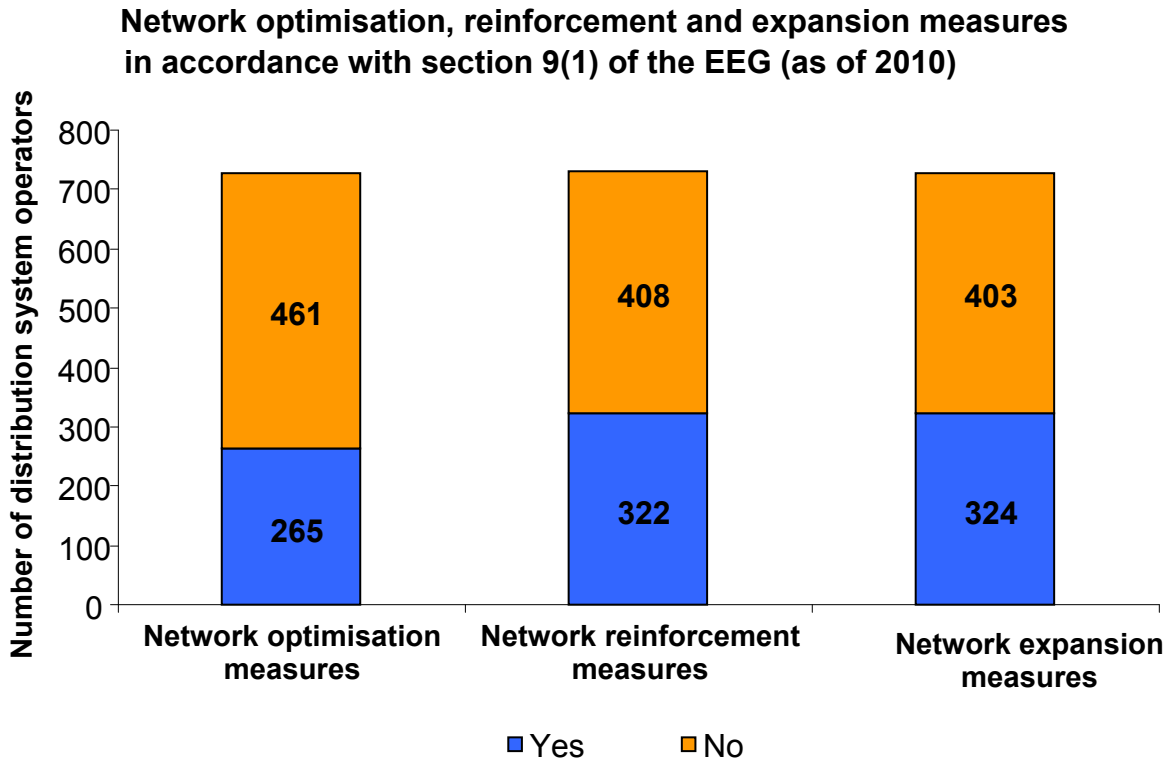


Fig 17: Network optimisation, reinforcement and expansion measures in accordance with section 9(1) of the EEG (as of 1 April 2010)

The following network optimisation and reinforcement measures are used by the DSOs.

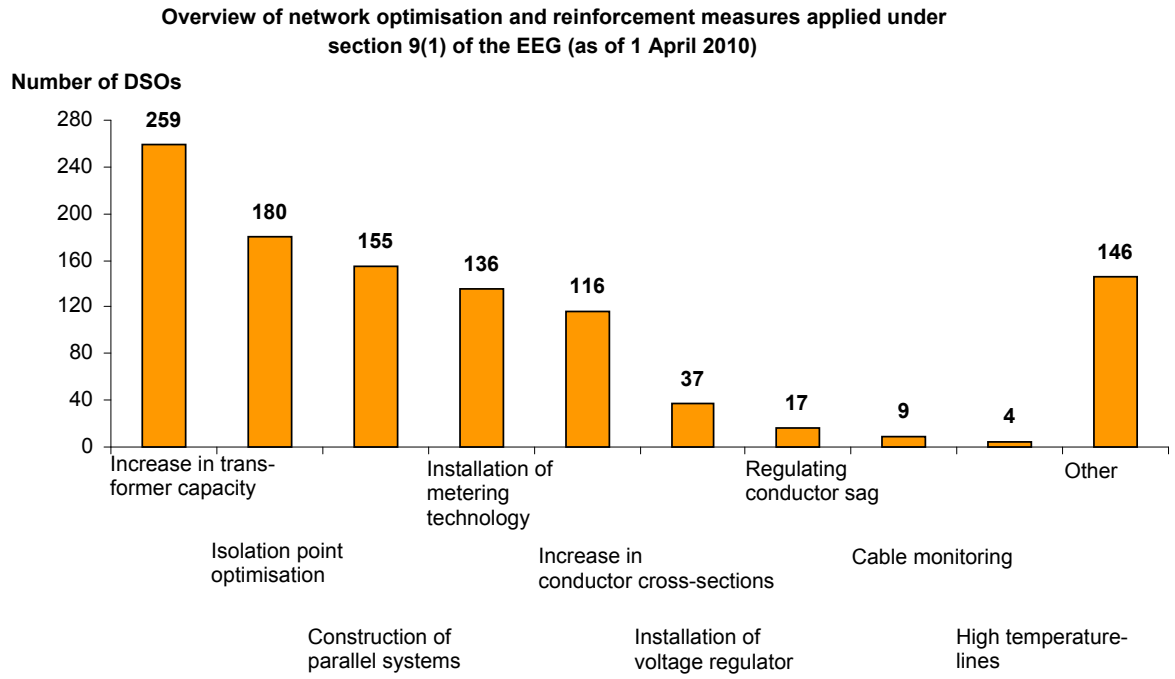


Fig 18: Overview of network optimisation and reinforcement measures applied under section 9(1) of the EEG (as of 1 April 2010)

When compared to the previous year, no significant change can be found in the number of DSOs using cable monitoring (9, compared to 8 as of 1 April 2009), or among those using high-temperature lines (4, compared to 2 as of 1 April 2009). In contrast, the other optimisation and reinforcement measures – enquired about for the first time this year – are used by the DSOs in great number.

Feed-in management under sections 11 and 12 of the EEG

Nevertheless, despite appropriate network optimisation, reinforcement and expansion measures, due to the increasing amount of electricity fed in from renewable energy sources – particularly wind and photovoltaic systems – a situation may temporarily arise in the distribution system where not all generators are able to feed in unlimited electricity. Since 1 January 2009, system operators are able to adjust electricity feed-in from renewable energy, combined heat and power and pit gas installations with a capacity of over 100 kW to a lower level, taking into account the requirements stated in section 11(1) sentence 1 of the EEG.

The adjustment of EEG installations to a lower level and thus the deviation from feed-in priority for EEG installations are described as feed-in management measures (FMM). The network operator responsible for the network requiring FMM is obliged to pay compensation under section 12 of the EEG for the unused energy and heat. According to the monitoring survey, low-level use of this regulation was made in 2009.

	Energy adjustment under section 11 of the EEG [kWh]		Compensation payments under section 12 of the EEG [€]	
Total	**73,696,703**	100%	**6,037,916**	100%
Share compensated by network operator to whose network the installations were connected	50,088,712	68%	4,267,218	71%
Share compensated by the upstream network operator whose network caused the requirement for FMM	20,822,471	28%	1,770,698	29%
Share as yet uncompensated	2,785,520	4%		

Table 1: Feed-in management measures (FMM) under sections 11 and 12 of the EEG in 2009

In 2009, feed-in management measures were applied almost entirely (99.8 percent) to wind farms, and to a very minor degree to biomass, solar and CHP systems. This is also reflected in the regional distribution of the measures, with their application concentrated to the northern and north-eastern network areas in Germany with high installed wind power capacity.

At around 74 GWh, the overall feed-in from EEG installations was adjusted down by only 0.1 percent in 2009, or just 0.2 percent when applied to total wind energy feed-in.

For a good quarter of the energy adjustments caused by FMM and the compensation payments to be made, the origin was in an upstream network. For a much larger share, the origins could be found directly in the network to which the adjusted EEG installation was connected.

Four percent of energy adjustments remained without compensation at the time of the survey. Reasons for this include compensation requests not or not yet made by the installation operators, or delays to payments caused by legal disputes.

Assessment of security of supply

In order to assess the current level of security of electricity supply[17], the Bundesnetzagentur processed data on key factors relating to load, generation and the electricity network required for this. Essentially, the correct way to approach this is to consider the power, and not the actual electrical work, as the demand for electricity must be met at all times. Due to data only available on individual areas such as generation and network investments, estimates regarding the development of security of supply provide mere indications for these areas.

Reliability of supply as part of the security of supply continues to be high; this is exemplified by the extremely short power outages, when compared on a European level. In Germany, the

[17] In this section security of supply refers to the ability of the supply system to meet the demand for electricity constantly, without interruption and under qualitatively and economically acceptable conditions.

System Average Interruption Duration Index (SAIDI) for 2008 was 16.89 minutes.[18] This represents a repeated improvement in comparison with previous years.[19]

Load

In 2009 the annual peak load occurred on 2 December at 6 pm and measured 73.0 gigawatts (GW), an approx. five percent reduction from 2008's annual peak (76.8 GW). This clear decrease cannot yet be interpreted as a trend, but is rather more likely due to the cooled economic climate in 2009. The result of both this and the increase in the guaranteed net capacity[20] to 92.8 GW (2008: 90.5 GW) was a clear positive effect on the security of supply provided by generation, namely that the remaining domestic power station capacity at the time of peak load – excluding imports and exports – has increased year on year since 2005, reaching 19.8 GW in 2009 compared with 6.0 GW in 2005.[21] This means that there is currently a high level of security of supply in this respect.

Generation

In order to indicate potential future developments in net maximum capacity or guaranteed net capacity, the generation capacity of 152.7 GW available in Germany on 31 December 2009 needs to be corrected to include new power station projects and the expected decommissionings. The companies currently expect the decommissioning of generation capacities (excluding nuclear power stations, wind and photovoltaic systems) totalling 9.3 GW by 2020, 4.2 GW of which by 2012 and a further 5.1 GW in the period from 2013 to 2020. These decommissionings are accompanied by the construction of power stations based in non-volatile energy sources (excluding wind and photovoltaic systems) with a capacity of 14.0 GW. Of this, 13.1 GW will start commercial electricity feed-in by 2012, with 0.8 GW following between 2013 and 2020.

Due to the ongoing discussions regarding the periods of operation of nuclear power stations, there are currently no reliable data on the planned decommissioning of nuclear power stations with a current total capacity of 20.5 GW. No detailed statement can therefore be made for the next few years on the capacity of plants based on non-volatile energy sources in Germany and thus on the development of generation-related security of supply within the scope of the monitoring survey.

Regardless of developments in the nuclear energy sector however, on the basis of the available data and the current high level of security of supply in terms of generation, a continued high level of security can be assumed up to 2012, provided that the power stations under construction reach completion.

Overall, the 2010 monitoring survey shows planned investment projects and power station projects under construction amounting to 45.4 GW by 2020. In addition to the plant projects already under construction, a further 27.7 GW of plant capacity based on non-volatile energy sources (excluding wind and photovoltaic systems) is planned, which will make a welcome contribution to security of supply. It can also be expected that renewable energy sources will increasingly make a direct or indirect contribution to the secure capacity in future. Geographical diversity and additional (pump) storage capacities at home and abroad play an important role here.

[18] For further details see part two of this Report under the heading *Versorgungssicherheit; Versorgungsstörungen (Elektrizität)* (available in German only).
[19] Due to the ongoing assessment, values for 2009 were not available at the time of going to print.
[20] Net maximum capacity minus the unavailable capacity, the outages, revisions and reserves for system services.
[21] Source: Rating of public electricity supply in Germany at the time of the annual peak load according to BDEW.

On the whole, however, it remains to be seen how the figures from the monitoring survey collected in April 2010 will change in future following decisions on the extension of nuclear power station operation periods.

Networks

Investments made by the TSOs in 2009 were at a lower level than in 2008. At the same time, the actual investments made in 2009 were lower than the planning values for that year stated in 2008, as many investment projects experienced delays. The companies reported a total of 37 expansion projects experiencing delays at the end of the second quarter of 2010, in particular several of the 24 EnLAG projects, where significant delays to start-up are expected.

Delays to network expansion do not appear to affect the distribution systems to the same extent as the transmission systems. There are a number of possible reasons for this. For example, in many cases no line installation is required to reinforce the distribution systems, but instead the construction of additional substations. What is more, with the voltage levels used in the distribution systems, cables often need to be installed for new lines as a result of technical reasons. Finally, acceptance of new builds to solve local and regional problems appears higher than for securing nationwide transport requirements. The actual value of investments in new builds/extension/expansion for 2009 is at a comparable level to 2008.

The integration of renewable energy sources now already creates particular challenges for the DSOs, and these will increase with the expected further growth of renewables. This is reflected in the significant increase in DSOs who have implemented network optimisation, reinforcement and expansion measures for integrating renewable energy sources.

To ensure that the developments outlined above do not become a risk to network security, operators rely on measures which relieve the networks. These include procedures described in section 13(1) and (2) of the EnWG (particularly regarding the TSOs' responsibility for the system) along with sections 11 and 12 of the EEG (feed-in management for EEG systems).

The adjustment of EEG installations to a lower level and thus the deviation from feed-in priority for EEG installations through feed-in management measures under section 11 of the EEG was necessary to a minor degree (0.1 percent of total feed-in from EEG installations) in 2009.

In summary, it can be said that the electricity networks continue to provide network users and final consumers with a high degree of reliability, contributing to the security of supply in this aspect. Although the integration of generation from renewable sources poses new technical challenges to the system operators, down-time on the network has fallen again. The network infrastructure in the electricity sector therefore currently remains stable and secure. However, the current high level of security of supply provided by the networks can only be maintained through significantly increased investment activity across all network levels.

Wholesale

Structure of the wholesale sector[22]

With the exception of intraday trade, electricity trade volume on the EEX / EPEX Spot for Germany and Austria decreased in 2009. The volume on the day ahead spot market for the Germany / Austria market area sank by seven percent to 135.6 TWh, while intraday trade for

[22] Further data can be found in part 2 of this Report under the heading "*Großhandel; Struktur (Elektrizität*)" (available in German only).

Germany increased by 147 percent to 5.66 TWh. On the Germany/Austria derivatives market, the volume decreased by eight percent to 257.3 TWh without OTC clearing, and to 736.8 TWh in OTC clearing (a reduction of 17 percent). In the first half of 2010, significant increases in trade volumes can be observed on both the EPEX spot market and the EEX derivatives market.

In the 2010 monitoring survey, five broker platforms – GFI, ICAP, Spectron, TFS / Tradition and Tullet Prebon – were asked, for the first time, to provide data on their physical and financial trade volumes for Germany, in order to ascertain the OTC electricity trade volume. According to the data, the broker platforms' volume clearly exceeded the OTC trade visible from OTC trade cleared on the EEX:

- In 2009 (year of transaction) the trade volume of the five broker platforms was around 4,707 TWh for Germany, including the volumes cleared on the EEX. By contrast, OTC clearing on the EEX (Germany/Austria market area) for the same period was 737 TWh.

- For 2009 (year of performance), a volume of around 4,007 TWh was traded on the broker platforms for Germany, in comparison with 787 TWh in OTC clearing on the EEX.

- In 2009, at 4,707 TWh, the OTC volume traded for Germany on the broker platforms including the amounts cleared on the EEX was around twelve times higher than the volume of 399 TWh traded on the EEX / EPEX spot market for the Germany / Austria market area (without OTC clearing).

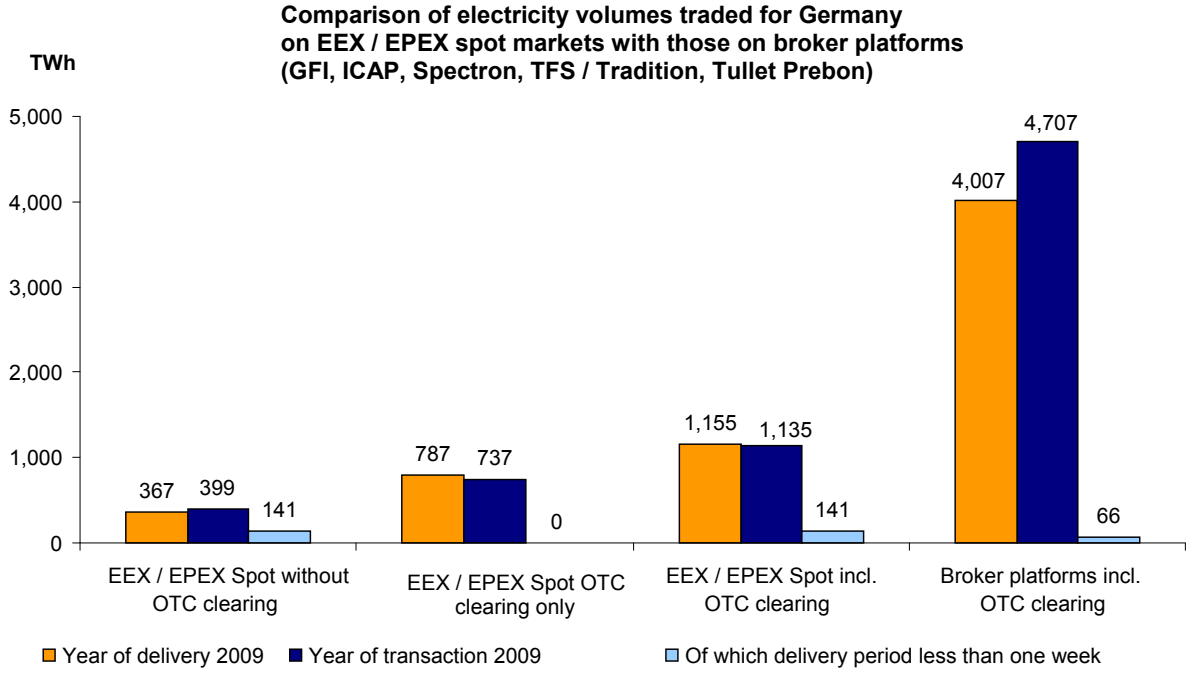


Fig 19: Comparison of electricity volumes traded for Germany on EEX / EPEX spot markets with those on broker platforms (GFI, ICAP, Spectron, TFS / Tradition, Tullet Prebon)[23]

With regard to the time elapsing between transaction and performance, there is no significant difference between the broker platforms and the EEX / EPEX spot market incl. OTC clearing. Over half of the trade volume is fulfilled in the year following that of the transaction. Trade of less than a year and trade for the year after next follow in order of importance. In contrast, trade for performace after three years' time or further into the future displays low value in trade both on and off the exchange.

[23] Delivery period less than one week without data from TFS / Tradition; Data from EEX / EPEX Spot for Germany/Austria market area.

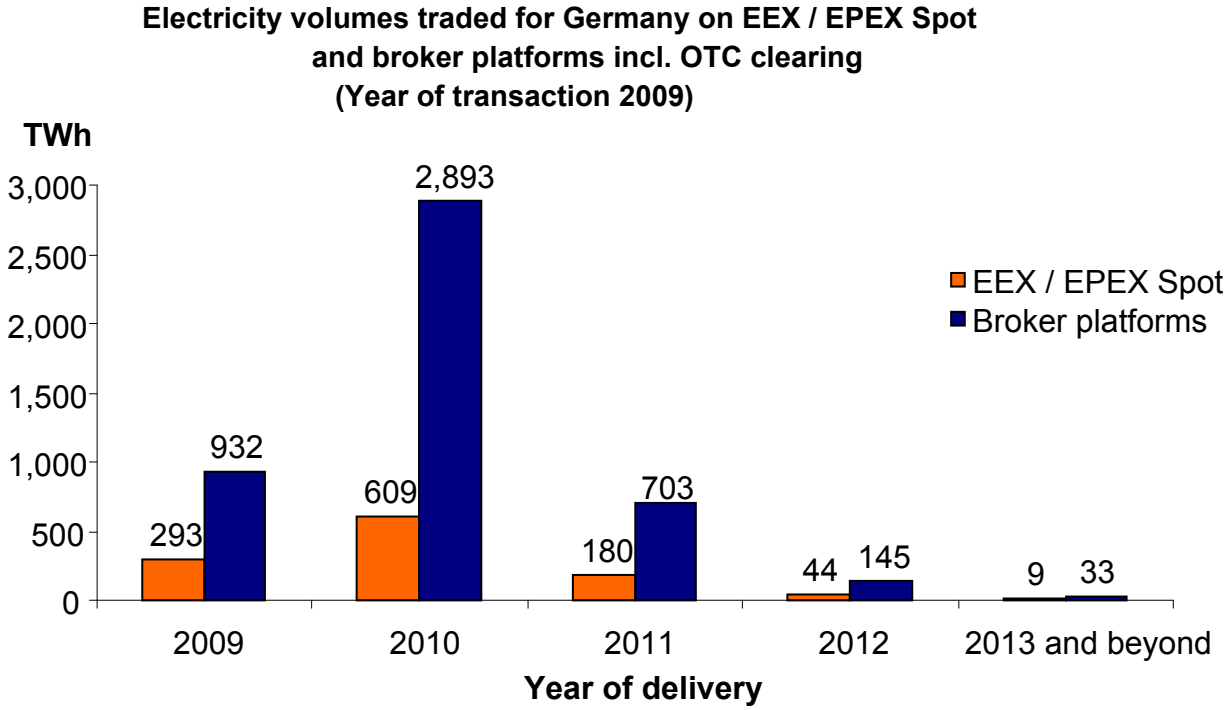


Fig 20: Electricity volumes traded for Germany on EEX / EPEX Spot and broker platforms incl. OTC clearing (year of transaction 2009)[24]

Sales of EEG electricity on the exchange and negative prices on the EEX / EPEX Spot

Until 31 December 2009, TSOs were obligated to level out the fluctuating amounts of electricity they had purchased into a constant monthly profile. The costs incurred for this by all four TSOs, ie for procurement of the amounts required for offsetting, expenditure on keeping reserves and the use thereof, along with expenditure on balancing, amounted to a total of around €460m in 2009. This marks a reduction of approx. 23 percent in comparison with 2008, when the total was around €595m. However, a decrease in costs could not be observed to the same extent for all TSOs. For three TSOs the reduction was of a similar size, between 10 and 15 percent. One TSO was able to lower these costs by 54 percent, though. The reason behind this decrease was that the average amount of wind power fed in under the EEG was significantly lower than in the previous years as a result of weather conditions.

