

Annual Report 2001





Dr. Martin Bartenstein
Federal Minister of
Economic Affairs and Labour

As a first step towards liberalising the electricity market with a view to strengthening the European economy, an EU Directive gave industrial consumers the right to choose, their power suppliers, leading to competition among the latter, and thus to market prices for electricity. To offer small companies and private consumers the same freedom of choice the Austrian Federal Government introduced the 2000 Energy Market Liberalisation Act. This opened the way for full opening of the Austrian electricity market which has been a reality since 1 October 2001.

The move from government controlled electricity pricing to a free market calls for a new kind of supervision and regulation, tailored to the special features of electrical energy. The emergence of new supplier monopolies must be averted, and the continuing monopoly in grid operation more strictly regulated than ever if sellers and customers are to have a level playing field.

The new regulator, Elektrizitäts-Control GmbH (Electricity Control Ltd), which is organised as a private company, was established on 1 March 2001, and has since been overseeing the implementation of the Austrian electricity market liberalisation in conjunction with the Ministry of Economic Affairs and Labour. An independent Electricity Control Commission has also been established, and has been empowered to take important decisions on regulatory matters since March 2001.

Among its many duties, Electricity Control Ltd's key functions are the overall supervision of competition, monitoring of unbundling, the formulation of market rules, the implementation of the regulations on stranded costs, the setting of network tariffs, the regulation of imports from third countries, the collection of statistics and crisis management.

We are fortunate to have obtained the services of Walter Boltz as chief executive of Electricity Control Ltd. He brings an outstanding knowledge of the domestic and international electricity industries. I would like to take this opportunity of thanking him and his team for what has been achieved in the short time since they took up their duties, and expressing the hope that they will keep up the good work.

Dr. Martin Bartenstein

→ Impressum

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DI Walter Boltz
Chief Executive

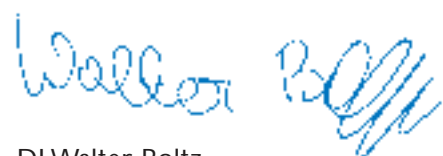
The Austrian energy sector has been transformed in the past few months. Since 1 October 2001 all final customers of electricity have been free to choose their suppliers, regardless of whether they are industrial or private residential consumers, small businesses or farmers. Until then only industrial consumers were able to profit from liberalisation, the first stage of which was introduced in 1999.

Many have been surprised at Austria's success in keeping to the schedule for liberalisation. This was only possible because of the unremitting efforts and co-operative approach of all concerned.

Austria has achieved the complete opening of the electricity market ahead of the schedule laid down by the EU electricity directive. With the European Union not aiming for complete liberalisation of the electricity market until 2005, Austria is among the fore-runners, and Austrian businesses and private consumers are reaping the benefits in terms of electricity pricing and services earlier than many others in Europe.

The initial results after a few months of electricity market liberalisation in Austria are highly encouraging. Competition is heating up, changing supply is simple and unbureaucratic, and Austrian consumer behaviour with regard to switching is likely to be transformed in the next few months. According to figures from Electricity Control Ltd, during the first three months of liberalisation up to 31 December 2001 some 20,000 domestic, agricultural and small business consumers moved over to new suppliers. The experience of other countries where the electricity market has been liberalised for longer shows that there tends to be a wait-and-see attitude at first, but that switching rates then pick up rapidly after some months. For instance, in Britain some 30% and in Sweden some 20% of domestic and small business consumers have changed suppliers.

The winners from liberalisation will ultimately be electricity consumers, from large-scale industrial customers to private households. They will profit not only from lower prices but from a more customer friendly system, a variety of additional offers and the creation of specialised service organisations. Everything points towards a bright future for the electricity market liberalisation.


DI Walter Boltz



Prof. Walter Barfuß
Chairman of the Supervisory Board

Elektrizitäts-Control Österreichische Gesellschaft für die Regulierung in der Elektrizitätswirtschaft mit beschränkter Haftung was entered in the register of companies at the Vienna commercial court on 23 February 2001 under reg. no. 206078g. E-Control, as it is known, is charged with exercising the functions conferred on it by the Federal Act Regulating the Reorganisation of the Electricity Industry (EIWOG) (Federal Law Gazette I 143/1998 as amended) and the Federal Act Regulating the Tasks of the Regulatory Authorities in the Electricity Sector, as well as the Establishment of Elektrizitäts-Control GmbH and the Elektrizitäts-Control Kommission (Federal Law Gazette I 121/2000 as amended).

The applicable regulations require the management to prepare an annual review of the operations and a financial statement for the past financial year. The financial statement must be adopted by the resolution of the annual general meeting.

