Deregulation Leads to Marked Reductions in the Price of Telephone Services and Electricity

In Germany the national monopoly on the provision of telephone services was abolished in 1995, followed, in the spring of 1998, by the ending of the regional monopolies on the supply of electricity. Since these dates the two industries have been exposed to the laws of competition. New companies, or those previously active only in certain regions, are now able to compete for telephone and electricity customers throughout the country. The competition to which this has given rise has led to marked cuts in prices; in doing so it has improved Germany's international competitive position. The established companies in these sectors have been obliged to cut their costs drastically and to pay greater heed to the needs of their customers. In order for the efficiency gains achieved to be maintained, steps must be taken to ensure that that competition is not threatened by concentration processes. In addition, the remaining barriers to market entry need to be removed, particularly in the area of local telecommunication calls. In the electricity sector measures are required to promote price-conscious behaviour, market transparency and consumer information.

As a rule, state-regulated monopolies deploy more capital and labour than is necessary. This incurs higher costs and often leads to over-capacity. It could therefore be reasonably expected that introducing competition into the telecommunications and electricity-supply sectors would enable substantial cost and price reductions to be achieved. In the short run the size of these effects depends on current supply and demand behaviour and in the long run, on additional, structural factors.

Short-run effects

– Whether new companies can successfully pursue a strategy of gaining market share at the expense of existing suppliers by way of price competition depends crucially on the behaviour of consumers, particularly regarding alternative price offers. Large-scale consumers can be expected to be readily willing to change supplier in both the telecommunications and electricity sectors; such willingness rises proportionally to the importance of the cost of electricity or telecommunications in total costs. The propensity to change supplier exhibited by small-scale consumers, particularly private households, on the other hand, is much less pronounced. This is particularly true of the electricity sector, where consumers are obliged to tie themselves to a single supplier for a given period. It is not worthwhile for consumers to continuously observe price movements, as contracts run for an extended period. The situation in the telecommunications industry is rather more favourable, as the call-by-call procedure enables customers to choose the firm offering the cheapest telecommunications service at any given time.
  Uncertain expectations regarding the way the prices charged by the various companies will develop reduce the incentive to take advantage of current price differentials, particularly when the initial benefit is comparatively minor.
– Given the substantial over-capacity that exists on the electricity market, suppliers at the wholesale level are facing considerable downward pressure on prices. In the telecommunications sector, on the other hand, where demand growth is strong, competition is currently being hampered in some market segments by bottlenecks in transmission capacity.

Long-run effects

– Whereas electricity consumption is expected to expand only relatively slowly, the rapid extension and the more intensive use of telecommunications services, particularly in the fields of data communication and multimedia forms of communication, are leading to strong demand growth. Advances in telecommunications technology are leading to an extraordinarily strong increase in transmission capacity, while at the same time costs are declining significantly.
– For the transport and distribution of electricity there is currently no practicable alternative to networks of overland power lines and cables; this is likely to remain the case in the coming years. Constructing power lines is so expensive that competing networks will not be set up; at the most, individual link-ups to large-scale consumers are conceivable. For this reason the owners of the current electricity grids will retain an almost complete monopoly on electricity transmission; this makes it necessary to regulate, in some form or other, the conditions for transmitting electricity produced by other companies.
  By contrast, a number of different media can be used to transmit information in an economic way. Alongside dedicated telephone networks (fixed-line networks), wireless mobile phone networks, TV cable networks and electricity networks (powerline) can also be used. Wireless terrestrial and satellite-based transmission technologies are already in widespread

use. In future TV broadband cable networks will be available for general telecommunications services. In addition to the telecommunications networks that are already ready for the market, new telecommunications technologies – such as powerline (for electricity grids) and GPRS (General Packet Radio Services) and UMTS (Universal Mobile Telecommunication Services) – are currently at the pre-market-introduction stage. Intensive competition between various technologies and/or companies on the market for telecommunications services offers favourable conditions in the longer term for intensive price competition.