On 27 February 2010, the Bundesnetzagentur issued the implementing ordinance on the Equalisation Mechanism Ordinance (AusglMechAV). This details the rules for the sale of electricity for which tariffs are payable under the EEG. The overriding aim is for transparent and cost-efficient sale of electricity on the electricity exchange. As a result of the AusglMechV, which has improved the system of nationwide compensation, since 1 January 2010 TSOs are no longer obligated to physically redistribute electricity in the form of monthly profiles to suppliers, as sales take place on the exchange.

The imbalances between revenue and expenditure associated with the application of the equalisation mechanism are redistributed to the electricity suppliers in the form of the EEG surcharge. The TSOs set the EEG surcharge for 2010 for the first time on 15 October 2009, having forecast the parameters for the year which influence the amount of revenue and expenditure.

[24] Data from EEX / EPEX Spot for the Germany/Austria market area.

Revenue included that from sales of EEG energy on the spot market. Transmission system operators expected EEG feed-in totalling 90 TWh in 2010, to be remunerated to the installation operator at an average of €140/MWh. Given the EEG surcharge at the time, an average price of €54/MWh had to be applied in order to calculate sales proceeds. This resulted in forecast revenue of approx. €4.5bn.

Transmission system operators estimated expenditure for EEG sales in 2010 at €12.7bn in total. This resulted in a forecast deficit of €8.2bn. From the ratio between the deficit and the forecast regular sales to final consumers, estimated at 401 TWh (ie excluding privileged final consumer sales for electricity-intensive companies), an EEG surcharge of 2.047 ct/kWh was derived for 2010, to be paid by the electricity suppliers for each kWh supplied to final consumers. In retrospect, the estimates stated proved to be too low. In the first nine months of 2010 alone, a gap of approx. €1.1 billion arose. On 15 October 2010, transmission system operators published an EEG surcharge of 3.53 cent/kWh, based on improved estimates and continued strong growth in the use of photovoltaic systems in particular. This also covers the deficit incurred in 2010. In addition to the high number of newly installed photovoltaic systems, a driving factor for this development is the comparatively low price level currently observed on the exchange.

A transitional rule valid until the end of 2010 was incorporated by the Bundesnetzagentur in the details for EEG electricity sales. This exempts the TSOs exceptionally from the obligation of selling EEG electricity on the exchange at any price. In certain exceptional cases they can set price limits, in order to avoid an additional burden on the final consumer through sales at considerably negative prices.

Since 1 September 2008, negative prices can also be seen on the EEX / EPEX spot market for electricity for the Germany/Austria market area. In the event of negative prices, no charge must be paid for electricity consumption, but rather the electricity trader receives a payment from the seller for taking the electricity. The implementation of negative prices was an express wish of the trade participants. Prices may lie between €-3,000/MWh and €3,000/MWh. Negative prices appeared on the EEX spot market for the first time on 5 October 2008. In 2008, negative hourly prices were observed on the spot market for electricity (Germany/Austria market area) on six days. In 2009 negative hourly prices appeared on 25 days and in the first half of 2010 they occurred on four days.

Essentially, negative prices trigger market incentives to optimise electricity production under the respective short-term conditions. For example, conventional power station operators selling their electricity on a long-term derivatives market are not necessarily obligated to produce the electricity independently. To a certain extent and with appropriate negative prices, it could be beneficial for them not to produce electricity sold on a long-term basis themselves, but instead to buy this via the short-term spot market. For many power stations a change in electricity generation means costs in the form of start-up and shut-down costs. As a result, conventional power station operators must judge whether the costs associated with lowering electricity production will be compensated by the income from the purchase of electricity and the fuel costs saved. In the medium term, negative prices can therefore also stimulate investments in the flexibilisation of operations in conventional power stations and the use of storage technologies.

With respect to EEG sales, considerably negative prices, such as those occurring in the night of 3-4 October 2009 with the maximum negative price peak of minus €500, mean that the price upon which the EEG surcharge forecast was based cannot be achieved and that the actual income for the kWh concerned is therefore less than the forecast income. If negative exchange prices occurred frequently or were at extremely negative levels, this could lead to a considerable burden on the EEG surcharge payments and therefore ultimately to an additional burden for the final customers.

The Bundesnetzagentur's experiences in the first half of 2010 basically showed that the exchange was able to completely take on additional amounts of EEG electricity whilst maintaining rational prices; considerably negative prices were also not observed. In this context, a clear increase in trade volumes on the EPEX spot day-ahead market can be recorded for the Germany/Austria market area, from 67.4 TWh in the first half of 2009 to 99 TWh in the first half of 2010. Intraday trade for Germany on the EPEX Spot climbed from 1.92 TWh (1st half 2009) to 4.69 TWh (1st half 2010). However, the first half of 2010 was a period of comparatively low wind, so that the protective mechanism of this exceptional rule has not yet had to prove its necessity or its effectiveness. For this reason, the Bundesnetzagentur has commenced a consultation process regarding the potential extension beyond 2010 of the exceptional rule on EEG energy sales. The proposed result of this consultation process is a limited extension to the exceptional rule. At the same time, cases where it would be possible to make an exception on unlimited sales will be clearly specified. Furthermore, the limiting mechanism will be specified in such detail that there remains no room for arbitrary decisions on the part of the sellers. Ultimately, the transparency of any limitation will be significantly increased.

Development of electricity prices in the wholesale sector[25]

While the development of prices on the EEX day-ahead spot market showed a significant increase in 2008, the prices for 2009 have fallen back to the 2007 level.

Following the increase until October 2008, the annual averages for 2008 for the Phelix-Day-Base and the Phelix-Day-Peak, with 73 and 63 percent respectively, were higher than in 2007. After the subsequent decrease, however, the averages for the Phelix-Day-Base and Phelix-Day-Peak in 2009 were again comparable with the annual averages for 2007. The Phelix-Day-Base average price level in 2009 was €38.85/MWh and therefore 2 percent above the average 2007 value, while the Phelix-Day-Peak was 4 percent below its 2007 counterpart at €46.83/MWh.

In the first half of 2010, the Phelix-Day-Base average was €41.27/MWh, while the Phelix-Day-Peak was €47.14/MWh. This marks an increase of six percent over the 2009 average for the Phelix-Day-Base, while the average price level of the Phelix-Day-Peak has increased by one percent.

[25] Further data can be found in part 2 of this Report under the heading "*Großhandel; Preise (Elektrizität)*" (available in German only).

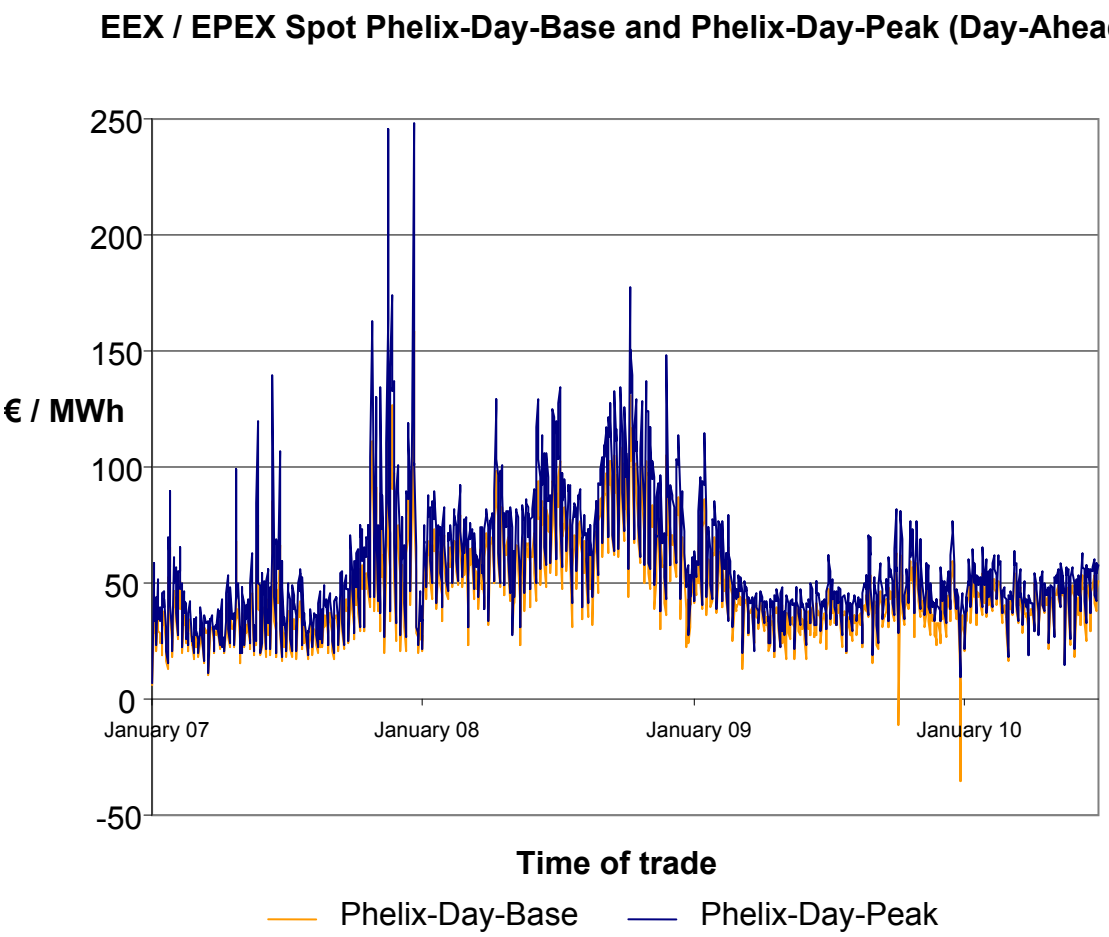


Fig 21: Price development EEX / EPEX Spot Phelix-Day-Base and Phelix-Day-Peak between 1 January 2007 and 30 June 2010[26]

On the EEX derivatives market the annual averages for futures for the rolling following year have also clearly increased by 26 percent (Phelix-Base-Year Future) and 25 percent (Phelix-Peak-Year Future) in 2008 compared to 2007. An intrayear analysis of price developments indicates that the maximum price was reached at the beginning of July 2008, before a significant decline until the end of February 2009. In 2009, the average price for Phelix-Year Futures for 2010 was €49.20/MWh (base) and €69.84/MWh (peak). These values are therefore approximately 12 percent below the annual average of Phelix-Year Futures in 2007 for the subsequent year 2008, which were €55.83/MWh (base) and €79.33/MWh (peak).

[26] Source: http://www.eex.com/de

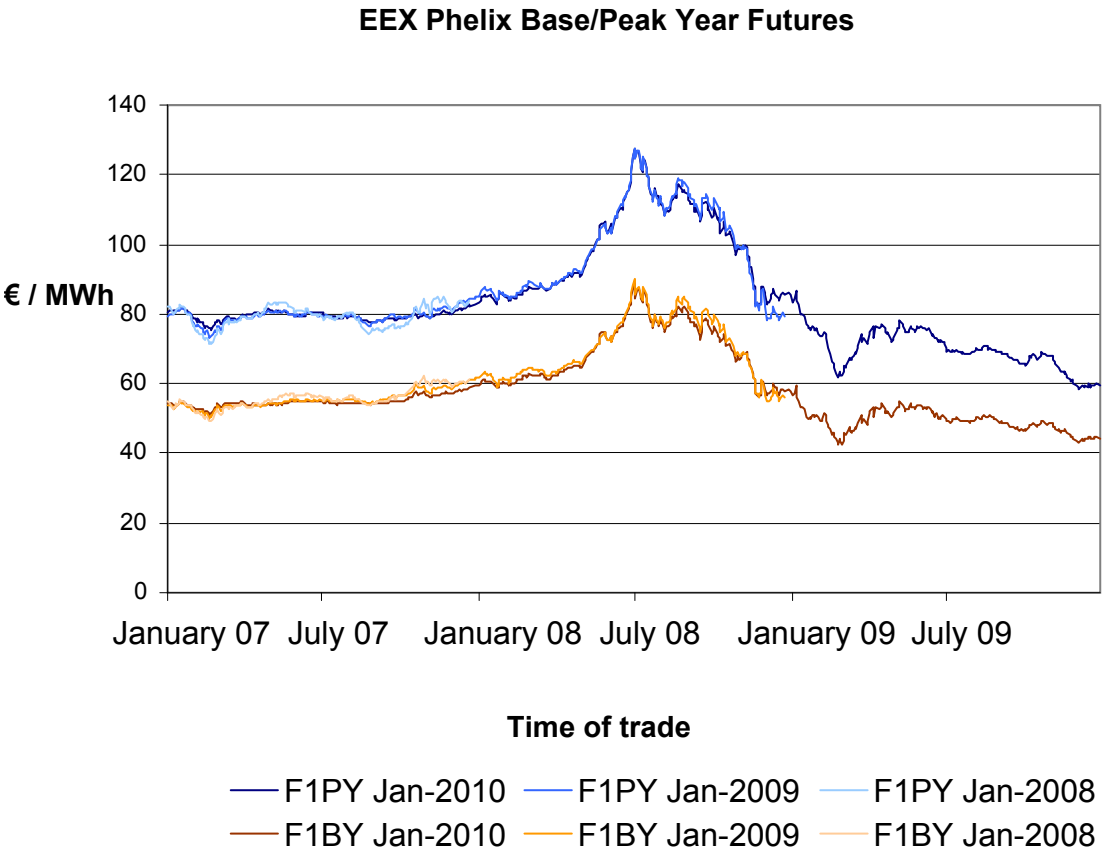


Fig 22: Price development EEX Phelix-Base/Peak-Year Futures for 2008, 2009 and 2010 between 1 January 2007 and 31 December 2009[27]

In the first half of 2010 the average Futures price for the rolling following year increased by two percent to €49.98/MWh for Base, while Peak decreased by five percent in comparison to 2009. However, the intrayear analysis in 2010 comparing price levels at the end of June and at the end of March indicates increases in annual futures for 2011 of €8/MWh (base) and €11/MWh (peak).

[27] Source: http://www.eex.com/de

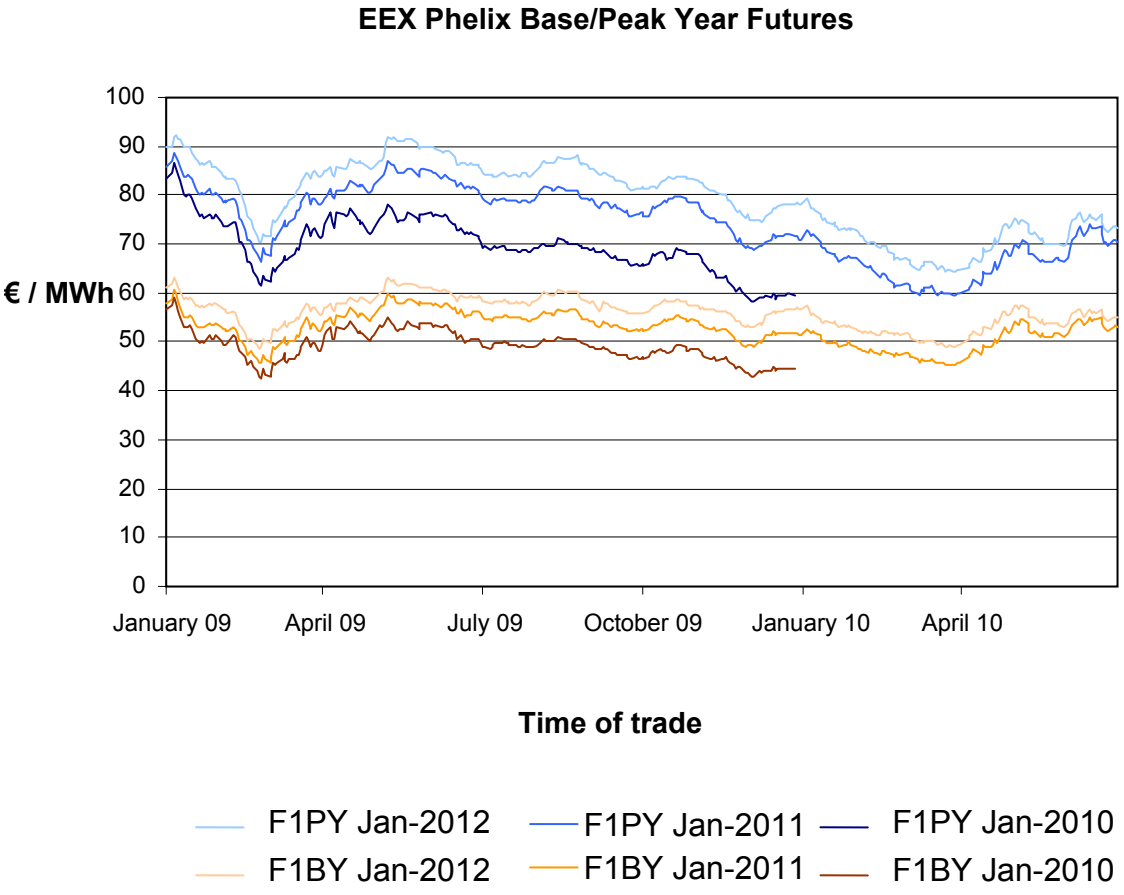


Fig 23: Price development EEX Phelix-Base/Peak-Year Futures for 2010, 2011 and 2012 between 1 January 2009 and 30 June 2010[28]

Retail

Development of electricity prices for household customers

Since the introduction of regulation, no general decrease in overall electricity prices for household customers has been achieved, despite the significant drop in network tariffs. However, regulation has led to an improvement in household customers' ability to switch contract or supplier. In this way, a reduction in electricity prices was achieved at least for those customers willing to switch. In addition to the reduction of network tariffs and the creation of market conditions which enable effective and undistorted competition, the success achieved by regulation with regard to electricity prices can be seen in the improved supplier switching processes and the establishment of electricity price transparency necessary for public discussion.

Costs that in the early days of regulation were contained in excessive network tariffs now have been cut back or fall under the price components they originate in. Accordingly, increases in other price components such as "sales" and "EEG surcharge", are in part a result of the cross-subsidisation from excessive network tariffs no longer permitted. The developments of individual price components provided in the following must therefore always be considered in the context of the regulatory measures. After the initial years of regulation and the resulting

[28] Source: http://www.eex.com/de

changes in the composition of electricity prices, an appropriate composition can be assumed in 2010.

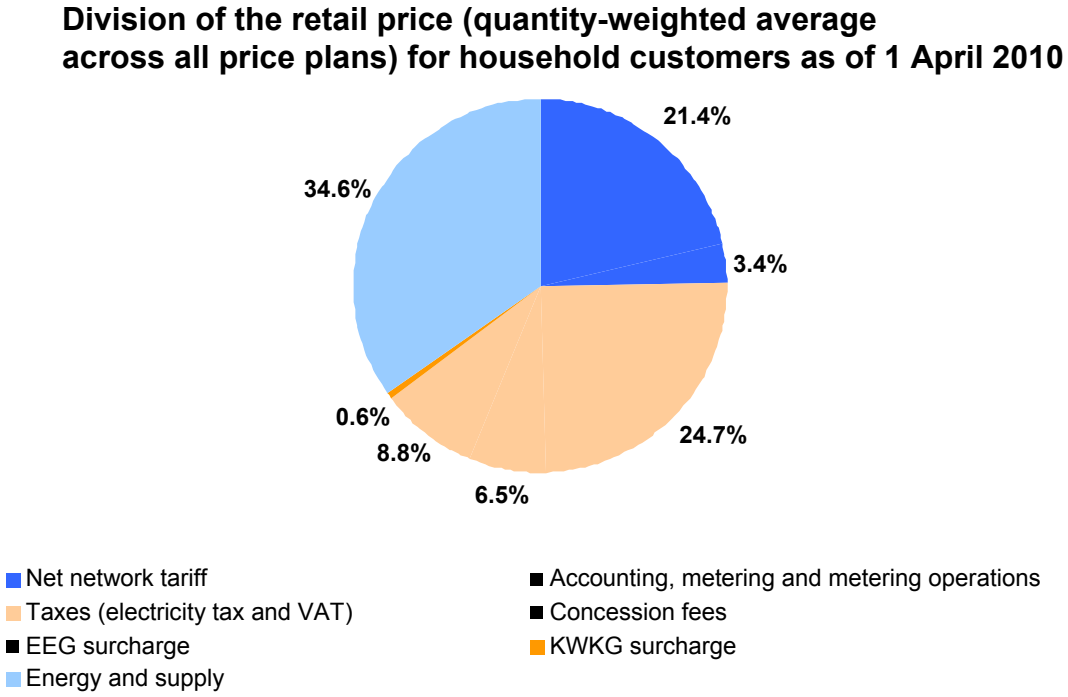


Fig 24: Division of the retail price for household customers as of 1 April 2010

Looking at the absolute household customer prices, which increased by around 24 percent (4.5 ct/kWh) between 2006 and 2010, it can be observed that the price component "energy and supply" recorded an increase of over 80 percent (3.6 ct/kWh) in the same period.