This annual report is the first since the establishment of Elektrizitäts-Control GmbH. It mirrors the wide range of tasks that the company must perform, and – as was to be expected – shows that the monitoring and implementation of liberalisation requires appropriate statutory regulations and institutions entrusted with their enforcement. All this has its price, but I am certain that Elektrizitäts-Control GmbH brings good value for the money. Despite widespread predictions to the contrary, liberalisation is fortunately working.

Due to the unusually close supervision exercised by the board of which I am the chairman, I am in a position to state with all confidence that the management has made an excellent job of tackling its – by no means easy – tasks.



Prof. Walter Barfuß



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Not only is electricity the most important secondary energy source in the European Union but the electricity sector is one of Europe's largest. It generates some 2,500 TWh of power, and has a combined turnover of about € 250 billion (bn). Energy accounts for a large part of the production costs of many European businesses. While electricity normally represents about 2% of a company's total costs, in some industries the proportion rises to 10–20%. Since the margins in international trade are usually only 2–3%, a relatively small reduction in the price of electricity can bring a major improvement in a company's profitability. The global competitiveness of the European economy depends on reliable, efficient and inexpensive energy supplies.

Because of this, for some time the EU has been working to create a legal framework that will enhance the efficiency of the energy sector. The 1985 White Paper on completing the internal market, which put forward the goal of opening the Community's markets for goods, capital and services by 1992, already envisaged the liberalisation of its energy markets. The belief was that the single market would bring economies of scale, thereby enhancing the ability of the European economy to stand up to global competition with Japan and the USA. At the same time, business sectors that were not exposed to global competition were to be made more efficient by creating a more competitive environment within the common market.

The difficult economic situation at the start of the 1990s, and the financial problems associated with the German reunification drew economic policy-makers' attention to the competitiveness of the European Union. There was particular concerns about the highvalue-added industries – notably the information technology (IT) sector which was one of the main engines of growth. The IT sector is particularly energy intensive, and is heavily dependent on reliable, low-cost power supplies. It became increasingly

clear that the EU needed to open its energy markets. In 1992 the European Commission unveiled its first draft Directive along these lines. After extensive consultations between the EU energy ministers the Directive was adopted in 1996.

The opening of the electricity market can only be properly understood in the context of the wider efforts to restructure the European markets being made at the time. The purpose was to improve market efficiency, in order to attract foreign capital by offering attractive investment opportunities, thereby creating employment.

At a European Council meeting in Cardiff (1998), EU heads of state and government reached an agreement on an economic reform strategy aimed at promoting growth, prosperity, employment and social inclusion. The key to this strategy is sustained economic growth coupled with moderate inflation. This implies making fundamental structural reforms, in order to improve companies' productivity.

When markets function efficiently, prices determine which products are manufactured at what cost. If demand increases and supply remains unchanged, prices will rise. This in turn will encourage investors to step in and expand production. If supply exceeds demand, prices will fall, and production will be scaled down. However, this only works if companies are in competition with one another and are unable to influence market prices. Both monopolies and government intervention block this mechanism, meaning that inefficient companies continue to exist. Consumers carry the cost by paying unnecessarily high prices for products and services.

In order to prevent this, the European Union is opening markets, and thereby reducing the market distortions in the Member States. This generates increased competition, leading to the equalisation of prices throughout the Union. The same applies to the energy sector.

As a consequence, differences between energy costs will play a smaller part in companies' choices of locations inside the EU. The energy costs impact on profitability will decline, and they will no longer impede companies' efficiency. The outcome of this process will be increased competition at the points where the creation of value actually takes place in the manufacturing industry – namely, outside the electricity sector. Integration of the European electricity market will bring tougher competition, and hence productivity increases in downstream sectors.

Market integration has already led to improved efficiency and greater co-operation inside the power industry. Electrical energy cannot be stored, and must be generated when it is consumed. Because of this, the European interconnected grid system has come into being from regional units that traditionally has balanced generation and consumption independently. Most of these are still demarcated by national borders, and their scale is suboptimal in economic and technical terms. In the medium term, market integration should bring benefits by promoting international co-operation.

→ What does liberalisation mean in practice?

In the past a single undertaking, often publicly owned, would supply a region – in Austria, a province – with electricity. Power stations and networks were expensive to build, and it took decades to recover the investments. Because of the risks, private entrepreneurs seldom invested in the electricity sector. Yet, without sufficient energy supplies economic development would have been impossible, and the state therefore often stepped in with cost-support.

On the other hand, it is relatively inexpensive for grid companies to provide additional connections to an existing grid. Innovations in

generation technology and the resulting increased efficiency now permit shorter planning horizons, lower initial investments and modular expansion. Today, companies can amortise their investments over a few years. Metering technology is also constantly improving. It is no longer difficult to find out who has injected electricity into a grid or withdrawn it at a given metering point, and to pinpoint the time and the amount involved. This enables the generation and distribution functions to be split. Such developments have significantly reduced the risks for private investors, and have made the power industry an attractive target.