- Market entry is only worthwhile where the costs incurred (advertising to attract new customers, price differentiation compared with companies already established on the market, etc.) are lower than the resulting additional earnings. Given the low propensity of private households to change supplier, the costs of market entry for (new) electricity companies in this area are substantially higher than in the telecommunications sector.
- In the wake of market liberalisation in Germany and the EU, barriers to international trade are being steadily removed. Firms operating on electricity and telecommunications markets are thus able to extend their activities, achieving economies of scale on a larger market. Market share can be increased either at the expense of other producers or by way of mergers with competing firms. Mergers will be the preferred solution in cases where the desired increase in market share can be achieved at lower costs than by driving competitors out of the market. Merger activities can be observed on both the electricity and the telecommunications market, particularly by firms holding large market shares in specific segments. However, this need not necessarily serve to reduce the intensity of competition, provided steps are taken, not least by the authorities responsible for monitoring monopolies, to ensure that an adequate number of competitors remains.

Deregulation of telecommunications services

Germany's telecommunications market was liberalised in stages during the 1990s. Mobile telephone networks were set up, and, alongside Deutsche Telekom AG, three other companies were granted mobile telephone licences. In addition, the market for data communication was opened up for other suppliers, especially for Internet service providers. A watershed occurred at the start of 1998, when Deutsche Telekom's monopoly on voice communication by fixed-line telephone was removed. Since then other firms have in principle been free to offer telecommunications services nation-wide, making use of the fixed-line network owned by Deutsche Telekom. Although a number of firms are active on this market, Deutsche Telekom remains predominant.

Mannesmann AG (with its D2 network), e-plus and Viag-Intercom have become serious competitors for Deutsche Telekom in the field of mobile telephony. Competition has led to a halving of consumer prices for mobile telephone services since 1995.[1] Such a marked fall in prices was possible because the positive network externalities resulting from the growing number of customers have led to corresponding reductions in costs.

Compared with mobile telephony, the overall fall in the price of fixed-line telephone services has been more modest. Between the start of 1995 and April 2000 prices fell by just around 15% (cf. figure 1). However, price trends for fixed-line services have varied greatly between the different market segments. The prices paid by consumers for international and long-distance calls, where the call-by-call procedure[2] permits efficient price competition, for instance, have fallen by more than half since the mid-1990s, a fall equal to that in mobile telephone charges.[3]

For local calls, on the other hand, the change in the number of seconds per unit for card and coin public telephones at the start of 1999 led to an increase in consumer prices of around 10% (cf. figure 2). To some extent this trend reflects the relatively high charges which other suppliers have to pay to Telekom under the preselection procedure for use of the fixed-line network (local loop), as set by the Regulator for Telecommunications and the Postal Service (RegTP) in the spring of 1999. This has seriously reduced the incentives for competitors of Deutsche Telekom to seek to attract new customers among private households.

Given that in most cases the Internet is accessed via the local network run by Deutsche Telekom, this trend

[1] In the wake of tough competition for mobile phone customers, Deutsche Telekom has been forced to cede the role of market leader in this expanding segment of the German market to a competitor.

[2] The survey by the Federal Statistical Office does not cover the consumer prices of other suppliers using the pre-selection procedure. Thus the price reductions granted here are not reflected in the official data published by the Office.

[3] The halving of prices for international and long-distance calls via fixed-line networks that has occurred since deregulation would also fit a model of monopoly price-setting in which the elasticity of demand is independent of price and, on the supply side, constant returns to scale prevail. Under such conditions the monopolist can set the price twice as high as the price level under perfect competition, if the elasticity of demand is equal to 2; for a simple theoretical model of this type see Tirole, 'Theory of Industrial Organization', *The MIT Press,* Harvard, 1989, p. 66.

has also had a negative impact on price competition for the Internet.[4] The inadequate way in which the state has regulated prices for local calls ultimately reflects an inherent conflict of interest: on the one hand, the government wants to derive substantial revenue from privatising Deutsche Telekom AG; on the other, it also has an interest in efficient competition on the telecommunications market. It remains to be hoped that the RegTP, in setting the prices to external competitors for the use of the Telekom's local network to come into force on 1 April 2001, will focus on the need to create the conditions for efficient competition.