Fees (concession fees, KWKG and EEG surcharges) have increased by 1.2 ct/kWh or almost 50 percent in this period. This can be traced back almost exclusively to the higher EEG surcharge, which increased significantly between 2009 and 2010. A considerable share of this increase is based on wholesale prices that have decreased dramatically, which has led to a greater difference between the average remuneration under the EEG and the average procurement costs for electricity. A further share is represented by the transfer of costs for control and balancing energy. Prior to 2010 these were included in the network tariffs as renewables integration costs, whereas they now fall under the EEG surcharge in the interests of transparency. The cost effect, which is ultimately attributable to the growth in renewables, would, in purely arithmetical terms, be almost 0.4ct/kWh. Due to the changed requirements regarding renewables operating costs, however, relief effects also occurred. After balancing the opposite effects for 2010, only a consumer burden of approx. 0.2 ct/kWh can be directly attributed to the growth in renewables.

Between 2006 and 2010, network tariffs fell by 1.5 ct/kWh, or over 20 percent. Electricity tax has remained constant since 2006 at 2.05 ct/kWh, which is why the 1.1 ct/kWh increase in taxes can be explained solely by the increase in VAT and the percentage-based calculation thereof. This calculation means that increases in the "taxes" price component cannot entirely be traced back to higher taxes. Although VAT was raised in 2007, this also heralded an increase in potential net price increases and decreases.

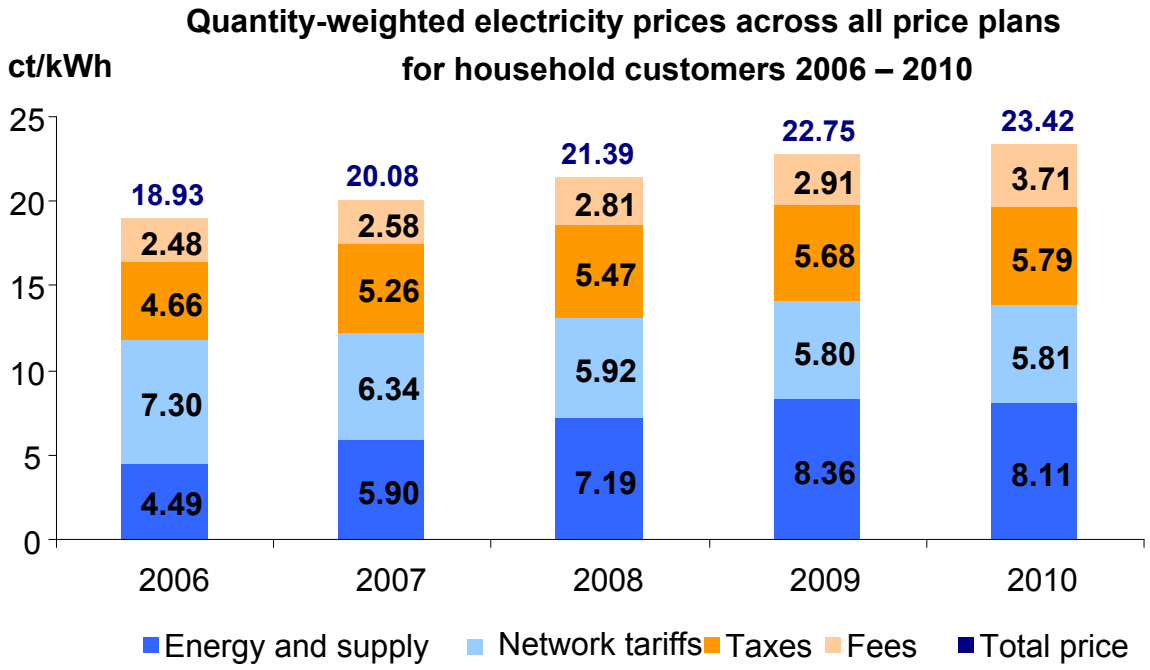


Fig 25: Quantity-weighted electricity prices accross all price plans for household customers 2006 – 2010

The share of the total electricity price set by the company consists of the components electricity procurement, sales and network tariff. The parts set by the government are taxes and fees. This means that at first glance the government components are predominantly responsible for the increase in electricity prices between 2006 and 2010, rising as they do by 2.4 ct/kWh (company price components increase overall by 2.1 ct/kWh). However, it is important to bear in mind regarding the price increases in recent years that firstly, the rise in taxes in absolute terms is attributed to the government costs, although to some extent these only amplify the company price increase. Secondly, the network tariff reduction implemented by the government is attributed to the company share of the price, playing down this element.

A look at electricity prices, excluding taxes, shows that the household customer price increased between 2006 and 2010 solely as a result of "energy and supply" (+ 3.6 ct/kWh) and the EEG surcharge (+ 1.2 ct/kWh). It therefore becomes clear when considering the increased components of net prices only (ie excluding network tariff decrease and taxes) that the company share of the electricity price increase is approximately three times that of the government.

As there was a VAT increase from 16 to 19 percent in the period in question, taxes need to be included in a full analysis of the price increase, which would assign the taxes to the price component causing the increase. The increase in VAT is thus responsible for a 0.6 ct/kWh share of the electricity price increase. The remaining tax increase of 0.5 ct/kWh is attributable to the fact that other price components have increased, with the percentage-based calculation of VAT leading in turn to a tax increase. This tax increase is now divided among the various price components according to causation. With this approach, around 1.4 ct/kWh of the price increase since 2006 can be attributed to fees, while the share of "energy and supply" is 4.2 ct/kWh. The causation-based inclusion of the increased taxes therefore shows that the electricity price increase between 2006 and 2010 can be primarily traced back to "energy and supply" (+4.2 ct/kWh), the EEG surcharge (+1.4 ct/kWh) and the VAT increase (+0.6 ct/kWh). Looking at the increased components of gross prices only (ie excluding the decrease in

network tariffs), the company share of the price increase is twice as high as that of the government.

It is evident that the government share of the electricity price is not the key reason for the constant price increases in recent years, even if, with over 40 percent, it is at a high level. Instead, the price increase for household customers is due to higher energy and supply costs. A considerable share of the increase in sales costs however can be attributed to the fact that prior to the introduction of the new legislation, these were transferred to the network tariffs. In 2006 this resulted in sales costs being far too low, and therefore to some extent the increase in the sales price component can be viewed as the situation normalising.

The electricity suppliers who participated in the 2010 monitoring survey were asked when they purchase electricity from the wholesale markets for supplying to households, and what amounts are involved. The resulting overview allowed approximate average values to be ascertained for the energy procurement costs in 2009 and 2010, and calculated back for previous years. This shows that the procurement costs increased clearly and constantly by almost 2.7 ct/kWh between 2006 and 2009, while a decrease of around 0.6 ct/kWh can be observed between 2009 and 2010.

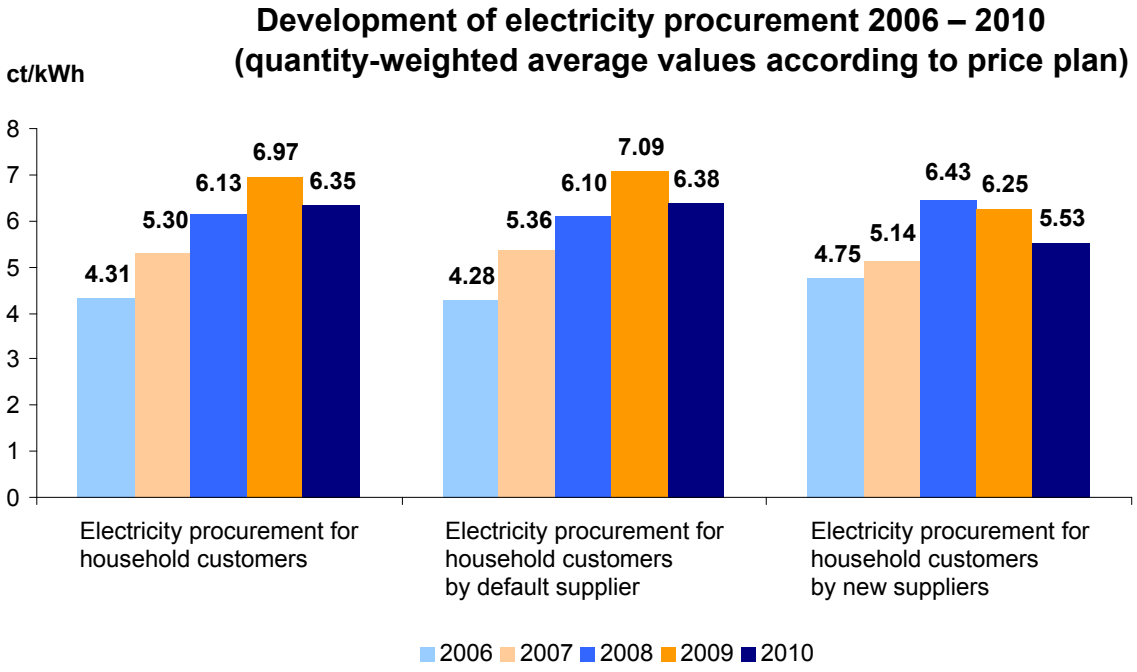


Fig 26: Development of electricity procurement 2006 – 2010 in ct/kWh

This means that the wholesale prices, which had been lower since the second half of 2008, had a positive effect on the electricity prices in the retail sector for the first time in 2010, albeit with some delay in comparison to the wholesale market. The main reason for this delayed reduction in suppliers' procurement costs are the long-term procurement strategies commonly practised.

When examining various procurement strategies adopted by electricity suppliers, it is evident that new suppliers currently procure electricity on a much shorter term than the established default suppliers. On average, new suppliers order only around 20 percent of their sales volumes over a year before they are supplied, and approx. 35 percent is not ordered until the year of supply. In contrast, default suppliers order on average as much as around 40 percent of their sales volumes over a year before they are supplied, and just approx. 5 percent is not ordered until the year of supply. As short-term procurement is currently on average cheaper

than a long-term strategy, at present new suppliers are mostly able to provide their customers with cheaper energy without having to tolerate any losses in the sales segment.

The analysis of electricity suppliers' procurement strategies also indicates the potential for reduction of the overall electricity price offered by optimised procurement. A range from four to nine ct/kWh is behind the average shown above of 6.97 ct/kWh for 2009. The range behind the electricity procurement average for 2010 of 6.35 ct/kWh is between five and nine ct/kWh. It is important to bear in mind here, however, that short-term procurement strategies also contain a greater risk. Although the long-term and proportional procurement strategy practised by most established default suppliers is less advantageous with dramatically falling exchange prices, in the event of rapidly climbing prices it does reduce the risk of considerable retail price increases.

In addition to the procurement costs, which overall have increased since 2006, sales between 2006 and 2010 have also seen a definite rise of 1.6 ct/kWh. Viewed in the long-term starting from 2006, this is a result of the fact that sales could no longer be cross-subsidised through excessive network tariffs after 2006. It can be assumed that the amount of 0.18 ct/kWh cited for 2006 was not able to cover the actual sales costs incurred. However, from 2009 to 2010 the sales component also recorded an increase of around 0.4 ct/kWh or 27 percent.

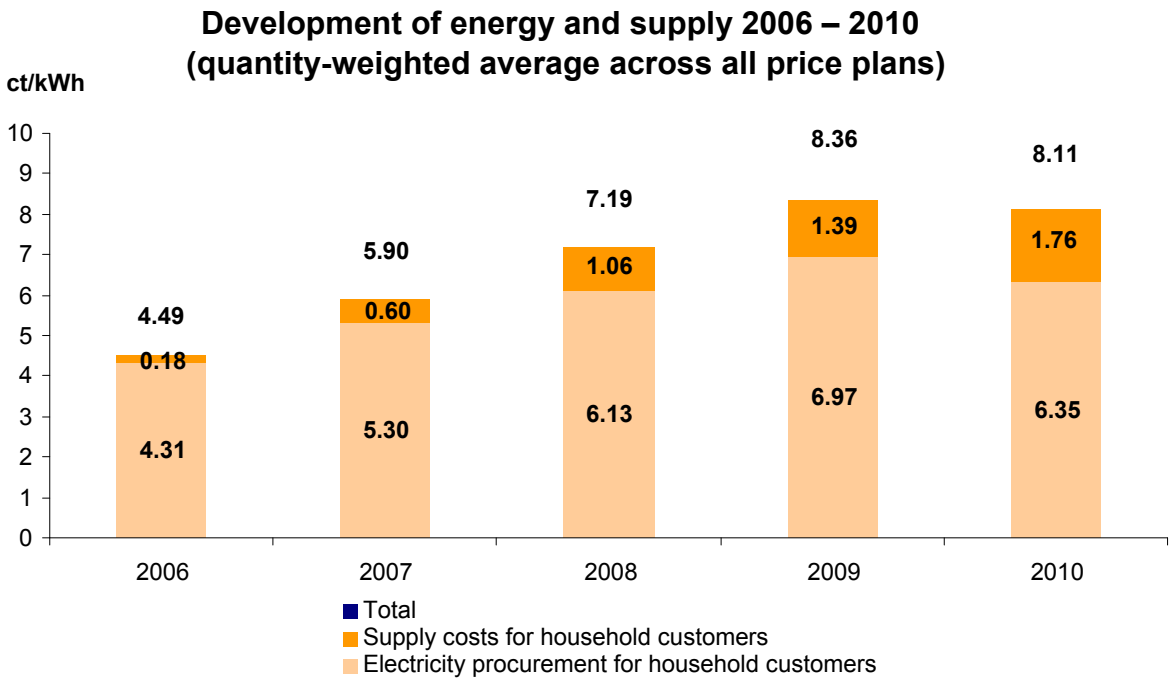


Fig 27: Development of energy and supply 2006 – 2010 in ct/kWh

The share of the entire electricity price set by the company consists of the components electricity procurement, sales and network tariff. Of these three, energy suppliers without their own means of electricity generation can only influence electricity procurement on the wholesale market through various procurement strategies. In order to evaluate the development of price components that are not dependent on the wholesale market, only the "network tariff" and "sales" components will be taken into consideration below. It becomes apparent that these components have seen a slight increase overall since 2006. As network tariffs decreased for household customers between 2006 and 2010, the total increase for the two price components indicates that sales experienced a disproportionate rise. If the increase in the sales component was due solely to the end of cross-subsidisation in the network tariffs, it would have at most increased by the amount by which the tariffs decreased.

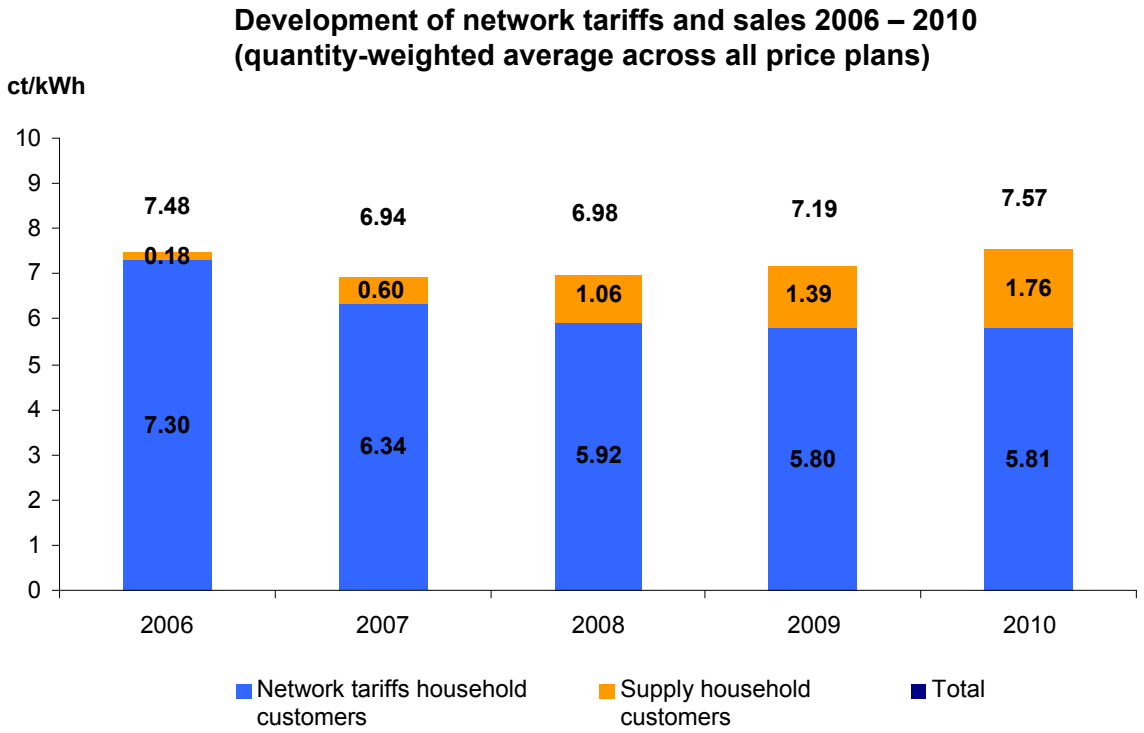


Fig 28: Development of network tariffs and sales 2006 – 2010 in ct/kWh

The graph also shows that the reduction in network tariffs for household customers was not able to reach the consumers. A large number of utilities fully compensated the reduction in network tariffs by increasing the sales component. Network regulation was therefore able to slow the increase of overall electricity prices, but has not yet led to a general decrease in prices for household customers.

However, regulation was indirectly able to reduce prices for households that switched contract or supplier. In order to make this clear, instead of focusing on just one electricity price plan, three different categories are looked at, namely the universal supply price plan, an alternative price plan from the default supplier (on switching contract) and a price plan offered by the default supplier or another provider outside of their universal supply network area (on switching supplier).

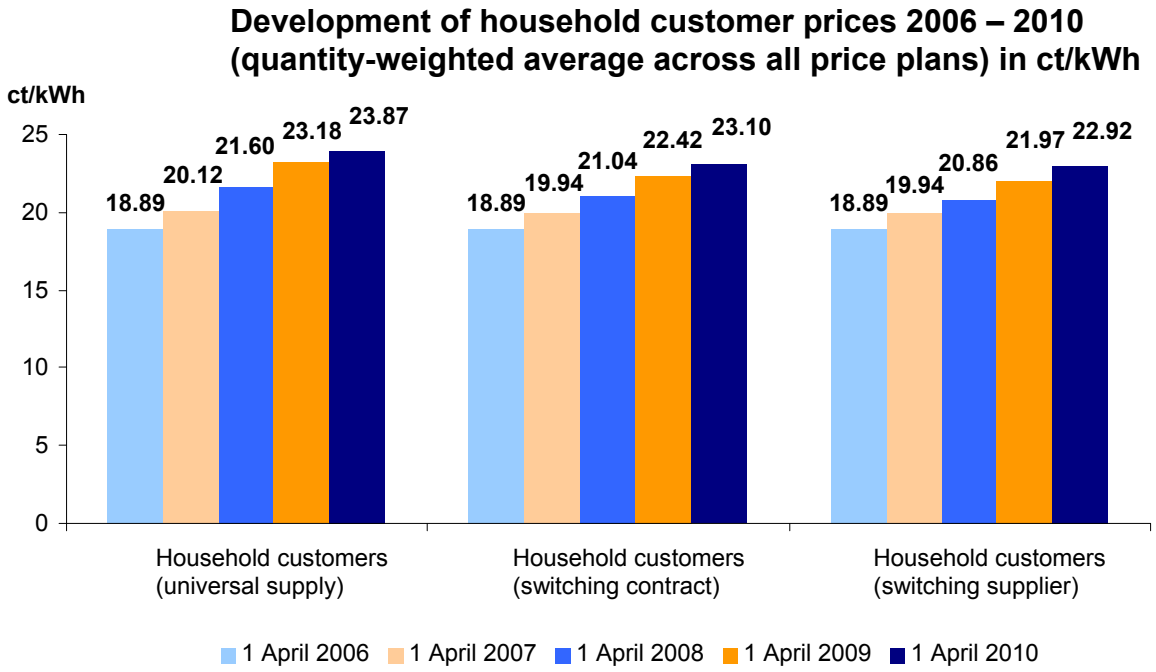


Fig 29: Development of household customer prices 2006 – 2010 in ct/kWh

A comparison of the three categories makes it clear that there are significant differences between the various quantity-weighted price conditions.[29] Universal supply continues to be the most expensive form of electricity supply; it is more price-effective for consumers to make use of their possibility to change and select another tariff from their default supplier or a tariff from another electricity supplier.