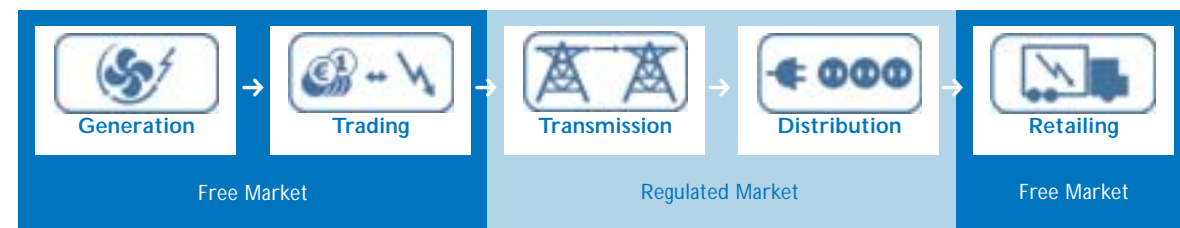
Technological innovation has thus created the conditions for the liberalisation of the electricity sector. The electricity market can now be divided into monopolistic and competitive areas of operations (see Fig. 1).

However, little has changed with regard to the high proportion of fixed costs in the overall costs of grid operation, transmission and distribution. Network operation thus remains a natural monopoly. Since the liberalisation however, generation and distribution have been opened to competition. Electricity consumers have the right to choose their suppliers. Moreover, there is now a new link in the value chain in the shape of traders, including wholesalers. The market participants now comprise generators, suppliers, traders, brokers and large-scale industrial consumers.

Because of the monopoly in grid operation, the electricity sector cannot be entirely left to the workings of the free market. Otherwise, a monopolist could exploit its market power and thwart the desired competition in both upstream and downstream areas of the industry. In order to safeguard competition and limit monopolists' market power, an independent institution is needed, namely, an electricity regulator.

→ Structure of the electricity industry subsequent to unbundling

Figure 1



→ The role of the regulator

The task of the regulator in a liberalised electricity market to strengthen competition while taking into consideration the industry's public service obligations such as security of supply and environmental policy.

The market offers regulators three levers for developing competition:

1. Limiting the monopoly power of the grid operator by assuring non-discriminatory third party access and by setting grid rates. This enables generators and traders to supply electricity to their customers over the grid at all times. If the network operator belongs to an enterprise that also generates, trades and distributes electricity (vertically integrated company) action must be taken to prevent it from cross-subsidising these activities. This is achieved by separating (unbundling) the grid functions from the other parts of the business, at least in accounting terms.

2. Monitoring price trends and the ownership of market participants (generators, suppliers and retailers). Information on prices and ownership structures is the key to assessing the intensity of competition. It may also be the starting point for monopoly and market abuse proceedings aimed at combating competitive distortions if the regulator identifies malpractice.

3. Disseminating comprehensive information, especially to final customers, to ensure that the latter have an adequate understanding of the market and its mechanisms, as well as the structure of the electricity industry, thus reducing information imbalances between the market participants. This makes it easier for consumers to select the right supplier, and cuts the related transaction costs.

Because all market participants are dependent on the electricity grid the market can only function properly if a suitable regulatory framework is in place. Central is a set of rules defining the basic relationships between the market participants. These include both technical and organisational agreements. Monitoring compliance of such agreements is one of the most important duties that a regulator is expected to perform. Regulators have the right to obtain all the information they need to fulfil this responsibility. This information also enables them to ensure that electricity companies are complying with their public service obligations with regard to security of supply and environmental protection.

To be able to act in the interests of all market participants, regulators must be politically and financially independent. At the same time they must manage their own finances responsibly. Electricity companies have traditionally been state owned. Because of this it is essential for the ownership and interests of regulators to be kept separate from those of the utilities.

→ Liberalisation in Austria

The first step towards Austria's implementation of the electricity Directive came with the Electricity Industry and Organisation Act (EIWOG), which was passed in July 1998 and entered into force on 19 February 1999. This did not provide for full liberalisation of the electricity market. It soon became apparent that the Act placed certain groups of customers, such as small businesses and private consumers, at a disadvantage. The amended EIWOG, which came into force on 1 October 2001, brought about the complete opening of the Austrian electricity market. Since then, all electricity consumers have had the right to choose their suppliers.

The EIWOG 2000 is aimed at providing Austrian private and business consumers with high-quality, low-cost electricity supplies, and at establishing a market structure that conforms to the electricity Directive while taking into consideration the industry's public service obligations.

Liberalisation of the Austrian electricity market was accompanied by a reorganisation of the industry's regulatory institutions. The responsibility for electricity regulation is divided among a number of authorities. In addition to the provincial governments and governors, and the Minister of Economic Affairs and Labour – traditionally responsible for this area – Electricity Control Ltd. (E-Control) and the Electricity Control Commission (E-control Commission) now act as regulatory bodies. The Electricity Advisory Board plays a consultative role. The highest regulatory authority is the Federal Minister of Economic Affairs and Labour. The Minister is responsible for establishing E-Control's terms of reference and for supervising its activities.