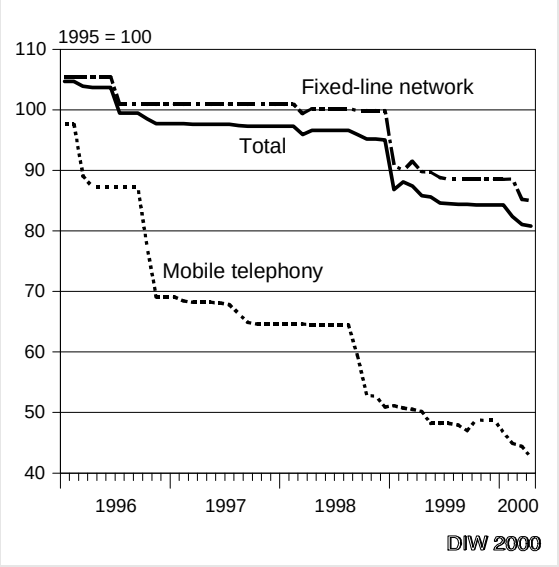
Deregulation of electricity supply

The new law amending the existing Energy Sector Act (*Energiewirtschaftsgesetz*) came into force on 25 April 1998. The main impact of the law was to remove the exceptions to the provisions of competition laws that had applied in the case of electricity and gas supply, in particular concerning the admissibility of demarcation contracts and exclusivity clauses in concession contracts. In order to stimulate competition in the supply of electricity, the networks of the supply companies had to be opened to permit competing firms to supply electricity through them. This had to be achieved not only for customers whose electricity consumption is particularly high, but for all consumers. As a result, small-scale consumers, such as private households and small companies, can now choose their supplier among all those operating in Germany, taking advantage of price differentials between competing companies. The suppliers on this competitive market consist of the established electricity supply companies, or their trading companies, and independent traders.

Given the excess capacity that had been built up under the conditions of government-regulated monopolies, the liberalisation of the electricity market has meant that the wholesale prices of electricity have fallen to the level of short-run marginal costs. End-use consumers benefit from these price reductions only to a limited extent, however. In order to maximise their overall earnings, electricity suppliers differentiate their prices between the various consumer groups, enabling them to realise part of the consumer surplus.

Figure 1

Consumer Price Index[1] for Telephone Services, January 1996 to April 2000



1 The consumer prices for the fixed-line network include installation costs, basic charges and the costs of calls via the fixed-line network.
Source: Federal Statistical Office.

Sharp fall in prices for industrial electricity consumers

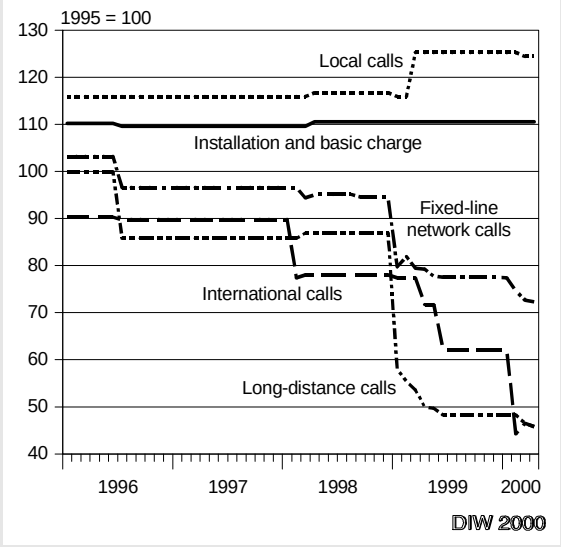
Large-scale industrial consumers exhibit a high propensity to change supplier. Moreover, firms are in a strong bargaining position if they can threaten to relocate production or to start producing their own electricity. Consequently, under competitive conditions this consumer group can be expected to benefit from particularly large price reductions.

Price trends for this consumer group can be analysed on the basis of data published by the Statistical Office of the European Communities (Eurostat). Currently, Eurostat data are available up to July 1999. According to these figures, since 1996 the purchasing price of electricity (excluding taxes) for industrial consumers has fallen in Germany faster than in most other Member States of the European Union, particularly for large-scale consumers requiring between 25 and 75 megawatt, usually for a large number of hours per year. For consumers drawing 50 megawatt the lowest price for industrial firms in the 'western' part of Germany at the start of 1996 was 10.5 pfennig per kilowatt-hour; it was 1.2 pf/kWh (Portugal) and 4.2 pf/kWh (Spain) – and in the case of Norway as much as almost 7.4 pf/kWh – higher than in the other EU countries. By mid-1999 these prices (which do not include taxes) had fallen by

[4] It should be noted, however, that the data provided by the Federal Statistical Office do not cover the discounts and special conditions on call charges that some Internet service providers offer their users. Thus the price movements for local calls via the fixed-line network do not provide an accurate picture of movements in the charges incurred for Internet access.