As, in terms of acquisition, all suppliers have the same non-discriminatory access to customers and therfore the same costs for network tariffs, taxes and fees, the difference between the various price plan categories is to be found in the "energy and supply" price component. This is the component in which electricity suppliers compete with each other, which is why it is calculated quite differently according to each company and price plan. As an example, the "energy and supply" component of universal supply price plans for household customers is depicted below.

[29] There are legitimate reasons why a universal supply plan is more expensive than a price plan resulting from switching contract or supplier. Default suppliers need to include higher costs for reminders, collection and bad debts. However, suppliers other than default suppliers incur considerably higher marketing, advertising and sponsoring costs for price plans involving a change of supplier, as they are not fed any customers from universal supply.

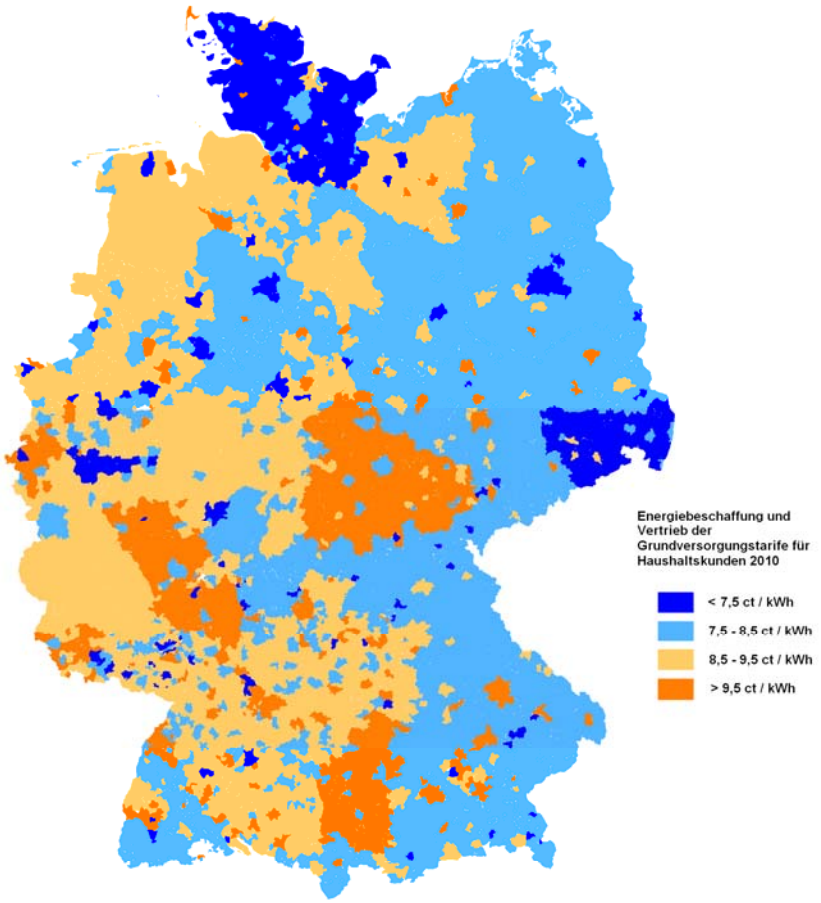


Fig 30: "Energy and supply" price component of the universal supply price plans for household customers according to network area 2010

It is noticeable that lower procurement and sales costs for universal supply are stated in eastern than in western Germany, unlike the situation with the network tariffs. In this way, the higher network tariffs can be compensated for to some degree, so that the overall electricity price for household customers in the east is not significantly more than that in western Germany.

Looking at the development between 2009 and 2010, it is clear that the "energy and supply" price component has decreased in all price plan categories for the first time since 2006. The reason for this fall is the proportional passing on of the lower wholesale prices, which have decreased since the second half of 2008.

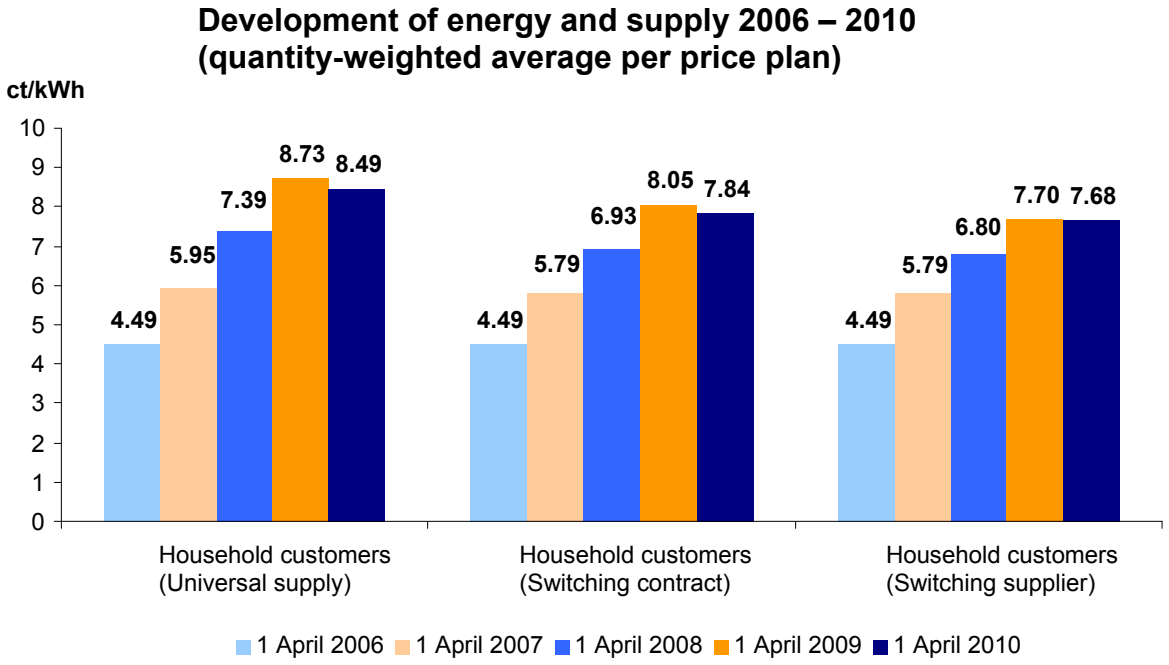


Fig 31: Development of energy and supply 2006 – 2010 in ct/kWh

It can be concluded that the price level of the alternative plans from default suppliers (switching contract) has come closer to the level of price plans offered by competitors (switching supplier). Between 2009 and 2010, over 40 percent of the default suppliers participating in the monitoring survey reduced their alternative price plans. In comparison, in 2010 reductions could only be seen in 14 percent of price plans for universal supply and 23 percent of plans from competitors. These comparatively widespread price reductions in the default suppliers' alternative price plans can be interpreted as the first sign that default suppliers are being forced to adjust at least their alternative price plans to a competitive level, in order to avoid losing customers.

A closer inspection of the plans offered by other suppliers (switching supplier) shows that this competitive pressure is for the most part not coming from other established default suppliers. While many default suppliers offer price plans in other network areas, these often offer no competition to the plans from the default supplier established in the region. Only offers from new suppliers lead to price-based competition for household customers.[30]

The lowering of alternative price plans in their own network area whilst simultaneously offering more expensive plans in other areas indicates that the majority of established default suppliers pursue a strategy of customer retention, instead of making attempts to win new customers in the network areas in which other default suppliers operate.

[30] Quantity-weighted average value of a price plan outside of the universal supply area from suppliers with no universal supply area of their own (new suppliers) in comparison to the alternative price plan (outside of universal supply) from the default supplier established in the region: 22.8 ct/kWh to 23.1 ct/kWh. Quantity-weighted average value of a price plan from default suppliers outside of the universal supply area in comparison to the alternative price plan (outside of universal supply) from the default supplier established in the region: 23.4 ct/kWh to 23.1 ct/kWh.

Development of competition in the retail segment[31]

The upshot of this strategy is that more than 90 percent of the energy suppliers have virtually no customers in other network areas, and may therefore be one of the reasons for the sluggish development of competition in the German domestic electricity market. Competition was boosted only when new suppliers arrived. Hence it is not surprising that almost half of the new customer acquisitions in the year under review and almost 80 percent of the new customer acquisitions since 1998 are attributable to new competitors.

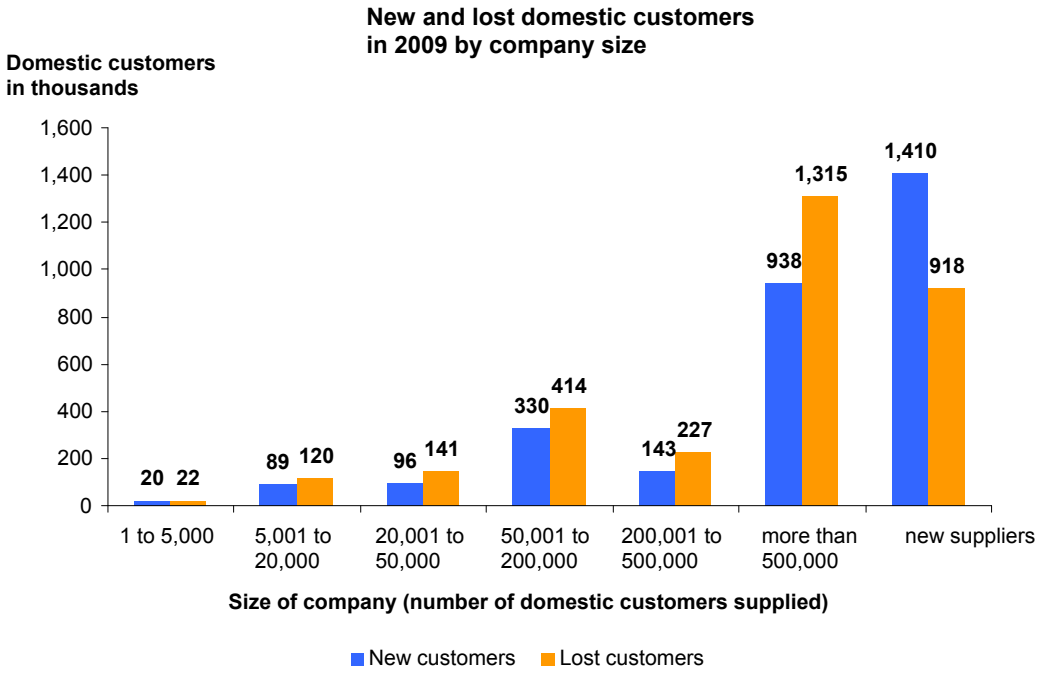


Fig 32: New and lost domestic customers in 2009 by company size

In particular, it is the suppliers that operate in many network areas that are seen to benefit from the possibility of new customer acquisition. Mostly, it is the new suppliers that are included in this group, as supplying customers in as many network areas as possible is often a common feature. Yet a few established default suppliers now operate in more than 300 network areas and have taken the opportunity to acquire new customers. They are found amongst the few regional default suppliers that have embraced competition by branching out into other network areas.

[31] This chapter relates to the entire retail segment, ie to the domestic customers in their entirety. Thus the statements here do not reflect the distinction made in antitrust law between standard supply customers and special contract customers.

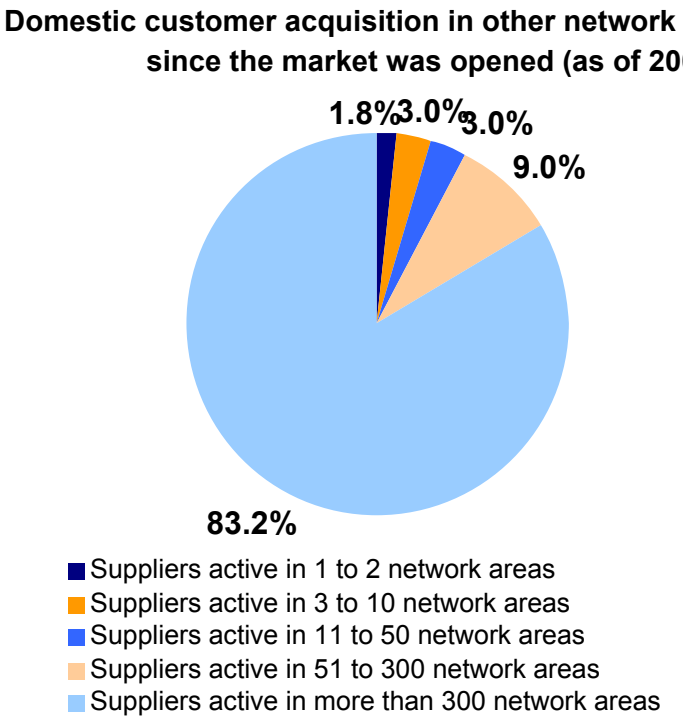


Fig 33: Domestic customer acquisition in other network areas since the market was opened (as of 2009)

As mentioned above, it is particularly the new suppliers that are currently boosting competition in the electricity market. Yet the term new suppliers is wide and includes all suppliers not active as the default supplier and/or operating in the German electricity market since 1998. Accordingly, subsidiaries or brands newly created by the established suppliers are included under new suppliers. The customer and market share losses of the major suppliers can thus be compensated for via other business channels. This is shown by the fact that, as of the year under review, almost half of the households that had switched were acquired by one of the big four suppliers. Also, some 30 suppliers won around 83 percent of all the domestic customers that had switched.

2009			
Supply to domestic customers	**Projected[32] take volumes in TWh**	**Volumes supplied by the big four companies in TWh**	**Percentage of projected total**
in standard supply areas	121.62	58.33	48.0
outside standard supply areas	19.50	9.64	49.4
Total	**141.12**	**67.97**	**48.2**

Table 2: Percentage supplied to domestic customers by the big four electricity suppliers in 2009

[32] As the monitoring activities for 2010 showed 96 percent of the market to be covered, coverage of 100 percent was assumed in determining the shares of the big four suppliers.

Besides the fact that the big four electricity suppliers have a share of 49.4 percent, calculated according to the dominance method,[33] outside the market areas in which they provide standard supply, local default suppliers continued to have dominance at regional level. True, in 2009 for the first time, less than half the domestic customers were supplied on the standard terms. This has less to do with a switch of supplier, however, than with a modified contract with the default supplier. Thus only 14 percent of all households were served by a different supplier, while 86 percent continued to be served by their local default supplier.

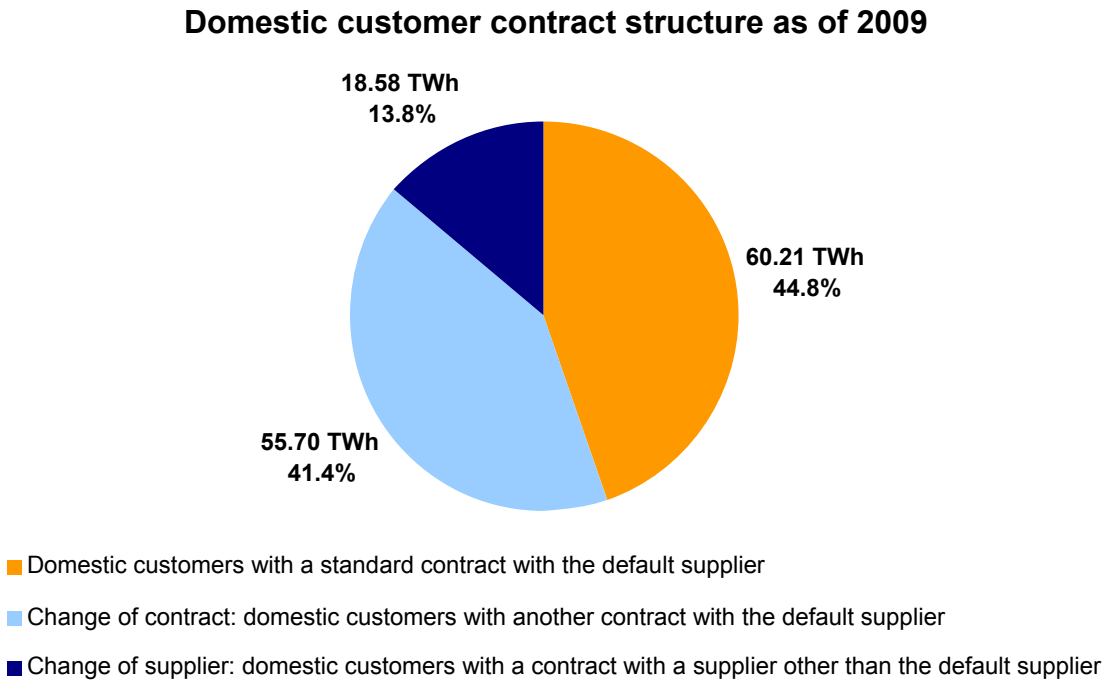


Fig 14: Domestic customers' change of contract and change of supplier

For many suppliers, the focus continues to be strictly regional, and the strategy geared more to existing customers, keeping their loyalty rather than winning new customers. This consolidates the regional dominance of default suppliers, a finding that also occurs in network areas in which many suppliers are active. Only in one or two places can the default supplier be seen to supply less than 70 percent of all the domestic customers in a particular network area.

[33] This allocates the volumes supplied by the dominated (consolidated) companies to the particular dominant company. 100 percent allocation is made. For joint ventures with a 50 / 50 participating interest allocation is made accordingly.

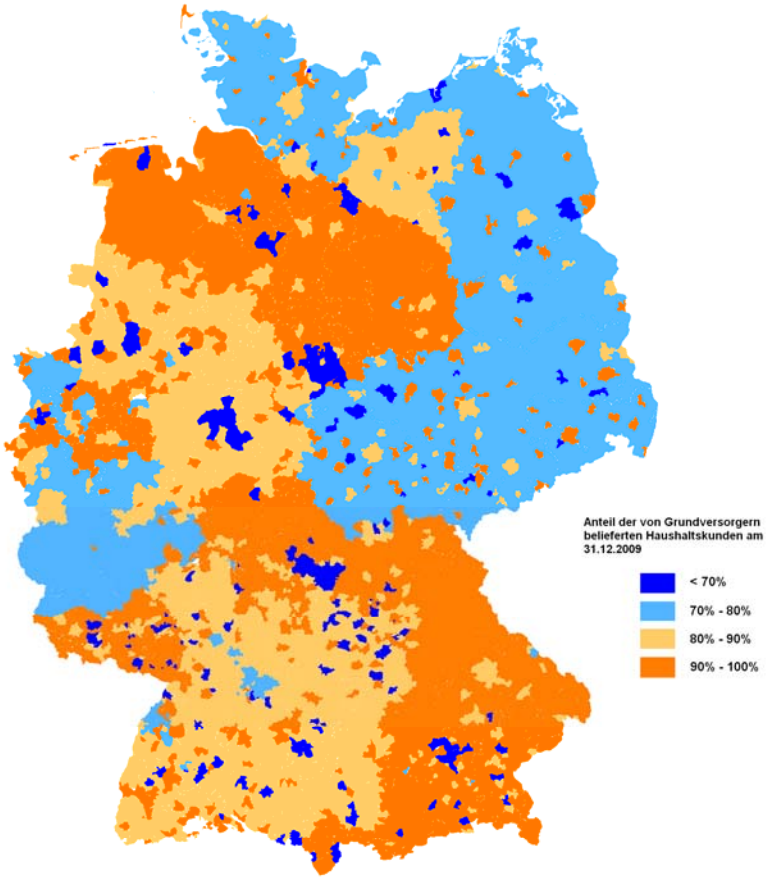


Fig 35: Percentage of domestic customers served by default suppliers per network area on 31 December 2009

Local suppliers' regional dominance will only end if domestic customers make much greater use of the possibility of switching supplier. So far, customers have only opted to change to a few, mostly new, suppliers. In 2009 these new suppliers were not able to multiply the number of new customers as easily as in the years before[34]
Thus the number of domestic customers switching supplier stagnated in 2009.

[34] Assuming that the discount area for domestic customers can account for some 20 percent of the whole electricity market and that 14 percent of all domestic customers have moved almost exclusively into this area, it may not be long before saturation is reached.