The arbiter in most disputes concerning the reciprocal rights of market participants is the E-Control Commission, for which E-Control acts as a secretariat.

The duties of the new regulatory authorities are set out in the framework provisions of the EIWOG 2000, and are also explicitly listed in the Act. According to this, the tasks of the regulatory authorities are competition monitoring and supervision, market regulation, and monitoring of compliance with targets for renewable energy sources, as well as certain other, mainly administrative duties.

The competition powers include monitoring the activities of the network operator in respect to equal treatment of all market participants, monitoring the functional separation of network operation from the other business areas (unbundling), and setting the system access charges (by the Commission). In addition, E-Control has a duty to final customers to publish electricity price comparisons on a regular basis. As part of its function of regulating the market, E-Control is required to draw up market rules (general terms and conditions, technical and organisational rules and other market rules) and make these known to market participants. E-Control is also required to monitor compliance with the obligations to purchase "green electricity" and power from small-hydro plants.

The regulatory authorities began work in March 2001. During the first year of complete market opening they were mainly concerned with preparing and implementing the market rules, and with arbitration and abuse proceedings. They also investigated the network access charges, published price comparisons for consumers, installed a system for processing small-hydro plant certification and undertook extensive public information activities in order to put market participants in the picture about liberalisation.

The introduction of the market rules opened the way for restructuring of the Austrian electricity market, and for its new mode of operation. The rules are the sum of all the legal and contractual provisions that the electricity market participants must obey. The market rules have created a balancing system for the infeed of electricity into the public grid and withdrawal of power from it. So-called "schedules" tell suppliers how much electricity they must inject into the grid to cover the current demand. The gap between forecasted and actual demand (less infeed) is covered by an energy balancing system. The balancing power no longer automatically comes from local grid operators, but is purchased on the open electricity market. Balancing, which was previously performed by grid managers at local or regional level, has thus been freed from geographical limitations.

The 150 or so grid operators play a key role in the data management in the Austrian system. If they belong to vertically integrated electricity companies they must observe strict requirements with regard to unbundling and the exchange of information.

The first three post-liberalisation months showed that the system works reliably. After strong price fluctuations on the balancing market during the first few days, market players rapidly came to terms with the new settings. However, the structure of the market was not the only thing changed by liberalisation. The electricity companies are realigning their business operations. They are attempting to consolidate and expand their positions on the liberalised market by making strategic investments and alliances. At the same time there have been electricity price reductions.

There has been an overall trend towards price equalisation – not just at regional level but also in wholesale trading. The adjustment of energy costs to the lower European level has already benefited the Austrian economy and helped make the country more attractive as a business location. There is still much to be done, but things are moving in the right direction, and Austria has shown how a monopolised market can be transformed into an efficient free market system in record time, provided that all the players pull together.





Firm intentions at the European Union level to create a single internal market for energy go back to the mid-1980s. After many years of negotiations, the EC Electricity Directive laid the basis for reorganising the European electricity industry in 1997. Member States were given until 19 February 1999 to implement the substantive requirements of the Directive into national legislation.

The Electricity Directive has the two central principles:
→ Opening of the electricity market; and
→ Strengthening of competition.

The Directive gives special attention to fact that the electricity industry provides services of public interest. Member States are therefore given considerable leeway on the form taken for national implementation.

System access

The electricity Directive provides for the creation of competition on the electricity market by entitling power generators and other providers to use the networks of third-party grid operators to supply "eligible customers". When opening their markets, Member States may opt for a (negotiated or regulated) contractual grid access system or a single buyer system. Member States must establish a competent agency, independent of the electricity companies, to resolve disputes concerning system access.

Market opening

The electricity Directive provides for the gradual opening of the electricity market. The following minimum requirements are prescribed for the timing of the market opening:

- 1999: 26% market opening (basis of calculation all final consumers with annual electricity consumption of at least 40 GWh);
- 2000: 30% market opening (basis of calculation all final consumers with annual electricity consumption of at least 20 GWh);
- 2003: 35% market opening (basis of calculation all final consumers with annual electricity consumption of at least 9 GWh).

The electricity Directive does not provide for full market opening.

Unbundling

Integrated electricity undertakings must, in their internal accounting, keep separate accounts for their generation, transmission and distribution activities, as they would be required to do if these activities were carried out by separate undertakings (unbundling of accounts). Undertakings which operate a transmission system must furthermore take administrative steps to ensure that this is kept separate from other business activities (administrative unbundling).