Figure 2

Consumer Price Indices[1] for Components of Telephone Services by Fixed-line Network, January 1996 to April 2000



1 In this figure fixed-line calls do not include link-up and basic charges.
Source: Federal Statistical Office.

around one-third in Germany, with the result that they were lower than in most partner countries. At this point in time it was only against Spain and Norway that a price disadvantage remained (of 1.4 pf/kWh and 5.8 pf/kWh respectively; cf. figure 3.) It should be noted, however, that higher prices were reported for southern and eastern Germany than for the western region.[5] Overall the international price position of large-scale industrial consumers of electricity in Germany has almost certainly improved markedly, despite the introduction of the ecological tax reform.[6]

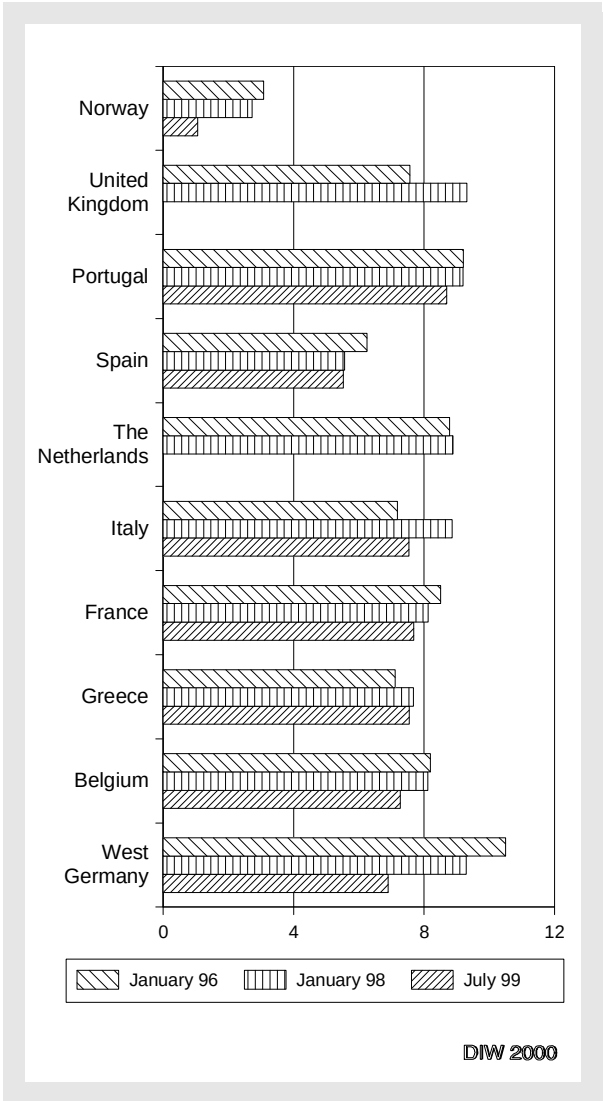
For 'normal' industrial consumers electricity costs usually account for a relatively small proportion of total production costs. For such companies the transaction costs that had to be borne in order to achieve a reduction in the current cost of electricity were often too high. Recently, however, such transaction costs have fallen markedly, as independent traders and the trading companies of electricity supply companies are competing on the electricity market with standardised charges. This group of consumers is now also in a position – with the help of their representative associations – to gain substantial price concessions.

Information on current electricity price trends for 'normal' industrial consumers can be derived from figures provided by the Bundesverband der Energieabnehmer e.V. (VEA – federal association of energy consumers). Since the autumn of 1999 this association has surveyed the actual market prices paid by industrial consumers purchasing between 125 000 kWh (100 kw, 1 250 hours) and 20 million kWh (4 000 kw, 5 000 hours). For the period prior to the autumn of 1999, the association

Figure 3

Marking Prices (Lowest Prices) for Large Industrial Customers Purchasing 50 Megawatt of Electricity in the European Union

In pf/kWh



Sources: Eurostat, Statistics in Focus, Issues 13/1996, 14/1998 and 8-2/2000.