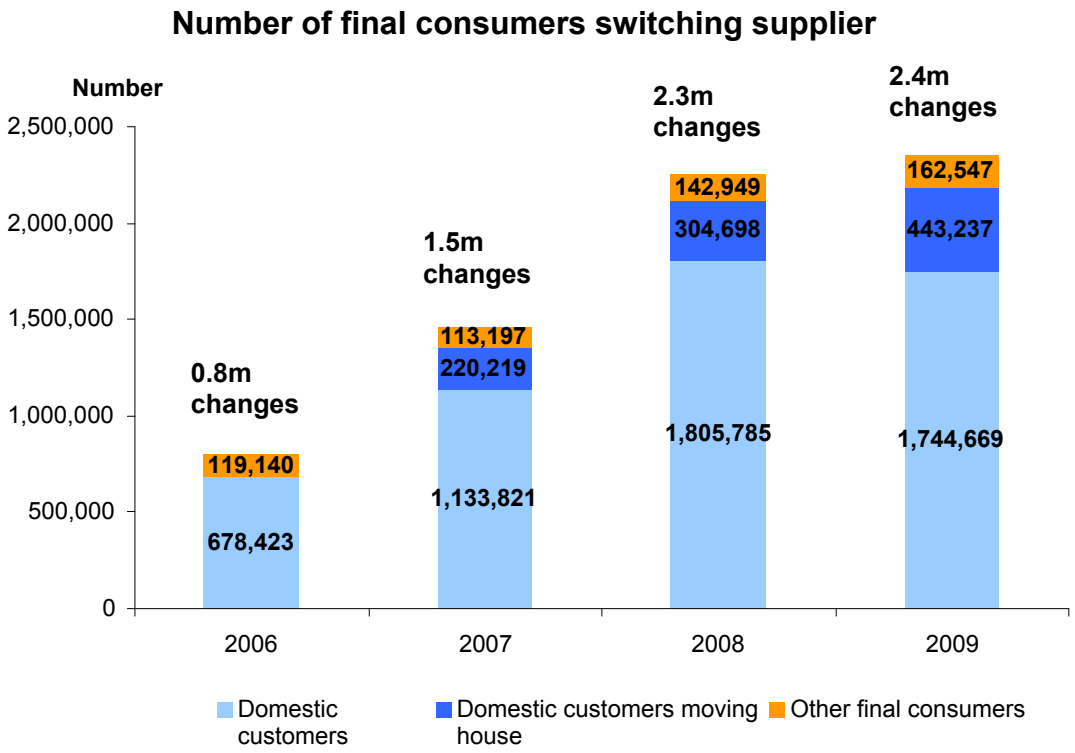


Fig 36: Number of final consumers switching supplier

The number of domestic customers switching supplier in 2009 persisted at the level of the previous year, ending the steady upwards trend of the last few years. The number of customers changing supplier without moving house even recorded a decline. By contrast, the number of customers switching supplier when they moved house showed a clear increase. Given that a good four million households move[35] each year, it can be assumed that every tenth household that moves now chooses a different energy supplier than the local default supplier. The number of changes by other final consumers increased by almost 20,000.

The slight increase seen in the chart in the total number of changes of supplier from 2008 to 2009 of some 100,000 is not attributable to a real increase but to improvements in the quantity and quality of the data collected. This is clear from the representation of the rate of supplier switch; compared with 2008, the volume stagnated and the numbers showed a slight fall.

[35] Federal Statistical Office; demographic trends in 2006: 3.6m moves beyond federal state borders (plus estimated moves within federal state borders)

Category	2009 Supplier change in TWh	Percentage of take volume	2009 Supplier change in numbers	Percentage of number of final consumers
Domestic customers choosing a supplier other than the default supplier without moving house	6.30	4.5%	1,744,669	3.8%
Domestic customers choosing a supplier other than the default supplier directly on moving house	1.23	0.9%	443,237	1.0%
Total	**7.53**	**5.3%**	**2,187,906**	**4.7%**

Table 3: Domestic customers switching supplier according to data from DSOs

The main conclusion with regard to domestic customers switching supplier is a trend that was already emerging in the monitoring activities in 2009. It was noticed in 2008 that some ten percent of supplier switches were made by customers that had already changed supplier in preceding years. Thus it was not more and more customers switching for the first time; on the contrary, it was customers switching from one new supplier to another. As a result, the number of switches of supplier was considerably greater than the number of households making use, for the first time, of the opportunity to switch. In 2009, the year under review, almost half of all domestic customers who switched supplier had done so on an earlier occasion. Thus the percentage of domestic customers introduced to competition is less than in 2008.

In many places, the potential for lower prices thus remains untapped as a result of domestic customers continuing to buy electricity from their default supplier, despite the better deals available elsewhere. The pressure that could be exerted on the upstream markets at the resale, wholesale and generating levels if more domestic customers were to switch supplier is less than it could be. It would be good for competition if domestic customers, in particular, made greater use of the savings potential offered by a change of supplier.

The reason for not changing is not a lack of alternative offers. The opportunities for consumers are growing steadily. In 2010, on average, weighted by number of inhabitants, there were 124 suppliers per network area.

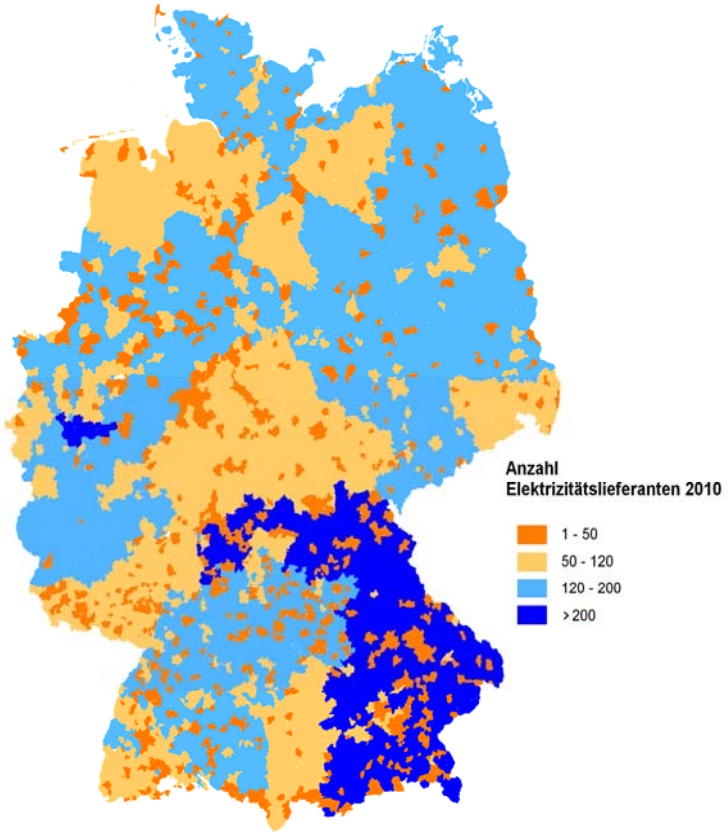


Fig 37: Number of electricity suppliers per network area in 2010

Yet customer inertia is not the only reason. The prices offered by many alternative suppliers are not particularly attractive. This also explains the lack of fit between supplier diversity and switching behaviour. While many suppliers are offering deals in more and more network areas, the offers themselves are often not specifically promoted and/or are not really financially worthwhile for the consumer. It is only a few suppliers that offer considerably cheaper deals and also actively promote them. Hence three percent only of all suppliers account for over 80 percent of switching customers. The suppliers that make up this three percent operate in network areas with many suppliers as well as in areas with few suppliers. As can be seen from the chart, there is no connection therefore between the number of suppliers and the frequency of switching in any one network area.

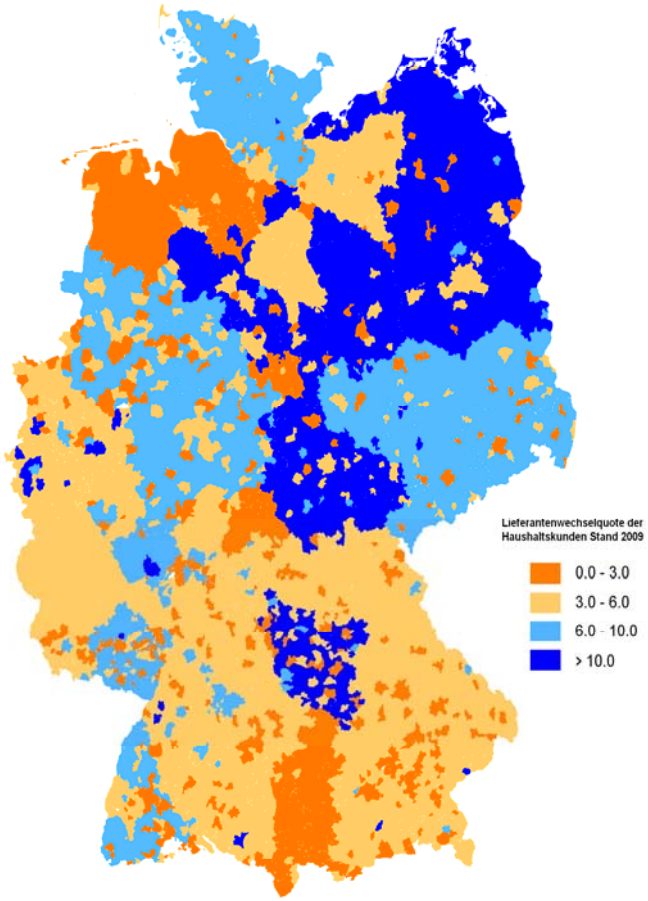


Fig 38: Rate of domestic customer supplier switch per network area in 2009

Even if more than 20 suppliers are active in nearly 90 percent of all the network areas, this is still slight, measured against the number of suppliers operating in Germany – more than 1,000. Just under three quarters of all suppliers operate in a maximum of ten network areas only. This, too, shows that only a few electricity suppliers operate throughout the country and that the majority, particularly in the domestic customer segment, pursue regional strategies only.

In conclusion then, it can be said that the established suppliers mostly aim to tie in their customers in the areas in which they are the default supplier, and are less interested in winning new customers in other network areas. Likewise, many consumers opt to remain with their original supplier instead of switching. It is increasingly difficult for new competitors to gain new customers that are not already in the consumer group that is open to changing. This accounts for the number of supplier changes in 2009 stagnating in comparison to the previous year. If domestic customers do decide to switch supplier, it is mainly just a few suppliers that benefit. Almost half of all customers who switch are acquired by one of Germany's four biggest suppliers. In terms of the whole of the country, the situation of dominance thus remains the same. And at regional level, too, despite the growing number of suppliers, the local dominance of the default suppliers remains in place.

Important developments in the gas market

Important developments in 2009

A feature of the German gas market has been the far-reaching structural and regulatory changes it has undergone in the last few years. The concentration of market areas, the new balancing arrangements and further measures and determinations from the lawmakers and the antitrust and regulatory authorities have brought about sustained improvements in the conditions for competition. But the growing competition itself has given the market fresh impetus for steady further development.

The real breakthrough for the market areas was achieved in 2009 when their number was halved from 12 to 6. Even more important is the emergence of two market areas that appear to be sufficiently large for a stable, liquid competitive market:

- Gaspool from the merger of Wingas, Gasunie Deutschland, Ontras, Dong and Statoil Hydro, and
- NetConnect Germany from the merger of E.ON Gastransport (now Open Grid Europe), Gasversorgung Süddeutschland (GVS), GRTgaz Deutschland, bayernets and ENI Deutschland.

The wholesale markets, in particular, have benefited from the structural improvements in the gas market. The concentration of market areas has stimulated trading at Germany's two main hubs in the Gaspool and NetConnect Germany market areas. Along with the surplus of gas resulting in part from the international financial crisis, these developments have greatly increased the trade volume, making Germany one of the most liquid hubs in Europe. Also, the spot market prices in 2009 were often clearly below the border prices, hitherto regarded as the reference price. Traders already following flexible procurement strategies were thus able to buy gas on more favourable terms, which put considerable pressure on the price of oil-price-linked gas volumes.

Final consumers, especially domestic customers, have benefited from this. In 2009, average gas prices fell by almost ten percent, resulting in average savings of 126 euros a year for a domestic customer with typical consumption. However, only few domestic customers have taken advantage so far of the opportunity presented by competition and signed new or modified supply contracts. The reasons continue to be the lack of information about the new opportunities competition has brought, fears that switching supplier will be too complicated or too risky and the assumption that potential savings will be too small to justify switching.

The average number of suppliers in the individual network areas has risen considerably so that most customers now have a choice as regards supplier and contract. Average potential savings are usually more than 100 euros a year, with bonuses for switching that offer added savings or other advantages becoming increasingly prevalent, following the example of the electricity and the telecommunications markets. Environmentally conscious customers, too, who would like to see the introduction and spread of biogas, are being given greater opportunity to sign contracts reflecting this.

Against this background, the Bundesnetzagentur – as the Bundeskartellamt (Federal Cartel Office) too – would encourage all domestic consumers to find out about switching supplier or signing a new contract so as to benefit from the opportunities of competition. Often, it is

enough for consumers just to talk to their current supplier to get a new contract with better terms and conditions.

The gas market in 2009

The international economic crisis and its far-reaching consequences affected the German energy market, too. Whereas the gas consumption of domestic customers and SMEs was largely unchanged over 2008, showing only the usual (mostly seasonal) fluctuations, the consumption of large industrial undertakings and gas-fired power stations fell by more than twelve percent. In all, this means that gas consumption in Germany was around seven percent lower than in 2008.

As a result, gas imports from other countries likewise fell. According to information from the operators, gas imports at the interconnection points fell by some ten percent and exports to other countries declined as well. Russia and Norway continue to be the main producers of gas consumed in Germany. But the Netherlands, as an important hub in Europe with its own gas reserves and berthing slots for LNG ships, is an important import country for shippers in Germany.

The production of domestic natural gas is still in decline. Once more, the reserves had to be revised downwards. According to information from the trade association *Wirtschaftsverband Erdöl- und Erdgasgewinnung e.V.* (WEG) the reserves currently assumed have a statistical life of around 10.5 years. Reserves of unconventional gas could prolong production in Germany, but are costly and need large investment. Nor will the greater use of biogas be able to lessen Germany's dependence on gas imports over the next few years. Compared to 2008, the volume of biogas fed into the system has more than trebled, but remains at a very low level.

A transit country with advanced storage capacity by European standards, Germany itself ranks highly when it comes to gas supplies to western Europe. Well over half the gas exported from Germany in 2008 was shipped to Belgium, France and Switzerland. In 2009, however, the year under review, clear shifts could be seen in exports, in particular, but also in imports. The reason for this was the gas crisis in early 2009 which saw interruptions in shipments from Russia through Ukraine. In response, many European countries undertook to secure continued supply to all end users[36]. This is visible in the export figures for 2009 as a significant increase in exports to Austria and the Czech Republic.

[36] A detailed analysis of the events outlined here can be found in the Monitoring Report 2009.

Wholesale trading in Germany

The role of the German gas market for European trading is becoming more and more important. Germany's favourable geographic position as a transit country and the steady concentration of its market areas have contributed to it becoming one of the most liquid trading places for natural gas in Europe. A comparison of the volumes traded in Germany with volumes traded at other European hubs shows the German market, meanwhile, to have reached the level of the Title Transfer Facility (TTF) in the Netherlands, generally considered to be highly developed and liquid.

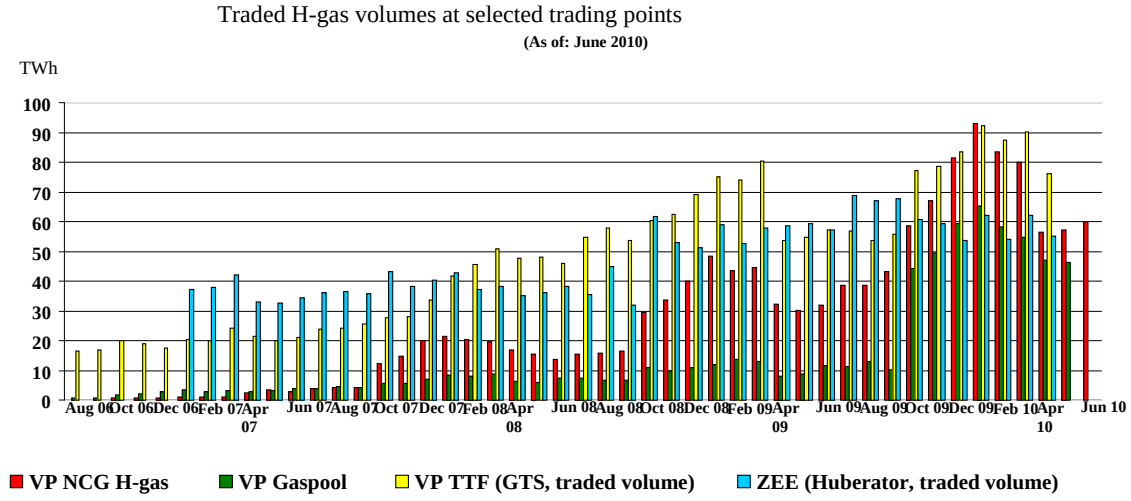


Fig 39: Traded volumes of natural gas at liquid European hubs such as TTF in the Netherlands and ZEE in Belgium
Source: Monitoring survey 2010, Huberator, GTS

In terms of the churn rate37 and, in particular, traded volumes of natural gas only the UK's National Balancing Point (NBP) has clearly higher liquidity. Thus the latest development in the German market shows tremendous momentum. The figures to hand for 2010 confirm this positive trend. Over the counter (OTC) trading continues to have great importance. The volumes traded on the European Energy Exchange (EEX) are still very low, but not unusually so by European standards.

Wholesale prices presented a particular challenge for the market participants. The border price for natural gas and the spot market prices in the OTC market and on the exchange have moved drastically apart. Meanwhile, however, the two price curves are coming closer together again. The extent to which the long-term contracts with classic oil price indexing will survive remains to be seen. There were some signs last year of a trend towards spot price indexed import contracts. Also, the traditional import companies have turned their attention to more short-term activities and shifted some of their procurement portfolios from imports to procurement at intra-European trading points.

[37] The churn rate denotes the ratio of the volume of traded to physically transported gas and is an important determinant of trading liquidity.

Development of gas trading in the German market areas

The liquidity of the German gas trading market has risen significantly since the introduction of new gas balancing arrangements in the 2008/2009 gas year and the further consolidation of the market areas. The volumes traded on the high calorific gas (H-gas) market were almost twice as high as in the previous year.

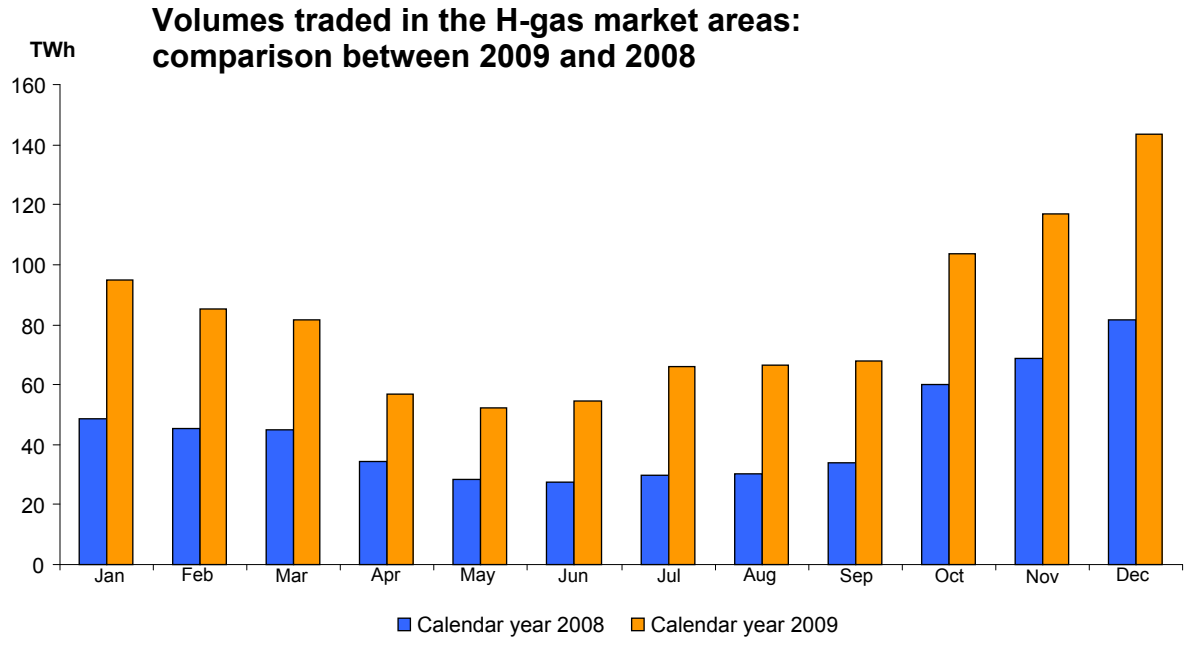


Fig 40: Volumes traded in the German H-gas market areas (including on the exchange). Since 1 October 2009 there remain only three such areas. Two resulted from comprehensive concentration at the beginning of the 2009/10 gas year.
Source: Monitoring survey 2010, NetConnect Germany GmbH, Gaspool Balancing GmbH

Bigger still were the rates of growth in trading in the low calorific gas (L-gas) market areas:

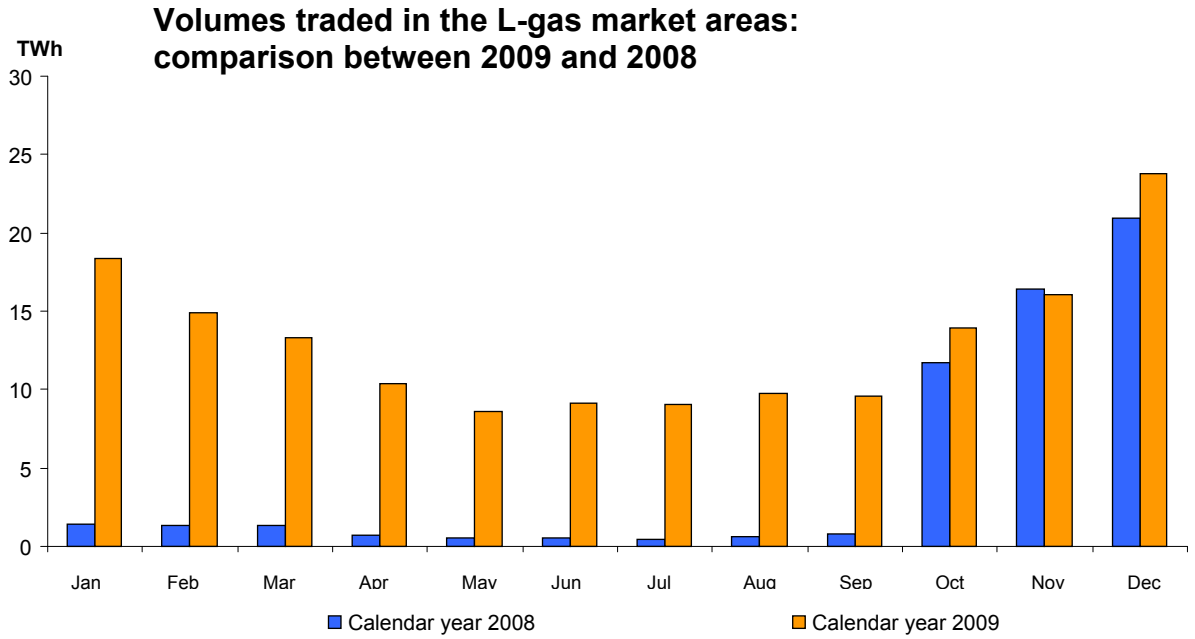


Fig 41: Volumes traded in the German L-gas market areas. Since 1 April 2009 there remain only three such areas. Source: Monitoring survey 2010, Aequamus GmbH

OTC trading via brokers

Trading is done either on the exchange or over the counter (off exchange).