Public service obligations

The recitals of the Electricity Directive state that free competition alone can in some cases not guarantee security of supply, consumer and environmental protection. Member States are therefore permitted to impose on electricity undertakings public service obligations which may relate to; security (including security of supply), regulation of supplies, quality of supplies, price of supplies, and also environmental protection.



→ EIWOG 1998

The Electricity Directive was initially implemented in Austria by the first Electricity Industry and Organisation Act (EIWOG), which was passed in July 1998 and took effect on 19 February 1999. The Act was designed to harmonise Austrian electricity law with EU law on the basis of the existing division of powers laid down by the Austrian Federal Constitution (federal responsibility for the enactment of basic legislation, and provincial responsibility for its implementation and enforcement), and to create the necessary legal framework for enhancing the international competitiveness of the Austrian electricity industry. At the same time, the existing goals of Austrian energy policy – i.e. a socially acceptable and environmentally sound energy sector with the accent on security of supply and minimisation of costs – were to remain in place.

With respect to the degree of market opening, EIWOG 1998 only went marginally beyond the requirements of the electricity Directive, and made no provision for the complete liberalisation of the electricity market. With regard to system access, a regulated access system was selected and the role of regulator was assigned to the Federal Ministry of Economic Affairs and Labour.

→ EIWOG 2000

The amended EIWOG, which came into force on 1 October 2001, brought about the complete opening of the Austrian electricity market. The relatively rapid amendment of the EIWOG reflected widespread dissatisfaction with phased market opening. Small and medium-sized companies felt discriminated against in favour of larger competitors, and private consumers did not see why only businesses should profit from the liberalised market. Since 1 October 2001 all electricity customers in Austria have had the right to freely select their suppliers. As a result, the current maximum market opening requirement of 35% by 2003 under the electricity Directive has already been exceeded by a wide margin. The situation subsequent to the 2000 amendment is as follows:

Grid operation

The grid is still organised as a monopoly. The operation of a distribution system is therefore subject to special control. The terms and conditions for access to the system require administrative approval, and the tariffs for using the system are administratively determined.

Balancing groups and control areas

With complete market opening, it also became necessary to modify the structure of the Austrian electricity supply industry. The system of closed supply territories with supply duties, on the part of the regional grid operators, was replaced by a balancing group system. A "balancing group" represents the consolidation of suppliers and customers into a virtual group, within which supply and demand for electrical energy are balanced. The balancing groups are managed by balancing group representatives, which represent the group externally in dealings with other market participants. The various balancing groups form part of control areas, equipped and operated with load frequency control systems, under the lead of control area managers. Among other duties, the latter are charged with the

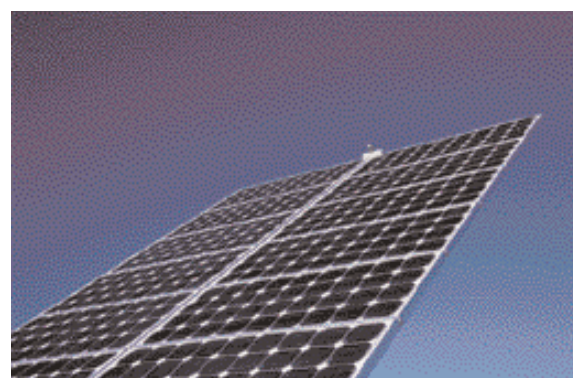
E	Regulatory environment and institutions
	→ Institutional framework

procurement and use of balancing power. Control area managers must adhere to so-called "merit order lists" (capacity lists ranked in order of preference by price). These are drawn up by the settlement agencies (run by the balancing group coordinators), which have a market clearing role under special provisions of the Settlement Agencies Act.

Renewable energy sources

An express goal of EIWOG 2000, for environmental policy reasons, is that of increasing the share of electricity generated from renewable energy sources.

The Act essentially relies on two measures to increase the share of renewables in the energy balance.



Firstly, operators of distribution systems are obliged to purchase electricity from the "green" generators connected to their systems at minimum prices. Since 1 October 2001 the electricity provided by "green" generators has had to amount to at least 1% of the total volume of electricity supplied to final customers from the distribution system in the previous calendar year. The share rises by one percentage point per year up to 1 October 2007 when the minimum will be 4%.

Secondly, 8% of the power supplied by electricity traders must come from small-hydro stations. These are defined as hydropower stations with a maximum installed capacity of 10 MW. In Austria, the presentation of small-hydro certificates provides the evidence of achieving the 8% target. This task is normally assigned to electricity traders (see section 0). Many of the mechanisms for promoting "green" power provided for by the EIWOG are innovative in character. Initial experience with implementation shows that certain adjustments are necessary. For example, standard nation-wide parameters would facilitate the fair distribution of additional expenses arising from the burden of "green" power, and a standard arrangement for power source identification would cut the administrative workload. Likewise, economic efficiency would benefit from a national perspective – e.g. concentration of wind power usage at favourable locations in Lower Austria and Burgenland, small-hydro plant usage in the western provinces and biomass usage in the southern provinces.