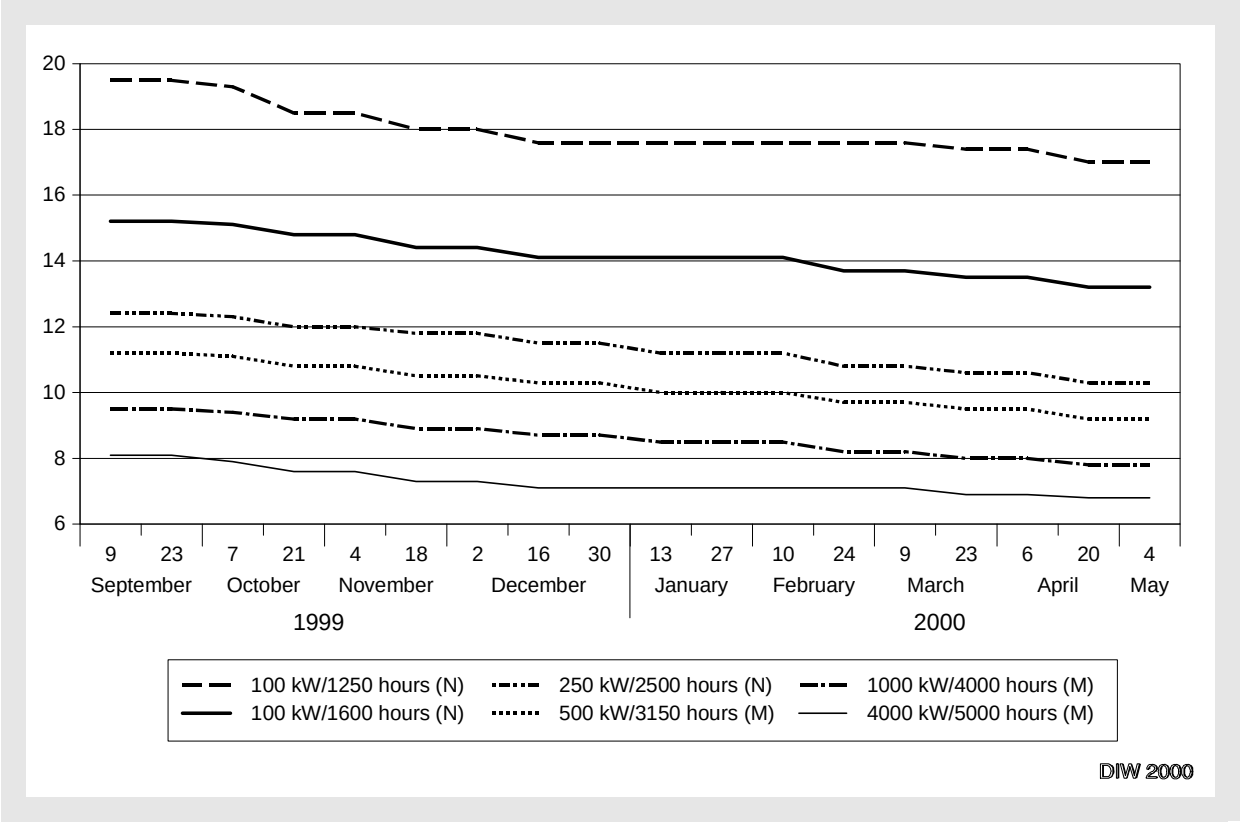
[5] No attempt is made to compare in detail electricity prices for 'normal' industrial consumers with those in other countries, due to the evident problems with the current data for Germany.

[6] In any case such consumers pay a maximum of 20% of the rate of ecological tax paid by private households.

Figure 4

Electricity Prices for Industrial Customers Purchasing between 0.125 and 20 Million kWh in West Germany, September 1999 to May 2000

Lowest prices in pf/kWh including taxes



Source: Bundesverband der Energie-Abnehmer e.V. (VEA - federal association of energy customers).

has calculated prices according to the standardised contracts offered by the electricity supply companies. These prices do not include the discounts that were sometimes offered in previous years, although not nearly to the same extent as is now common. This means that they are not strictly comparable to the current market prices.

The lowest market prices identified by the VEA for September 1999 were in most cases more than 30% (in western Germany) and more than 20% (in eastern Germany) lower than the figures calculated for January 1998. In view of the methodological problems of the comparison, however, it must be assumed that the effective price reductions were actually considerably less pronounced.