On the exchange, the customer is typically given the opportunity of anonymous trading in standardised products. With clearing transactions the transaction is secured against possible default by the contracting party. Trading in natural gas on the exchange in Germany is done on the EEX energy exchange in Leipzig. In OTC trading, a broker often acts as an intermediary, buying and selling gas on behalf of the customer. The customer can specify general conditions for the contract and make stipulations that the contractual partner found by the broker is to meet. For instance, he can ask for an EFET general agreement, or stipulate that the counterpart has a certain amount of experience as a dealer, measured for instance by the number of years in trading. The customer only learns the identity of the contracting party when the broker has carried out the transaction according to his specifications. Upon request, the EEX clearing facility will also secure OTC trades. In German trading in natural gas, the importance of OTC in relation to trading on the EEX is still extremely high. In 2009, less than 1.6 percent of all trades in the market were performed on the EEX; most of the revenue was accounted for by OTC. The four biggest brokers were asked to provide trading data on all their business for the first time as part of the monitoring survey 2010.

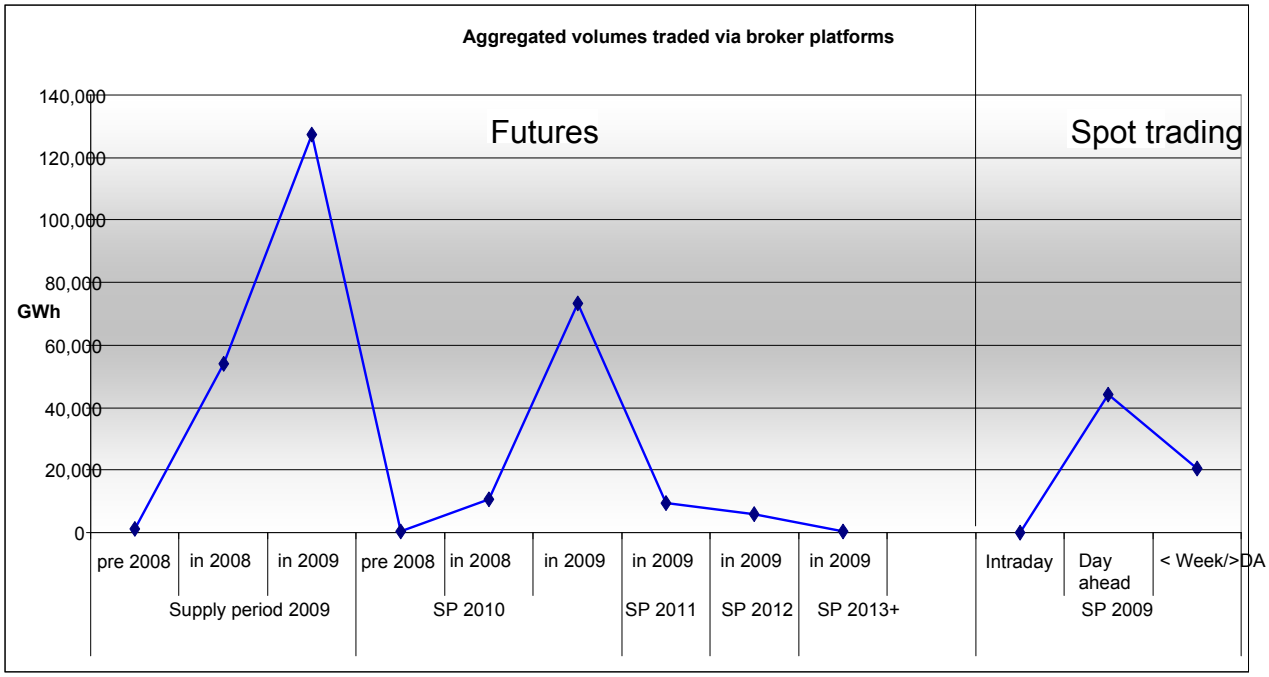


Fig 42 OTC volumes traded via brokers, split into short and long term trading for the supply periods 2009 to 2013.

In the year under review, traders procured gas mainly for 2009 and 2010. Supply periods after 2011 featured only occasionally, as the forecast for the market becomes more difficult, the further away the time horizon is. It is also worth noting that intraday trading via brokers is almost negligible. Considerably more liquid, by contrast, is day ahead trading with more than 44,000 GWh. Independently of the supply periods, a total of 281,143 GWh was traded via brokers in spot and futures trading together.

Development of trading on the EEX

Since natural gas was first traded on the EEX in July 2007 the development of liquidity has been very slight. The initial high growth rates could not be maintained. On the contrary, trade volumes have remained at a relatively low level since November 2008. Yet a positive trend in volumes traded appears to have started on 15 October 2009. This was when NetConnect Germany GmbH (NCG) first used the EEX to meet at least some of its day ahead requirements for system balancing energy for its H-gas market area. This could also have implications in the future for the second big H-gas market area on the EEX: since May 2010 Gaspool Balancing Services GmbH (Gaspool) has likewise used the Leipzig exchange to cover some of its system balancing energy requirements.

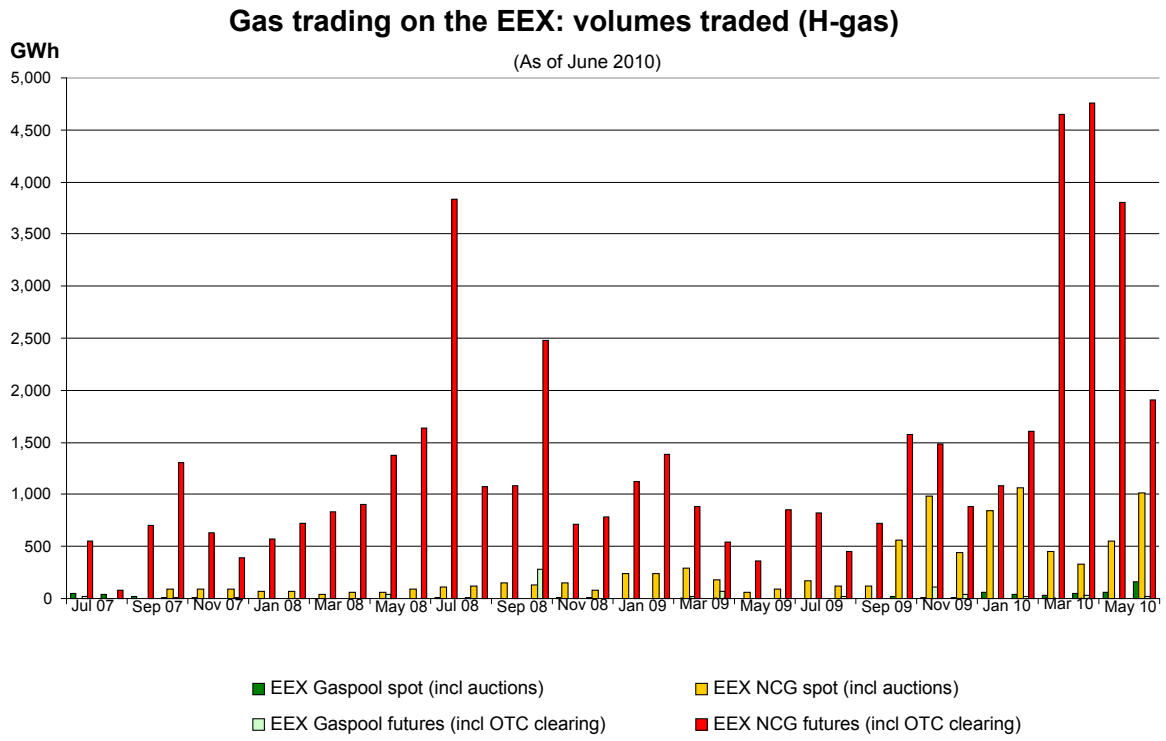


Fig 43: Cumulated monthly volumes in GWh on the German energy exchange EEX since the start of trading in July 2007 in the two H-gas market areas Gaspool and NetConnect Germany for spot and futures products.
Source: EEX

Measured in terms of the physical consumption of natural gas in Germany for 2009 (913.78 TWh/a) the total of all the traded spot and futures products for both market areas (NCG / Gaspool) on the EEX was very low at just under 15 TWh/a (or 1.64 percent). Compared to other European energy exchanges such as the Amsterdam Power Exchange (APX) which trades in natural gas for the markets in the Netherlands and Zeebrügge, the EEX's turnover for short term trading is more liquid. Just the APX trades for the UK's NBP produce turnover that is almost fifty times as high as that on the EEX.

Wholesale prices

Gas consumption fell in Germany in 2009 as a result of the weaker domestic economy. At the same time, there was a sustained surplus of natural gas in the whole of Europe as a result of extensive LNG supplies. The share of LNG supplies in Europe amounted in 2009 altogether to ten percent of the entire volume of gas of the EU 30[38] This constellation is responsible for an unusual spread of the gas prices at the border points, compared with the wholesale trading points in the market areas. The border price for natural gas is established monthly by the Federal Office of Economics and Export Control (BAFA)[39] and shows the value of the gas at the German border. It is an important indicator of trends in gas prices, and provides the basis for long term wholesale supply contracts.

[38] Source: Two studies of Internet use: "Gasschwemme erreicht Europa", Deutsche Bank Research of 27 May 2010.
[39] The border price is a statistical average of the imports BAFA records of gas trading companies to supply the German market. Not included is the German natural gas tax, for instance.

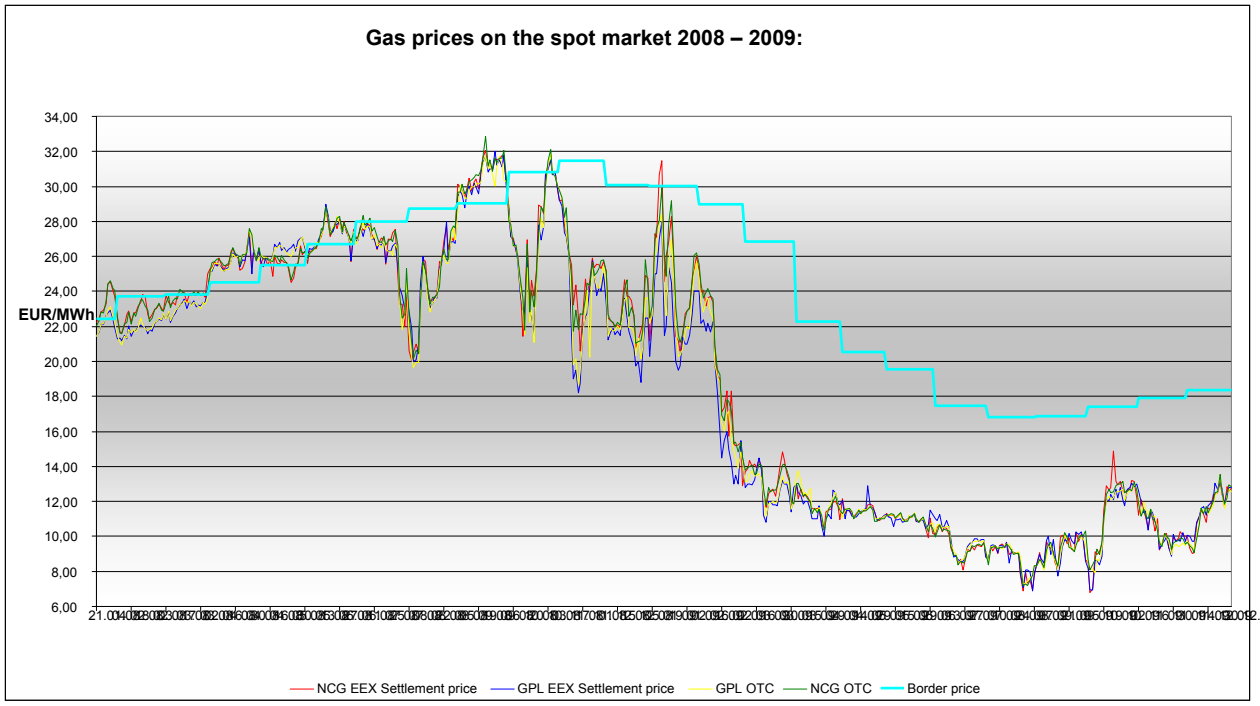


Fig 24: Comparison of the daily gas prices in NetConnect Germany's (NCG) and Gaspool's (GPL) market areas as obtained on the EEX and OTC for short term trades. The monthly border price is also shown. Sources: EEX, LEBA, BMWi / BAFA.

As the diagram shows, the border prices in 2009 were clearly higher than the spot prices for NetConnect Germany's and Gaspool's H-gas market areas. In August, the border price was as much as 2.3 times higher than the price on the EEX. This put pressure on gas importers with long term, oil price indexed supply contracts. Traders, on the other hand, can buy gas on the spot markets much more cheaply than at the border points, as long as they do not have inflexible supply contracts with their upstream suppliers with "take or pay" clauses. Given these significant price differences, however, traders are seeking modifications to their long term supply contracts. According to individual forecasts, the current oversupply of natural gas and the resultant low price level is likely to continue in the short to medium term.

Switching supplier and the development of retail gas prices

Switching supplier

Switching supplier refers to a process by which a final consumer at a metering point (eg connection in the building) changes his current supplier for a new one. In all, the figures in the following table are based on the 609 questionnaire responses received from the network operators. The growth in the number of consumers switching supplier is also an indicator of the growth in competition in the retail sector.

A supplier switch growth rate of just under ten percent can be established when an overall view of all the network operators and the registered figures is taken. The supplier switch volume rose from 42.53 TWh in 2008 to 47.18 TWh in 2009, the year under review, which corresponds to a switch rate of 5.16 percent (4.43 percent in 2008). In 2009 a total of 402,958 domestic customers changed their supplier. In 2008 this figure was 353,460, just under 50,000 fewer. The fact that the volume-based rate of supplier switch differs from the numbers-based rate may be accounted for by incomplete information from the network operators, but also indicates that high-consumption households, in particular, are opting for change.

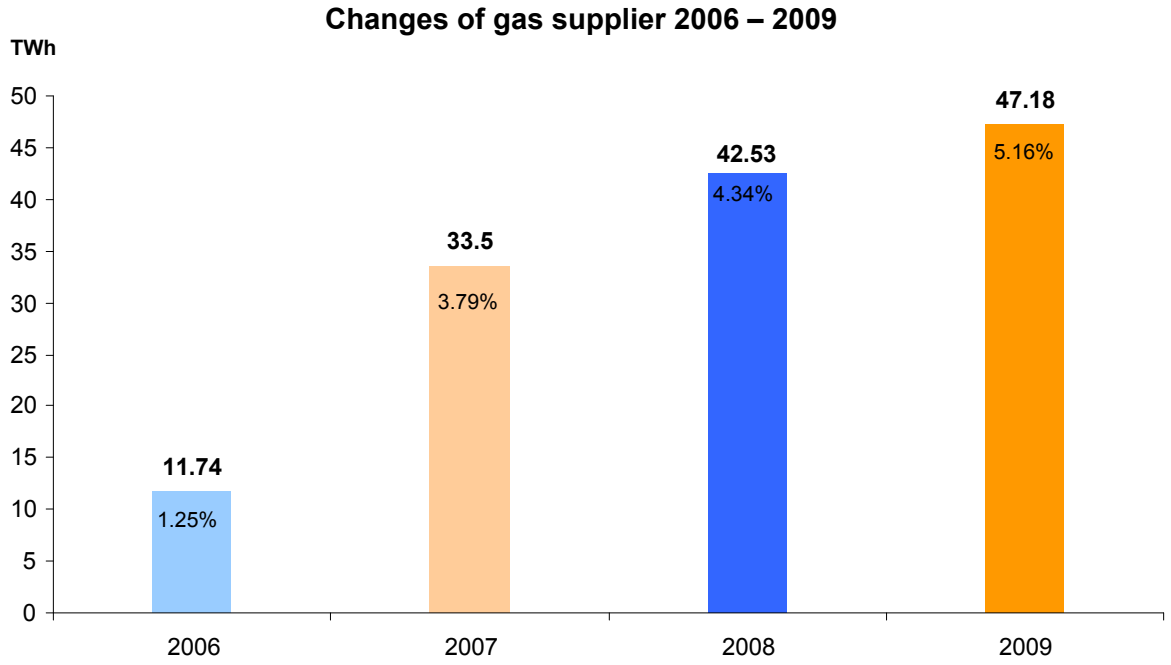


Fig 43: Growth by volume in TWh from a change of supplier and by percentage (2006 to 2009) according to data from DSOs and TSOs

However, the pace at which consumers have switched supplier has slackened since 2006. Whereas the rate of change between 2006 and 2007 almost tripled from an initially very low level, it was just below 30 percent in the same period from 2007 to 2008. And the current rate of change for 2009 is just below eleven percent.

In 2009, a total of 48,668 domestic customers switched supplier upon moving house, preferring not to stay with the default supplier. This figure was 15,626 in 2008. This indicates that more and more customers are comparing prices before moving house, in order to find the best deal available.

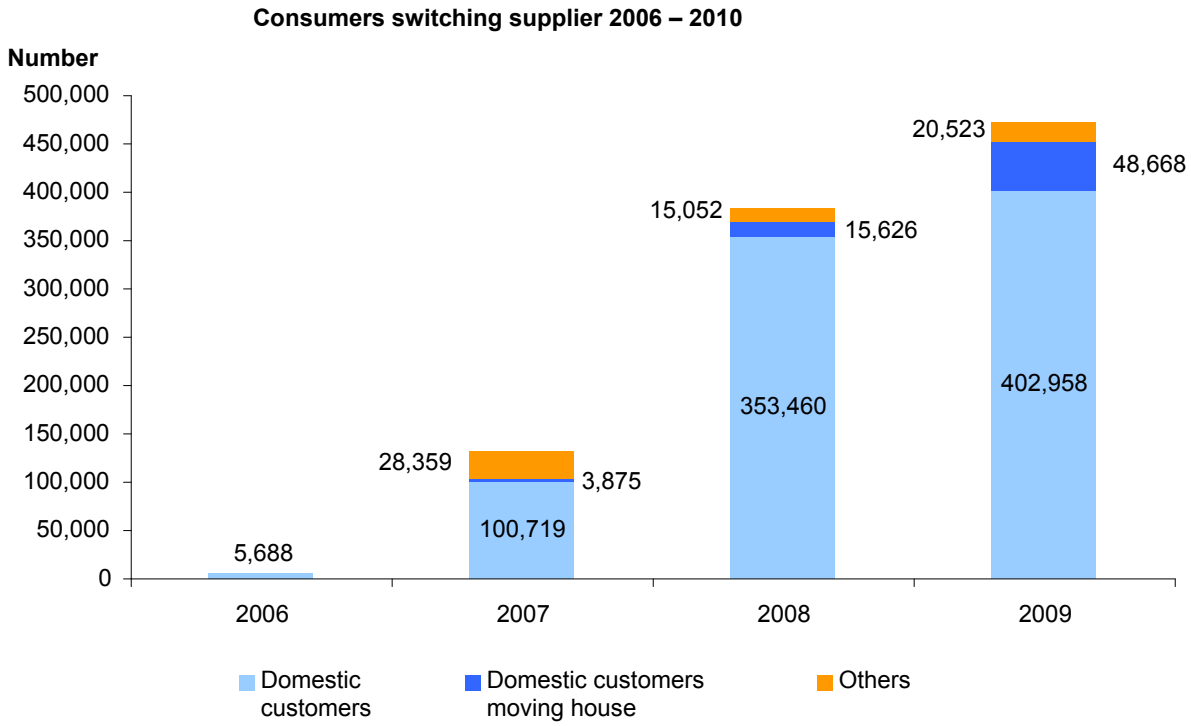


Fig 44: Number of consumers switching supplier (2006 – 2009)

While small and medium sized utilities with up to 50,000 domestic customers are recording more new customers, large and very large companies with more than 50,000 and 200,000 customers respectively are seeing their customer numbers fall. This indicates that the smaller companies are also able to offer competitive gas prices.