The EIWOG 2000 also set electricity regulation on a new footing. Responsibility for electricity regulation is divided among a number of authorities. Apart from the provincial governments and governors, and the Minister of Economic Affairs and Labour – traditionally responsible for this area – Electricity Control Ltd. (E-Control) and the Electricity Control Commission (E-control Commission) now act as regulatory bodies. The Electricity Advisory Board plays an advisory role.

→ Provincial authorities

Apart from issuing operating licences for power stations and licensing distribution system operators, the provincial governments primarily have powers relating to renewable energy sources. These include the designation of "green" power plants, small-hydro plants and the administration of environmental funds.

The provincial governors are empowered to set minimum prices for the injection of "green" power and, where applicable, energy from combined heat and power (CHP) plants, as well as surcharges on the system access charges (environmental levies and CHP surcharges). These compensate grid operators for the additional expenses incurred in connection with their duty to purchase "green" power and energy from CHP plants.

→ Federal Minister of Economic Affairs and Labour

The highest regulatory authority is the Federal Minister of Economic Affairs and Labour, who has three main areas of responsibility:

- Supervising the activities of E-Control;
- Supervising the Federal Government's shareholding in E-Control; and
- Establishing E-Control's terms of reference.

→ Electricity Control Commission

The E-Control Commission is a collegial body with a judicial element in the meaning of art. 20[2] Federal Constitution. Its members are not bound by ministerial instructions in the exercise of their office.

The E-Control Commission consists of three members. One must be a judge, and the other members must have relevant technical, legal or economic background.

The principal duties of the E-Control Commission are:

- Approving the general terms and conditions of grid operators for access to transmission and distribution systems;
- Determining system access charges;
- Prohibiting the application to final customers of terms and conditions that are contrary to the public interest;
- Ruling on certain disputes between market participants;
- Arbitrating on disputes concerning the settlement of balancing power;
- Listening to appeals against decisions by E-Control.

→ Electricity Control Ltd

E-Control is a "company vested with sovereign authority" which carries out the duties assigned to it by law using the resources of the State. The competence of E-Control extends to all duties assigned to it by law as regulator, unless the E-control Commission is expressly entrusted with such duties. E-Control's duties comprise five areas.

Monitoring and supervisory function

The monitoring and supervisory function encompasses the supervision of competition, the preparation and publication of electricity price comparisons. The monitoring of unbundling and of the importation of electrical energy from third countries. If E-Control identifies an abuse in the course of its supervisory duties, it must take corrective action without delay.

Regulatory function

The most important regulatory tasks are the formulation of proposals for market rules and Technical and Organisational Rules (TOR), as well as determining the conditions for reciprocity.

"Green" power and small-hydro plant certificates

E-Control is charged with monitoring compliance with the obligation to purchase "green" and small-hydro power.

The regulator must determine the extent to which electricity is being sourced from "green" generation plants. If the uptake of "green" power is below the level stipulated by the respective implementing acts, E-Control must inform the relevant provincial government and publish the names of the distribution system operators failing to comply with the statutory minimum percentage.

In the interests of the promotion of Austrian small-hydro power, EIWOG requires all final customers to meet 8% of their consumption from mini-hydro plants (maximum electrical capacity of 10 MW). Proof of compliance takes the form of small-hydro plant certificates.