Between September 1999 and May 2000 electricity prices for industrial consumers in western Germany fell by up to 18% (cf. figure 4) and in eastern Germany by as much as 26%. During this period the lowest prices for industrial consumers in western Germany fell relatively continuously, whereas in eastern Germany there was a sharp fall at the start of 2000. This meant that by May 2000 the price differentials between east and west Germany had in most cases narrowed to just 1 to 2 pf/kWh (cf. figure 5).[7]

Private households also benefit from falling prices

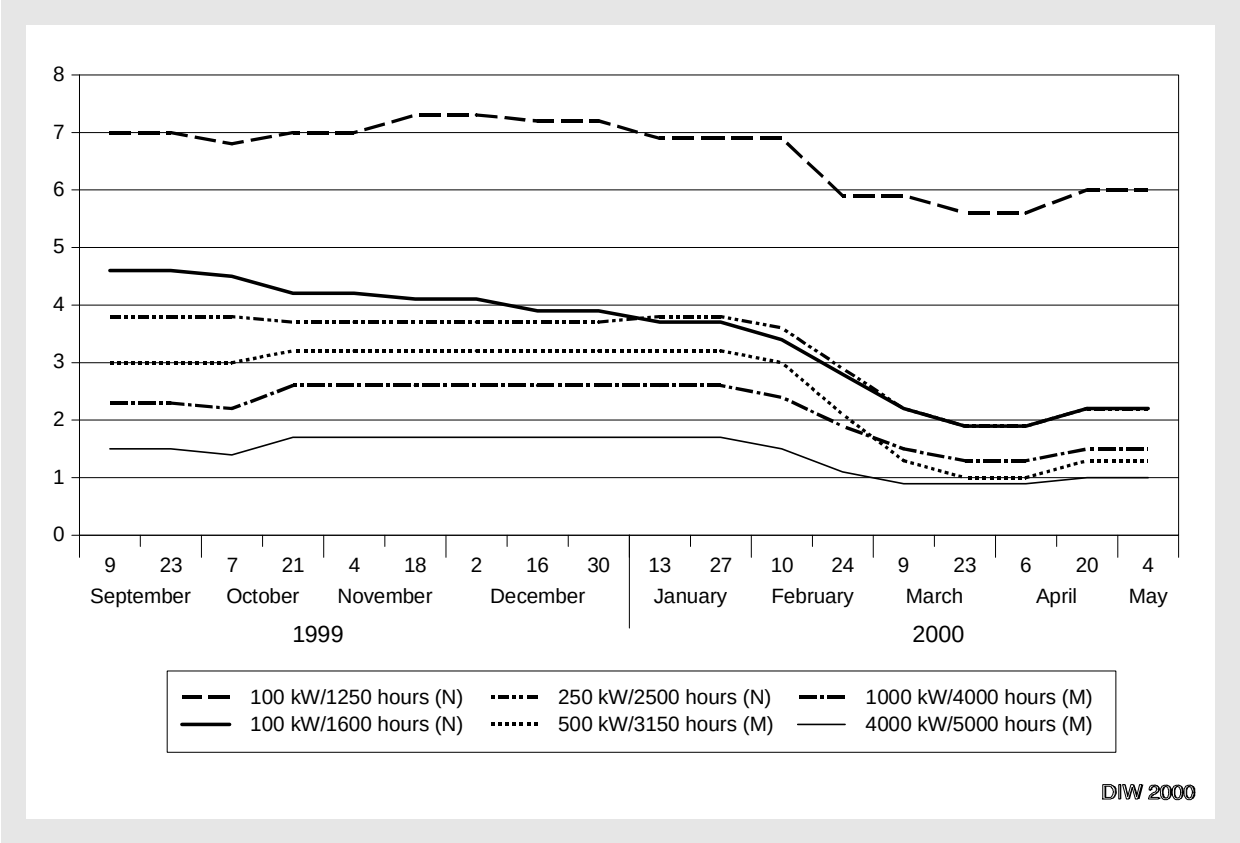
It is the demand for electricity by private households that is least price elastic. This is explained by the relatively minor importance of the cost of electricity in the overall budget of this user group, the lack of information on the actual cost of electricity and the only limited willingness of households to invest in order to reduce these costs. Elderly persons and those less oriented towards reducing costs, in particular, are often not willing to make the effort required to examine alternative offers. Many households do not even change to more favourable charge systems offered by the existing supplier,

[7] The differences between the highest prices have not narrowed to the same extent, however.

Figure 5

Price Differentials for Industrial Customers Purchasing between 0.125 and 20 Million kWh in West Germany, September 1999 to May 2000

Lowest prices in pf/kWh including taxes



Source: Bundesverband der Energie-Abnehmer e.V. (VEA - federal association of energy customers).

although this would be possible at little cost.[8] Faced with the transaction costs of comparing prices, it seems that many small and medium-sized enterprises (SME), too, have refrained from taking advantage of the new opportunities.