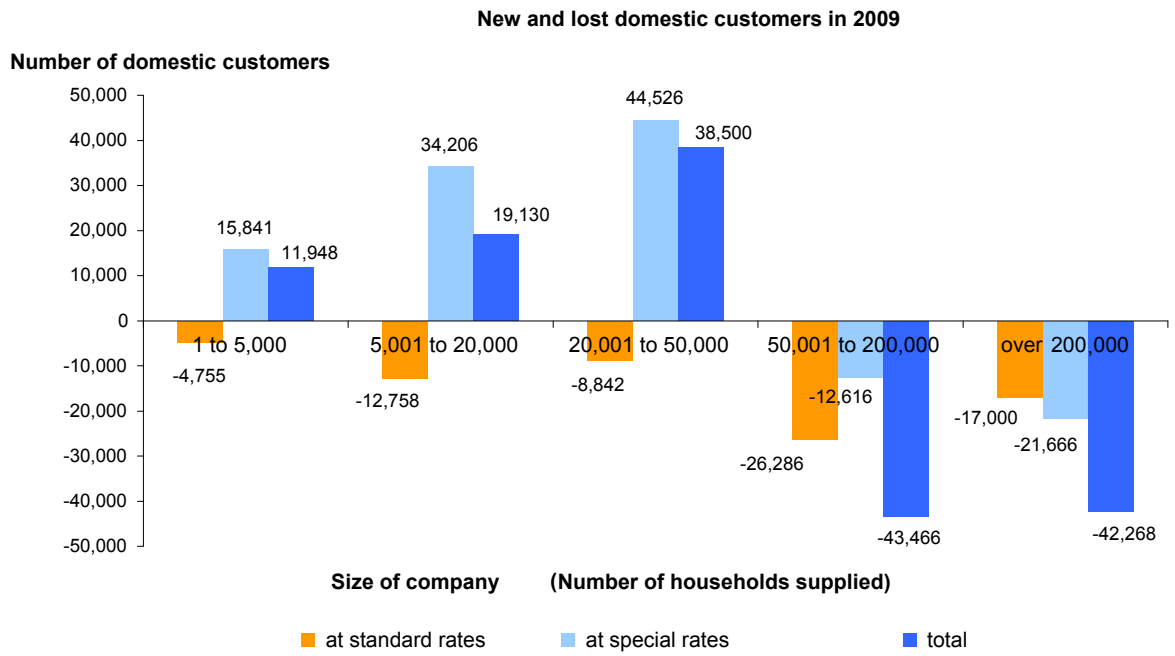


Fig 45: New and lost domestic customers in 2009. It should be noted that the number of new and lost customers cannot be set off against each other. The difference of 16,000 results from incomplete data from the market players.

Change of contract and supplier

Domestic customers have three options for their gas supply. Besides ordinary service from the default supplier, customers can also be supplied on special contractual terms. With this option, the customer stays with his supplier but signs a new contract with special terms (change of contract).
Customers supplied by another supplier also sign a special contract. But these are cases of a real switch of supplier.

In the 2010 data survey, gas wholesalers and suppliers were asked about the basis on which final consumers were served. 27 percent of the total gas volume supplied was by way of basic, or default, supply to domestic customers. Most of the gas supplied to domestic customers (68 percent) was supplied, however, at prices negotiated on special terms.

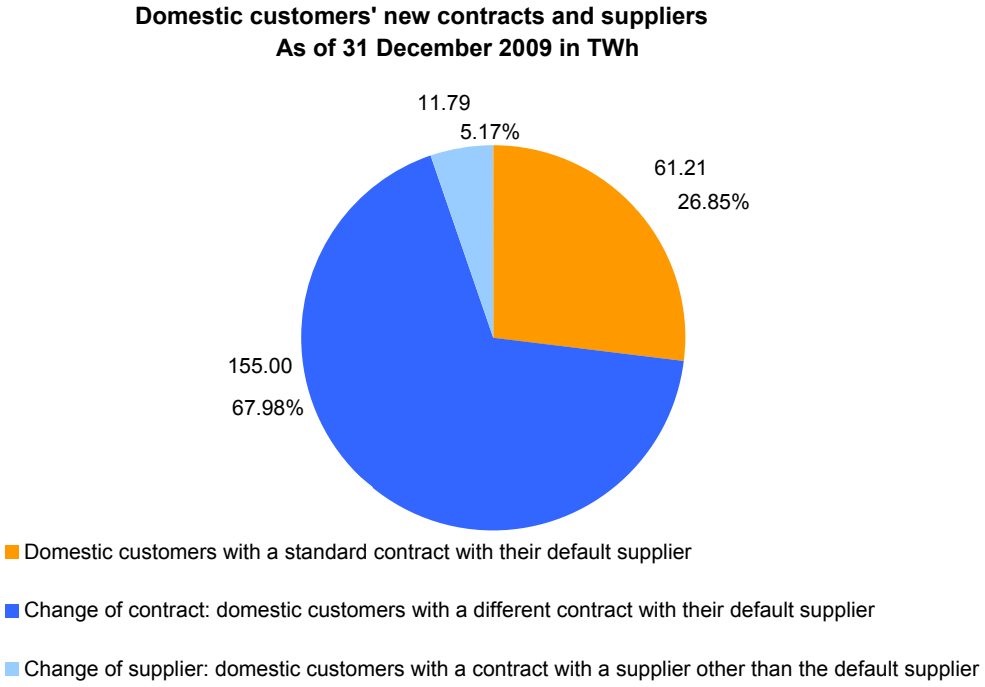


Fig 46: Domestic customers' new contracts and suppliers as of 31 December 2009

Domestic customers' change from a standard contract to a special contract shows that the established suppliers often manage to tie in their customers by offering – mostly – lower prices. These new contracts typically stipulate a minimum duration and guaranteed prices. Only 5.17 percent of the total volume of gas supplied to domestic customers is accounted for by suppliers that are not the default supplier. In these cases a switch of supplier has taken place.

On the whole, however, the trend towards switching supplier is consolidating and competition for domestic customers is growing as a result, demonstrating the growing price awareness and greater willingness to compare.

Number of suppliers per network area

Another basic indicator of well-functioning competition between gas suppliers is the number of suppliers available per network area.

It is immediately evident that competition improved substantially in 2009 compared with the previous year. If the majority of domestic customers in 2008 could choose between one and five suppliers only, the majority in 2009 could already choose between six and ten.

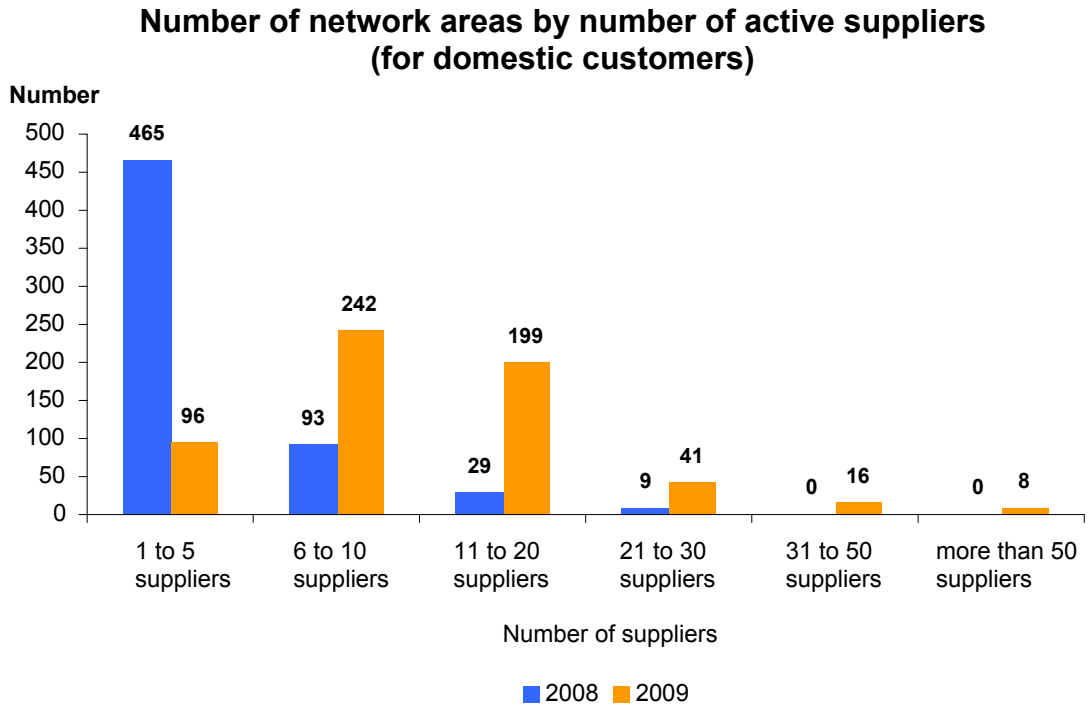


Fig 47: Number of network areas by number of active suppliers (for domestic customers) according to data from gas wholesalers and suppliers

Measured by the number of network areas in Germany and of active suppliers, the number of suppliers (twelve) that operate in more than 100 network areas is nevertheless low. Most suppliers in Germany operate in one network area only and restrict themselves to supplying one region only.

Development of retail gas prices

The gas price paid by the consumer is made up of several components, the cost of procurement by the supplier being one of the most important.

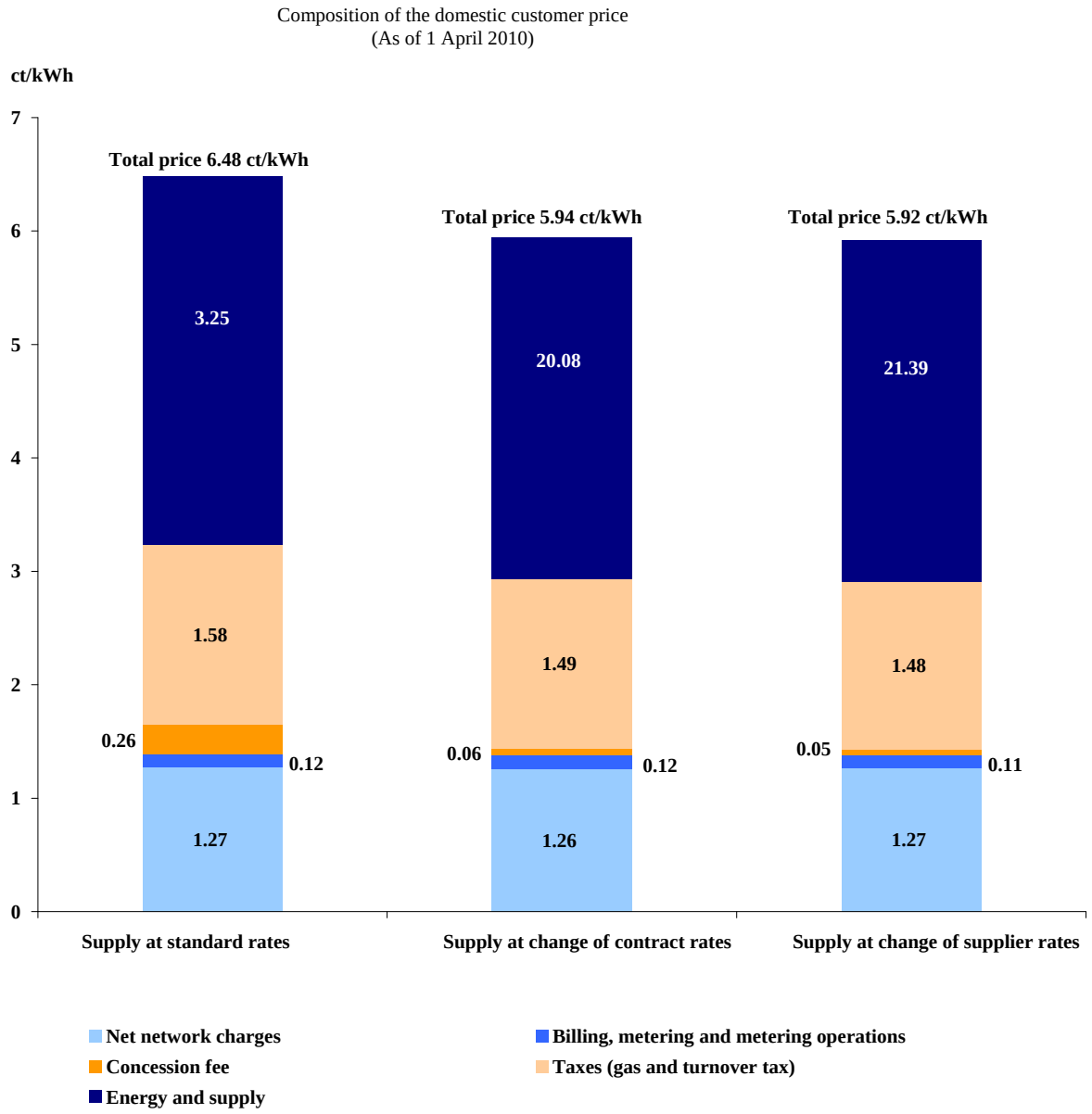


Fig 50: Composition of the gas price

Considerably lower retail prices can be expected as a result of the fall in spot market prices. Yet the lower spot market prices were not used by every supplier to the same extent and passed on to the customer. For instance, the difference between border and spot market prices was clearly used only by suppliers with a certain amount of flexibility in their procurement strategies and the ability to respond to price developments at short notice. Nevertheless, the effect of the falling wholesale prices on the retail prices could be clearly seen in 2009.

Although there were isolated gas price increases, the gas price for 2010 fell below the level of last year's and was lower even than that of 2006, to date the lowest level.

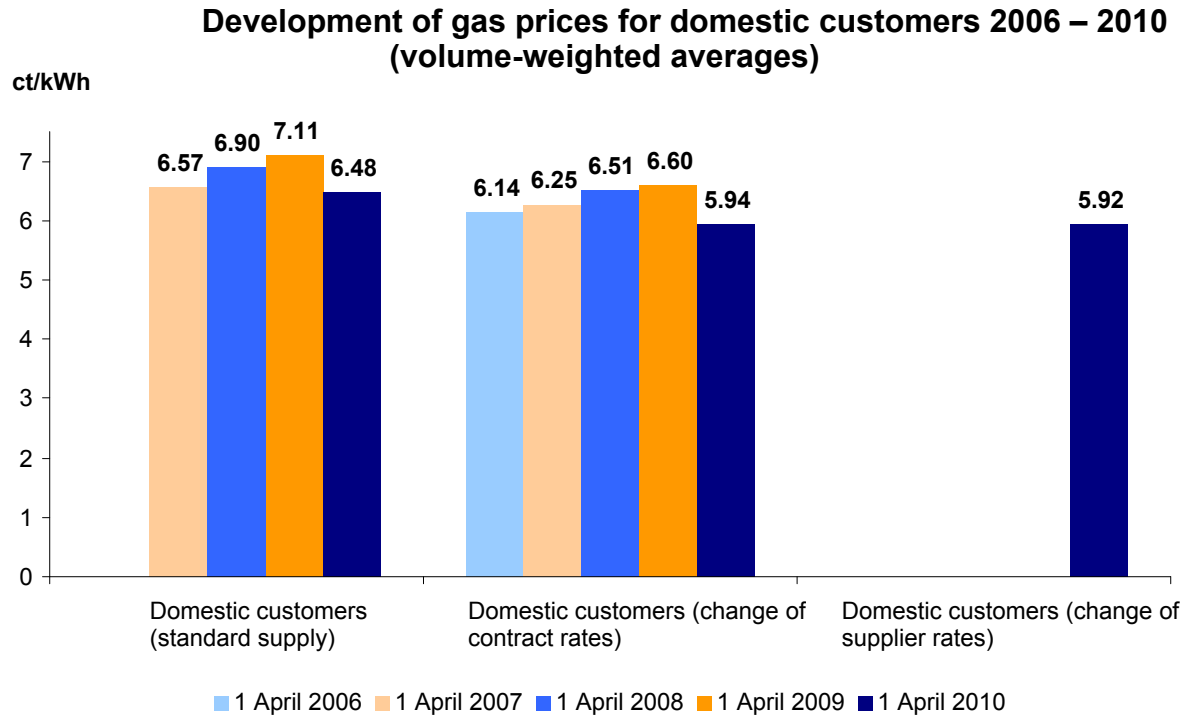
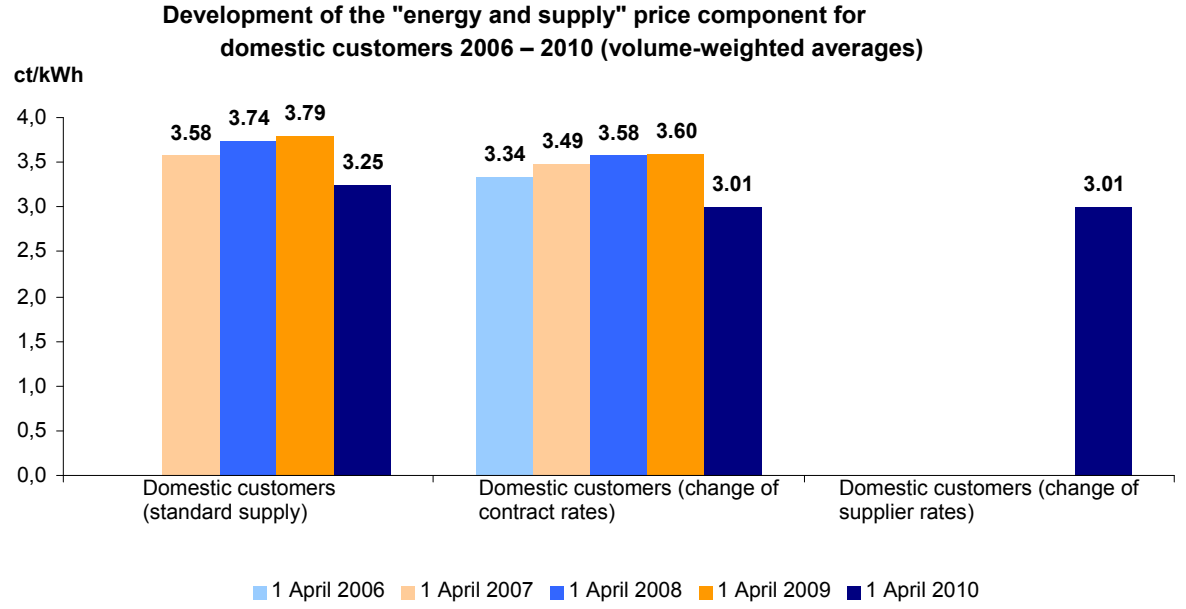


Fig 51: Development of volume-weighted gas prices for domestic customers 2006 – 2010. Prices as of 1 April 2010 according to data from gas wholesalers and suppliers[40]

From 2006 to 2009, the "energy and supply" component was one of the main cost drivers of the rising prices. For the first time since its recording in 2006 this component has now fallen. The gas procurement costs for supplying domestic customers on a standard and non-standard basis fell by as much as 16 percent. Domestic customers stand to benefit from the positive effect on the procurement costs that the greater use of flexible procurement strategies could have.



[40] No figures were collected for the gas price for domestic customers receiving standard supply as of 1 April 2006. Prices for domestic customers not receiving standard supply were established for the first time for 1 April 2010.

Fig 52: Development of the "energy and supply" price component for domestic customers 2006 – 2010. Prices as of 1 April 2010 according to data from gas wholesalers and suppliers[41]

Gas prices for domestic customers according to the type of contract

The gas price for domestic customers supplied under standard contracts has fallen by just under nine percent. Responsible for the clear reduction from 7.11 ct/kWh to 6.48 ct/kWh is, as mentioned above, the "energy and supply" price component. While the other components remained relatively unchanged, the figure for energy and supply fell by almost twelve percent. For a single family house with an average annual consumption of 20,000 kWh this reduction will result in annual savings of 126 euros.

The special rates offered by default suppliers have fallen by ten percent. The decrease from 6.60 ct/kWh to 5.94 ct/kWh will mean savings of 132 euros for a household with an average annual consumption of 20,000 kWh.

The overall gas price when gas is supplied at special rates is around eight percent lower than the price when gas is supplied at standard rates. A domestic consumer with an average consumption of 20,000 kWh can save an average of 108 euros annually, achieved simply by a modified contract. Bigger savings still are possible in some cases by changing supplier, depending on the supply area.

The monitoring activities in 2010 recorded for the first time the retail price level for domestic consumers supplied at special rates after switching supplier, as of 1 April 2010. The average total price for companies supplying new customers at special rates was 5.92 ct/kWh.