Settlement of equalisation payments between grid operators

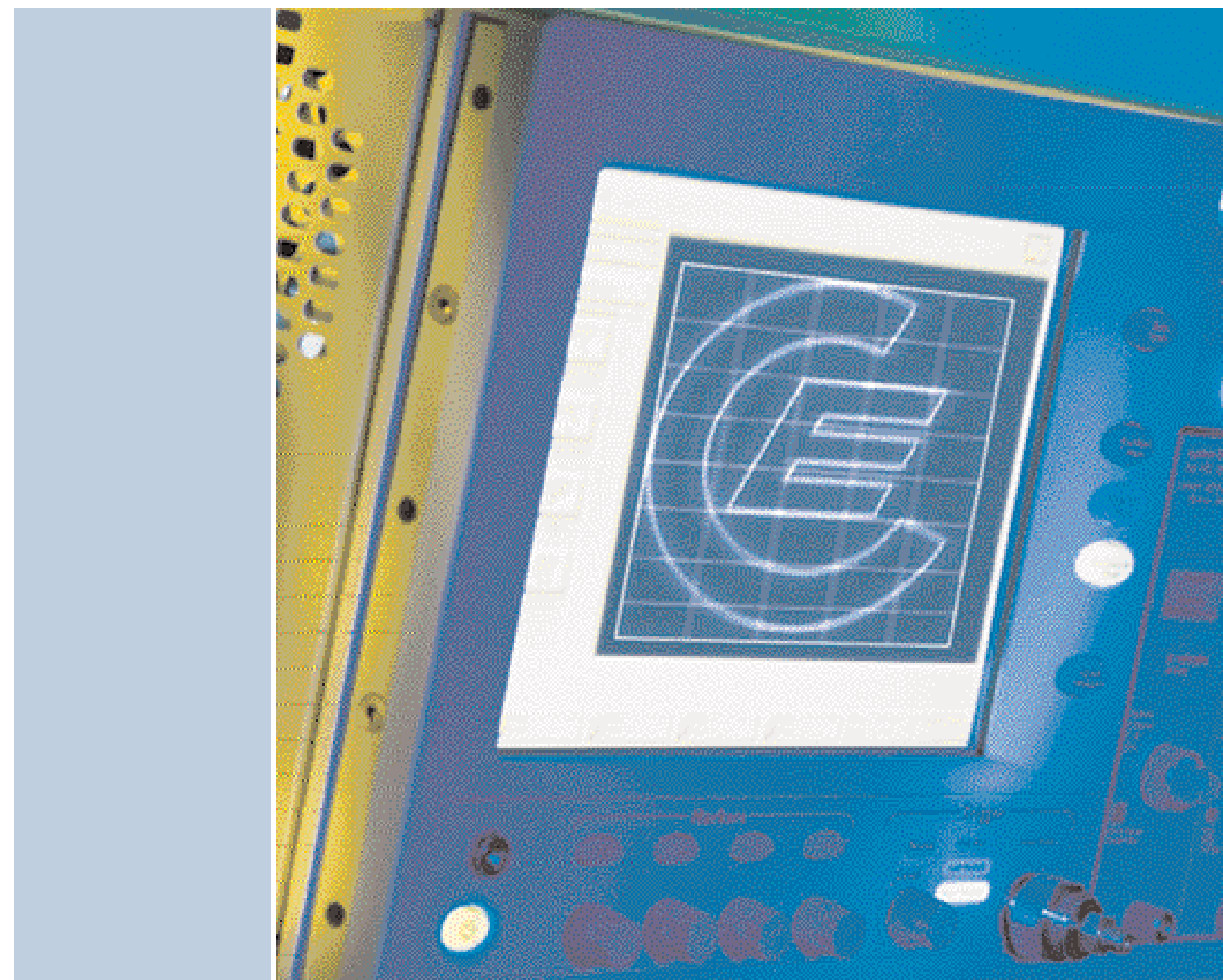
E-Control has a duty to settle the balancing payments that arise as a result of the consolidation of networks with different owners. E-Control must issue an order governing the related formalities.

Other duties

E-Control's additional duties include the administration and collection of contributions for stranded costs, performance of statistical work, and balancing group supervision. Finally, E-Control is also the secretariat of the E-control Commission.

→ Electricity Advisory Board

An Electricity Advisory Board has been set up at the Ministry of Economic Affairs and Labour to advise the Minister and the regulator on matters of general electricity policy. The Board includes representatives of the Ministries of: Economic Affairs and Labour; Agriculture and Forestry, Environment and Water Management; Finance; Justice; and of the provinces and the social partners.



	Activities of the regulatory authorities
	→ Introduction

With the advent of electricity market liberalisation a wide range of responsibilities were assigned to the new regulatory authorities. The main goals of their activities are those of strengthening competition in a well-functioning electricity market with secure supply, simultaneously as electricity generation from renewable energy sources is promoted.

EIWOG's approach to the strengthening of competition has three main thrusts:

→ Firstly, the monopoly power of grid operators is to be severely curtailed in order to create a level playing field for all market participants. The key instruments for this are: regulated system access charges payable to grid operators; arbitration and the prevention of abuses in respect of third-party access problems; and monitoring of the unbundling of grid operation from the other activities of electricity companies.

→ A second key element is that of monitoring competition in generation, sales and marketing. Here, the focus is on observing price trends and ownership structures, which are significant indicators of the intensity of competition.

→ Thirdly, competition is to be intensified by providing price comparisons and comprehensive information on the functioning of the market and by assisting consumers with problems related to liberalisation, thereby helping to ensure that they are active and well informed market participants, and base their decisions on price and quality.

In the interests of an efficient market and of security of supply, the EIWOG gives the regulatory authorities the job of formulating and implementing market rules (general terms and conditions, technical and organisational rules, and other market rules). In the run-up to full liberalisation, E-Control and the E-control Commission focused on this task. They also paid attention to the collection of electricity statistics, which is an important step towards long-term security of supply and effective crisis management.

To promote "green" and small-hydro generation, the EIWOG provides for the installation of control mechanisms and the small-hydro certificate system. Both were implemented in the year 2001.