The lengthy negotiations concerning the method by which the electrical energy required by individual households is to be calculated and the way voltage requirement profiles are to be determined have led to delays in introducing genuine competition. If households wishing to change supplier were obliged to measure the electrical power consumed, the costs involved would stifle any competition in this segment. A number of supply companies have raised the cost of changing supplier for their clients by charging a fee (of between DM 50 and DM 150) or have announced that they will read the meters themselves (incurring charges of between DM 50 and DM 80).

Because of problems such as these, competition to provide domestic consumers with electricity did not get under way until the second half of 1999. In spite of costly advertising campaigns by independent electricity traders and the trading companies of large supply utilities, so far almost certainly less than 1% of household consumers have changed their provider.[9] This is very few considering the cost of advertising.[10] To some extent the small number of households opting to change supplier reflects the fact that established supply compa-

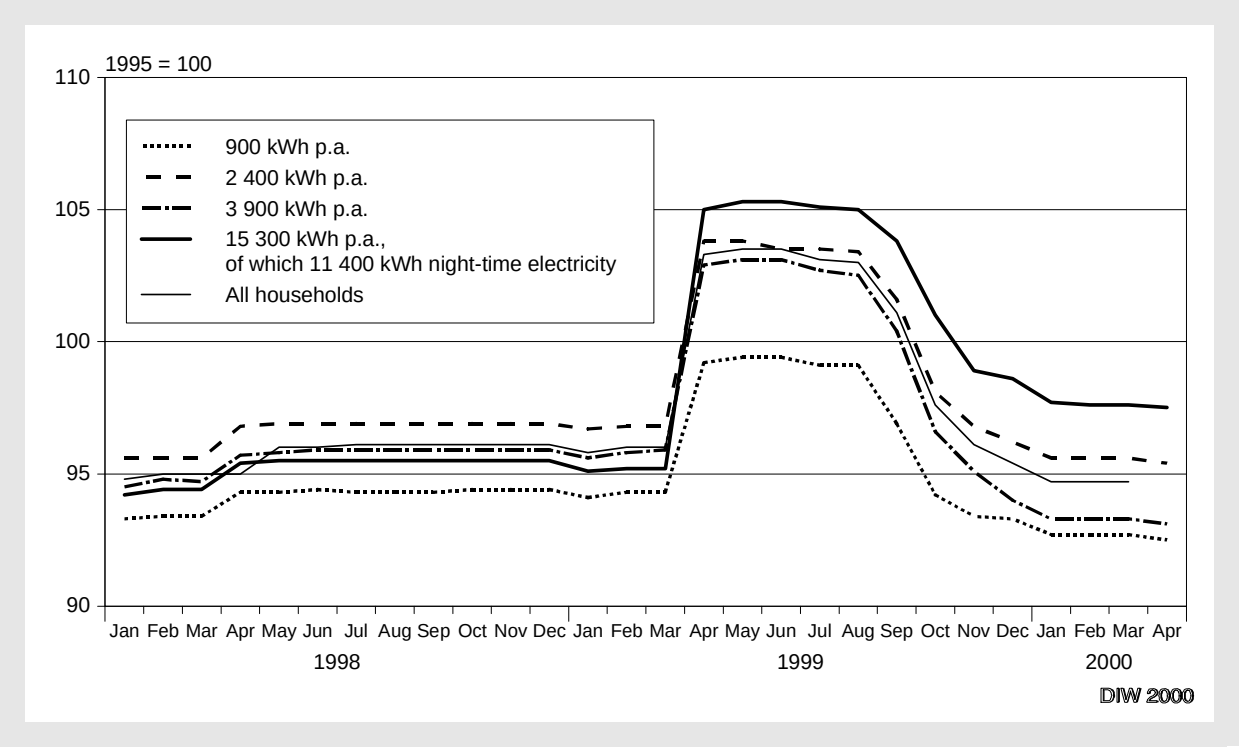
[8] Such behaviour among established customers is well known to market researchers. Occasional customers behave completely differently. Yet in the electricity sector household customers have not been accustomed to changing supplier.

[9] According to a survey conducted at the behest of the VDEW (association of German electricity power companies), the proportion of households changing supplier is estimated to be less than 1%.