Gas supplied at standard rates is the most expensive form of supply in Germany, on national average. A less expensive form is supply following a change of contract. The cheapest form, however, is supply following a change of supplier. Yet the difference is marginal only, compared with supply at special rates. Generally speaking, customers need to change their contract or supplier if this potential is to be realised. A customer converting his standard supply contract into a special rates contract or switching supplier will, in both cases, benefit immediately and equally.

Besides savings from a change of contract or supplier, domestic customers are now benefiting more and more from special incentive bonuses. For example, some suppliers offer additional one-off payments ranging between ten and 120 euros. Contracts with a guaranteed price for a particular time (currently 12 months on average) are becoming increasingly prevalent.

[41] No figures were collected for the "energy and supply" price component for domestic customers receiving standard supply as of 1 April 2006. Prices for domestic customers not receiving standard supply were established for the first time for 1 April 2010.

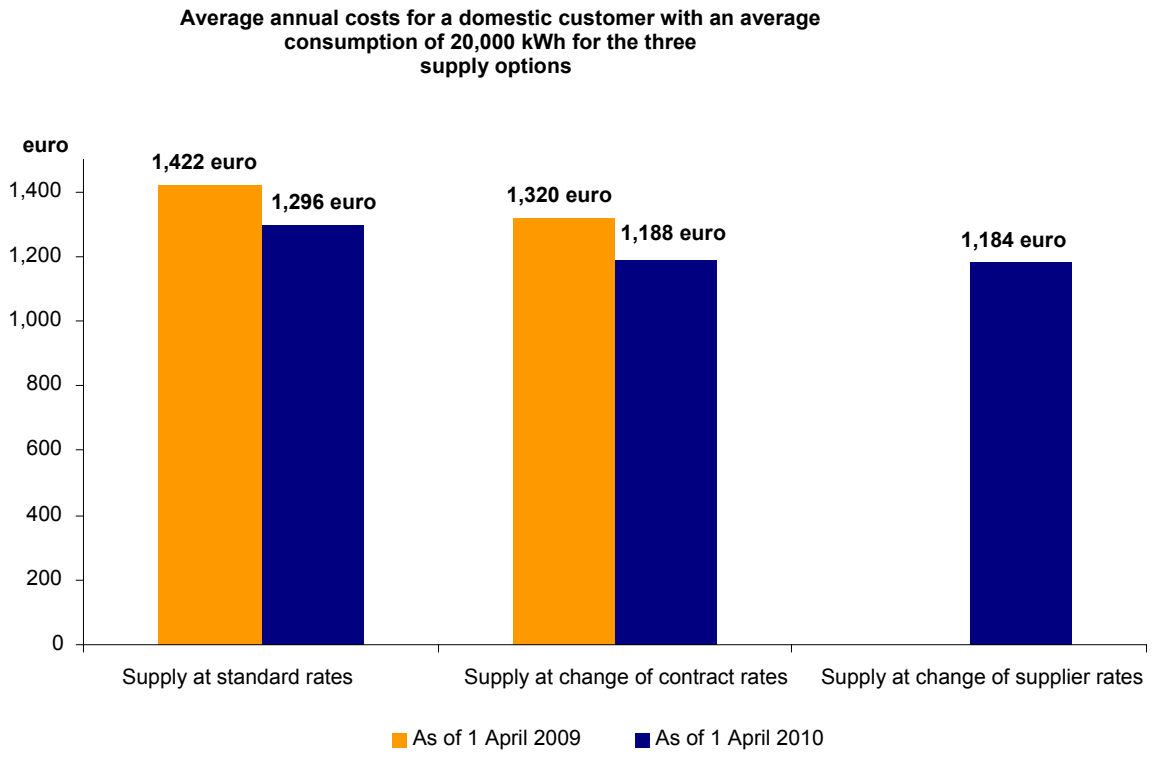


Fig 53: Average annual gas costs for a domestic customer with an average consumption of 20,000 kWh for the three supply options

Outlook – Trends in the German gas market

Competition in the gas market is developing noticeably. The established supply structures are coming under increasing pressure, because the traditional procurement channels using long term, oil-price-linked import contacts are becoming less and less relevant in the current market environment. Moreover, the gas volumes freely available last year provided extra scope for further dynamic development of the German market. These positive trends in the wholesale and retail markets are the result chiefly of constant improvements in the market structures in Germany and of the consistently high quality of gas supplies.

Work continues both at national and European level to improve the general conditions in the energy markets. The Bundesnetzagentur will continue its efforts for enduring improvements to the market structures in Germany in order to strengthen the competition-oriented market.

Considerable movement is expected in the near future. Forecasts indicate an oversupply in the wholesale market for some time still, and a strengthening of competition. This is due in part to the market environment itself, but also to the new arrangements in the Gas Network Access Ordinance and the activities of the Bundesnetzagentur. Its recently introduced measures to reshape capacity management and its consolidation of market areas with different qualities of gas are further milestones in the dismantling of market entry barriers and the creation of large market areas with high liquidity. These measures will strengthen and consolidate the trend towards competition in the German gas market, clearly seen in the 2010 monitoring activities, and will be an important contributory factor to safeguarding security of supply.

Biogas feed-in

Important for the development of the gas market in Germany are possible alternatives to using natural gas. In 2009, 27 biogas plants fed in some 1200 GWh into the gas networks. Yet this continues to be well under one percent of the gas consumed in Germany. Although biogas feed-in is in its infancy, consumers can already sign supply contracts with a biogas share. In September 2010 the general conditions for biogas feed-in and transport were improved through the amended Gas Network Access Ordinance, placing biogas contributors on a much better footing. For instance, the costs for connection and for the pipelines are to be borne to a greater extent by the network operator. Biogas feed-in is to be promoted for a fixed period of ten years by means of avoided, or saved, network charges of 0.7 cent/kWh, markedly improving investment planning for biogas facilities.

Technical security of supply and investment activity in Germany

Investment in the gas network is needed so that repairs and maintenance can be carried out. This is vital from the technical point of view of securing supply. For the consumer, technical security of supply means that gas supplies will not be interrupted by outages or other incidents. Technical security of supply remains very good in Germany. It is calculated analogously to the internationally recognised methods for electricity networks. The System Average Interruption Duration Index (SAIDI) is an indicator of the "average outage duration in minutes for each customer served".

All in all, 704 network operators reported some 66,900 interruptions in supply in 2008, 21,000 of which were unscheduled and 45,900 of which were scheduled. For each consumer, this meant an average interruption of just one minute in 2008[42]. There are no definitive figures as yet for 2009, but it is safe to assume a similarly low level.

Work began in April 2010 in northern Europe on building the offshore part of the Nord Stream pipeline, running 1,220 kilometers from Wyborg in Russia through the Baltic Sea before reaching Germany in Lubmin near Greifswald. This project involves comprehensive installation in Germany too. Thus natural gas will be transported via the Baltic Sea Connection Pipeline (OPAL) mainly as far as the Czech Republic and via the North German Gas Pipeline (NEL), currently still at the planning stage, to Rehden in Lower Saxony.

[42] Only unscheduled interruptions with noticeable effects on the consumer are included; force majeure is disregarded.

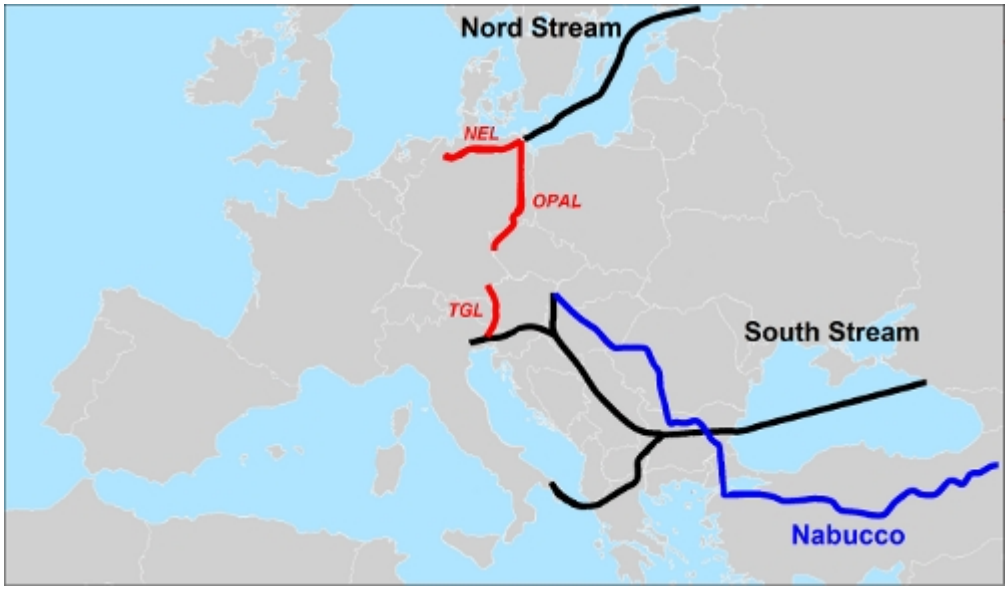


Fig 8: Diagram of the planned infrastructure project

At the planning stage are the Tauern Gas Pipeline (TGL) which will connect Germany with Italy and the Italian LNG ports, South Stream, which will bring Russian natural gas to southern Europe, and Nabucco, which is to bring gas from countries outside Russia to Europe. The Trans-Adriatic-Pipeline (TAP) connecting Greece with Italy should also be mentioned, as should the Interconnection Turkey-Greece-Italy (ITGI) pipeline. Both projects aim to bring gas from the Caspian region to Europe at a later date. These international projects will diversify the transport routes for Germany and Europe. Nabucco, or the Southern Corridor, is also expected to bring about supply diversification, as are the increasing volumes of LNG delivered to western Europe. Both aspects will strengthen security of supply.

Balancing

The real opening of the German gas market came about in 2008 with the change to the balancing rules. It is on this basis that competition has since unfolded. However, the balancing system is still at the introductory stage. Although the processes are basically established, there is still an accounting backlog that is slowly being cleared. The Bundesnetzagentur is closely following the qualitative and quantitative operation of the system. For this, it requests data from the balancing group operators, for instance.

In spring 2010, for reasons that are still not entirely clear, the market area operators' demand for system balancing energy rose strongly, leading to a corresponding rise in the surcharge for this energy.

With its Communication No 4 on the gas balancing arrangements the Bundesnetzagentur responded to these problems and took up a proposal from the industry associations. At the same time the exit point operators were required to provide information when accumulated differences between transported and balanced gas volumes in local distribution networks were well above the thresholds proposed by the associations.

Further reduction in the number of market areas

Further steps are to follow the major concentration of the market areas in 2009 to improve the situation particularly in the small market areas that have largely been cut off from competition so far.

The amended Gas Network Access Ordinance requires the network operators to reduce the number of market areas from the current six to three, in the first instance, by 1 April 2011. Then, from 1 August 2013, there are to be no more than two market areas in the whole of Germany. The Ordinance explicitly mentions the possibility of merging the H-gas and L-gas market areas as a means of (multi-quality) consolidation.

To meet their obligations, several operators are currently exploring the possibility of integrating H-gas and L-gas areas. The Bundesnetzagentur welcomes this discussion as an important contribution to further consolidation. As the further reduction in the number of market areas will have a significant impact on how the gas markets develop and on how network access is offered in Germany, the detailed proposals from two operators on such integration have been put up for consultation.

Capacity allocation and congestion management

Whereas the electricity sector is mainly concerned with creating enough capacity for the long term, the chief concern in the gas sector is the efficient use of existing capacity. The monitoring activities in 2010 again showed that, while firm capacity was booked almost everywhere and was not therefore available to other market players, actual physical utilisation was usually much lower and the facilities could, in fact, be used by other shippers.

In 2009, in a sector investigation, the Federal Cartel Office examined the capacity situation in the German transmission networks and submitted a detailed report on its findings.[43] The report showed that many cross-border points were contractually booked for the long term, ie for over two years, mostly by affiliates of the network operators. This could pose a threat to competition through the foreclosure of the downstream supply markets, especially if this was accompanied by inadequate implementation of the unbundling requirements. The Cartel Office decided initially against instituting abuse proceedings with a view to reform efforts in connection with the amended Gas Network Access Ordinance and possible reforms resulting from the Energy Act. Parallel to the Cartel Office's sector investigation the Commission conducted abuse proceedings against the E.ON group which ended with an offer of binding commitments.[44]A focus of the new Gas Network Access Ordinance is capacity management. Thus the current first come, first served principle will be replaced by a general auction of capacity. Joint platforms will be used to allocate capacity in this way. This ought to simplify the booking process considerably and remove access barriers for small market players. The European Energy Regulators' (ERGEG) Framework Guideline, published in June 2010, on capacity allocation in gas transmission networks also shows a clear preference for auctioning capacity generally. ERGEG has also drawn up guidelines on congestion management which the European Commission intends to incorporate in a proposal for a comitology procedure. They were sent to the Commission and presented at the Madrid Forum in September 2010.

[43] Downloadable at http://www.bundeskartellamt.de/wDeutsch/download/pdf/Stellungnahmen/0912_Abschlussbericht_SU_Gasfernleitungsnetze.pdf

[44] COMP/B-1/39.317 E.ON Gas.

In February 2010 the Bundesnetzagentur opened proceedings to determine new arrangements for capacity management. The target audience is transmission system operators (TSOs) from whom capacity at the points of interconnection between market areas and national borders can be booked.

Transparency in energy trading

There has been a strong increase in energy trading in Europe. The importance of electricity and gas trading is growing. One of the reasons for this is that small and local utilities, in particular, can derive competitive advantage from more flexible trading strategies in supplying their customers. Another is that trading has become an important hedging instrument, for energy producers as well as large users. And another reason is the growing role of trading generally, but specifically of trading on the exchange for the integration of renewables. Trading is the third strategic pillar, besides production and transport, that energy policy must increasingly address. The supervision of energy trading must therefore reflect this development.

This new economic importance and the Europeanisation of electricity and gas trading require the following:

- constant optimisation of the trading mechanisms (market design), and
- fundamental improvement of market supervision to counteract the likewise growing risk of abuse (insider trading; market manipulation such as withholding electricity generating capacity or intentionally booking all the gas pipeline capacity available).

That is why the European Commission gave a mandate to the energy and financial markets regulators to study the susceptibility of the electricity and gas markets to abuse. The regulators, in a joint working group, established that the current arrangements for the supervision of the financial markets were not enough to secure suitable integrity in the energy markets.

In their report[45] the energy and financial markets regulators showed that energy trading was only partially covered by the Market Abuse Directive. The authorities concerned (financial markets regulators, energy regulators, exchange watchdogs) do not have a full picture of all the trading on and off the floor. Thus there is not enough protection, nor are there rules or sanctions for combating malpractice in energy trading.

The European energy and financial markets regulators have therefore recommended the Commission to remedy this and to create sector-specific, tailored arrangements to prevent abuse (market manipulation and insider trading), to secure the integrity of the wholesale energy trading markets. The working group has drafted a proposal requiring transparency for the fundamental data, in other words, price-related information, publication of the relevant information on transactions and an efficient reporting system from the supply companies to the energy regulators.

In connection with the publication of data, care must be taken that collusion is not encouraged, nor oligopolistic framework conditions for producers and traders favoured.

[45] CESR and ERGEG advice to the European Commission in the context of the Third Energy Package, Ref. E08-FIS-07-04, October 2008, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Cross-Sectoral/2008/E08-FIS-07-04_%20MAD%20Advice.pdf

Markets such as those for emissions trading, oil and coal should also come under consideration. These directly affect the production costs for the power plants; damage as a result of abuse in these upstream markets could have a corresponding effect on the electricity and gas prices.

The concept of the energy and financial markets regulators was well received by the Commission. The Commission is determined to take up the regulators' ideas, and a legislative proposal is expected in autumn 2010.

Providing transparency for the fundamental data, as the regulators proposed, is crucial in preventing excessive speculation, as it gives the market players a clear picture of the real supply and demand situation. It counteracts the possibility of extreme market positions being established.

Given the importance of transparency for competition, the Bundesnetzagentur undertook particular efforts, before common European publication requirements were issued, to improve the transparency of, most notably, data on generation.

One outcome of these efforts is the publication, since October 2009, of the relevant data on the website of the Leipzig Energy Exchange, or EEX (see http://www.transparency.eex.com/de). This transparency platform publishes, at a central site, the main data for the German electricity market such as installed generating capacity, planned production, power plant outages and planned and actual generation from wind and solar facilities.

According to its information, the EEX platform now covers roughly 80 percent (as of 6 August 2010) of installed capacity. A list of reporting companies can be found on the EEX website. Thus the Bundesnetzagentur has called on all power plant operators not yet reporting to comply with their statutory publication duties on the EEX. This will ensure that the main part of the German generating market is soon completely covered by the EEX transparency platform.

The EEX platform has been well received in other European countries as a result of the information it provides and its easy navigability, and could be a prototype European solution. The Bundesnetzagentur has therefore nominated the EEX for an award, the Energy Transparency Award. This award will be presented this year for the first time by the Florence School of Regulation, and is assigned to institutions for their particular contribution to improving transparency in the electricity market.

The federal government's energy concept, published on 28 September 2010, makes provision for a market transparency office to oversee electricity and gas trading. This office will collect and analyse market data for the regulatory, competition and other supervisory bodies. It is hoped that this will strengthen the market players' trust in competition.

Focus of antitrust supervision of competition

Besides its merger control activities, the Federal Cartel Office was chiefly concerned with the supervision of anti-competitive practices. It also conducted various sector investigations and assessed the success of measures taken in central antitrust and abuse proceedings in recent years.

Merger control

Here, it was the sale of Stadtwerke-Holding Thüga AG by the E.ON group in particular that had special structural importance for the supply markets concerned.

The Cartel Office has allowed a number of municipal utilities to take over from E.ON all the stakes in Thüga AG, via the Integra Holding set up specially for this purpose. A large number of German municipal utilities and regional suppliers have been decoupled from E.ON, including important utilities with their own generating capacity and supraregional strategies. This merger has had a deconcentrating effect at the supply level in particular. The previous high degree of interdependence had the twofold effect of making it difficult for alternative energy suppliers to gain access to downstream customers in Germany and of discouraging competition for the final consumer. The merger therefore should revive competition in the markets concerned and thus help to improve competition structures in the energy sector generally.

Supervision of anti-competitive practices by dominant companies

The Cartel Office's supervision of anti-competitive practices by dominant companies included, besides the pursuit of exclusionary abuse in the matter of concession fees, investigation of price abuse. Given the more rigorous price abuse controls of energy utilities required by section 29 of the Competition Act that were introduced in 2007 it was again the aim of the antitrust proceedings in the period under review to implement the provision in a way that would not interfere with unfolding competition to the detriment of alternative suppliers as a result of pricing measures.

Thus the Cartel Office focused on the supervision of price abuse as per sections 19 and 29 of the Competition Act in electricity and gas markets in which the customers were "captive", in other words markets in which they had no choice of supplier. In the markets for supplying domestic customers with electricity the Cartel Office investigated the electric heating market. Some of the antitrust authorities in the federal states, too, conducted and completed proceedings against electric heating providers in 2009.

The Cartel Office also continued its concession fees proceedings against local gas distribution operators, with the result that the companies concerned largely abandoned the practices objected to after the Cartel Office's intervention[46]

Restraints of competition

The Cartel Office has opened cases against some gas and electricity suppliers hindering their competitors through resale bans on minimum takes (mostly in connection with take or pay clauses). These agreements restrict competition in the gas and electricity supply markets. In these markets the resale bans prevent the customers concerned from offering natural gas or electricity they do not need themselves, thereby hindering secondary trading. Many of the

[46] Cf case report B10-71/08 on abuse proceedings against *Gruppen-Gas- und Elektrizitätswerk Bergstraße AG*, downloadable at: http://www.bundeskartellamt.de/wDeutsch/download/pdf/Kartell/Kartell09/Fallberichte/B10-71-08-Fallbeschreibung.pdf?navid=44, as of 20. July 2010.

companies concerned have already given assurances to stop acting in this way. As a result, the liquidity of the gas and electricity markets will be increased.

Sector investigations

In March 2009 the Cartel Office continued its investigation into the electricity generating and wholesale level under section 32e of the Competition Act.

It completed its investigation into the capacity situation in the gas transmission networks in December 2009. The investigation showed that many interconnection points were booked for years to come, mostly by group companies, and that the downstream supply markets might be foreclosed in this way. The Cartel Office was thus able to incorporate its findings from the investigation into the amendment of the Gas Network Access Ordinance. It will follow further developments closely.

Finally, the Cartel Office also conducted an investigation into the district heating sector. This investigation was still continuing at the time of the report going to press, however.

Assessment of antitrust proceedings

In the period under review the Cartel Office also analysed the extent to which its proceedings of past years in the matter of long term gas supply contracts had actually improved competition. It also examined whether the gas suppliers that had been the subject of 33 price abuse cases in 2007/2008 had kept the binding assurances they had given. In both cases its expectations were met. The requirements in respect of long term gas supply contracts need not be extended. The Cartel Office has not had to open any new gas price proceedings at the retail level, either, given this positive outcome. Just some antitrust authorities in the federal states conducted and completed proceedings against gas suppliers in 2009.