[10] The advertising campaigns by Yello supposedly cost DM 100 million and attracted 250 000 customers. This means that DM 400 was spent on advertising for each new customer.

Figure 6

Electricity Prices for Household Consumers in Germany (including taxes), January 1998 to April 2000



Source: Vereinigung Deutscher Elektrizitätswerke e.V (VDEW – association of German electricity companies).

nies have announced and actually granted price concessions for domestic consumers, in order to prevent excessive sales losses.

Yet the onset of competition has dampened down price trends even in the household segment of the market. In most cases the price rise of 2 pf/kWh resulting from the introduction of a green tax on electricity as of April 1999 was offset by corresponding price reductions during the second half of the year. The rise in the ecological tax on electricity of 0.5 pf/kWh at the start of 2000 did not lead to price increases even initially (cf. figure 6). On average, according to the Federal Statistical Office, electricity prices for private households, including the green tax, were about the same in March 2000 as they had been without the tax at the start of 1998. With the exception of those households using electricity for heating, ignoring the effects of ecological tax reform, the electricity prices paid by private households fell by as much as 20% between the start of 1998 and March 2000.[11]

[11] According to an estimate by the VDEW (association of German electricity power companies).

Continued need for competition policy and regulation

Overall the deregulation of the telecommunications and electricity markets has led to substantial falls in prices in the short run. Between January 1996 and March 2000 the prices of telephone services paid by private households fell by around 23%, according to figures calculated by the Federal Statistical Office. Without the imposition of additional taxes, the electricity prices paid by domestic consumers would also have fallen markedly, indeed by almost as much as the price of telephone services, at least if the use of electricity for heating is excluded from the calculations.

The sharp fall in the price of telephone services largely reflects structural causes, however, whereas in the case of electricity temporary factors played an important part. Consequently, in future the prices on the two markets can be expected to move in different ways.

In the case of electricity it must be assumed that the recent price cuts reflect not least the existence of overcapacity in electricity generation. The sharp fall in wholesale prices, which are down virtually to the level of the short-run marginal costs of electricity generation,

will lead to cutbacks in over-capacity over the medium term.[12] Once this has occurred, price cuts for final consumers will only be possible if competition becomes even tougher and sustained cost reductions prove possible. Conducive factors here are, in particular, low charges for transmitting energy through networks owned by other companies, and increasingly price-conscious behaviour by small-scale consumers.

The situation with regard to telecommunications services is different. Above all else, technological factors mean that competition will remain extremely fierce, suggesting that the trend to falling prices will be sustained in this sector. On top of this comes the fact that information networks, given the dramatic increase in their transmission capacity, enable entirely new telecommunications services to be offered at declining specific costs (Internet, e-commerce, online share trading etc.). Because such services are expected to generate high returns in the longer term, large numbers of suppliers are seeking to establish and expand their market position on the growth market for Internet services at an early stage – and low telephone charges are one way to do so.

In order for the efficiency gains brought about by the deregulation of the telecommunications sector and electricity supply to be sustained in future, it is vital that steps are taken to ensure that concentration processes do not pose a threat to competition between suppliers. In addition, the remaining barriers to market entry, particularly in the area of local telephone calls, must be removed. In the electricity sector the propensity of small-scale consumers to change supplier needs to be raised via measures to raise price consciousness and to reduce the costs of changing supplier.

Given the huge costs involved in constructing new networks and the lack of technical alternatives to conventional network infrastructure, the transmission of electricity will remain the monopoly of the established electricity supply utilities. To this extent it is vital that they be subject to government regulation. It must be considered whether a regulatory authority should be set up in this sector as well, on the model of the RegTP in the telecommunications sector. For the time being, the sharp fall in prices brought about by the liberalisation of electricity markets suggests that the experiment of self-regulation by market actors, using intra-association agreements, should be continued without setting up such an authority. However, given that in the longer run competition is likely to be weaker here than on the telecommunications market, and that in future telecommunications services will also be able to be provided via electricity networks, at some point there will no longer be any justification for less stringent regulation of transmission conditions and costs in the electricity sector than in the telecommunications sector.

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[12] Combined heat-power stations run by industry or local authorities, in particular, face a marked fall in capacity utilisation as a result of the fall in the price of electricity; indeed, a number of such plants have already been shut down. Because this trend runs counter to the energy-policy goals pursued by the German government, counter-action is being taken: initially, electricity generated by local authority heat-power plants is to be subsidised at a rate of 3 pf/kWh.