	Activities of the regulatory authorities
	→ Supervision of competition

→ Price surveys

Household and industrial electricity prices have to date been surveyed twice a year in connection with reporting to Eurostat, the EU statistical office and published in an EU comparison. Though these surveys are still conducted, electricity companies are no longer willing to provide figures on major industrial customers.

Through the tariff calculator (see 1.17.4, Tariff calculator) E-Control has created not just an information medium for consumers but also a means of performing ongoing price surveys. All available relevant offers, including any additional services and conditions are retrievable via the tariff calculator. E-Control also conducts analyses on specific cut-off dates when necessary.

The data situation with respect to large-scale consumers (30,000 kWh and higher) has remained unsatisfactory. However, prices for these buyers are often negotiated on a one-off basis, under civil law contracts, and are not open to public scrutiny. E-Control has therefore begun preparing industrial electricity price calculations.


In future E-Control will report to the International Energy Agency on Austrian electricity prices, relying on industrial electricity prices surveyed and computed with the tariff calculator.

→ Generation and purchase power capacity

Austrian electricity generation and purchase power capacity is an important magnitude in many areas (e.g. supply in crises, intensity of competition between generators and attainment of targets for renewables). The migration of data from the federal system operator and the transfer of responsibility for statistical reporting commenced in October 2001. E-Control succeeded in continuing the collection of statistics without interruption when the Energy Emergency Powers (Amendment) Act and a new Statistics Order issued by the Ministry of Economic Affairs and Labour took effect on 1 January 2002.

To manage the regulatory activities in respect of "green" and small-hydro power, all certified plants were entered in an E-Control database.

E-Control thus laid the groundwork in 2001 for observing the development of competition and monitoring compliance with the generation targets for renewable energy sources as required by the EIWOG.

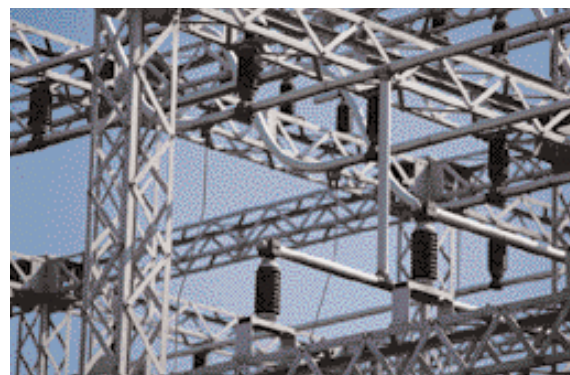
	Activities of the regulatory authorities
	→ Monitoring of unbundling

→ Distribution

Under the merger procedure laid down by section 42a Cartel Act, during 2001 E-Control provided opinions on the geographically and operationally relevant market, the market shares of alliances yielded thereby, and the economic impacts of alliances between electricity companies. In the case of EnergieAllianz, the sole declared goal of the alliance was cooperation in distribution. In order to ensure that this alliance did not have a negative effect on competition, E-Control formulated specific conditions, particularly with respect to unbundling. As the merging companies accepted these, the Minister of Economic Affairs and Labour withdrew his request for an investigation.

→ Ownership, joint ventures and mergers

Since the start of liberalisation, the Austrian electricity sector has been marked by the formation of joint ventures and mergers, and changes in ownership. E-Control therefore has surveyed the current relevant shareholdings in the electricity companies. Meanwhile, the Joint Committee on Cartel Matters and E-Control have conducted a joint study on the deline of the geographically and operationally relevant market. The focus of this study was on potential barriers to entry in the small-scale consumer market.



In the electricity and gas industries, "unbundling" means the separation of those activities which must be regulated because they constitute natural monopolies (the grid) from those areas where effective competition can develop. The more extensive the market opening envisaged, the more crucial is the role of effective unbundling in structuring competition in a fair and non-discriminatory fashion.

In 2001 an initial inventory of unbundling practices was made in the course of investigations of system access charges and on other occasions. In addition, in its capacity as the sectoral competition authority E-Control was requested to draw up unbundling guidelines in connection with merger proceedings.

Many of the former territorial monopolies are only gradually adjusting their corporate structures and cultures to the requirements of the fully liberalised electricity market. E-Control will therefore not only create clear guidelines for separating generation, electricity trading, transmission, distribution and other activities, but will also monitor compliance therewith.

An important precondition of unbundling, for example, is the division of the responsibilities of managing bodies and senior executives, that is, separation of the management of grid operation from retail trade. Among other things, this will assure the confidentiality of the grid operation data. In technical terms, these requirements must, among other things, be reviewed by inspecting data processing authorisations. Action of this sort is needed to assure fair competition between new and existing suppliers.

Such requirements will be firmed up in 2002 when the unbundling regulations for all grid operators in Austria are drawn up. This will mean that the necessary technical and organisational framework for almost entirely non-discriminatory grid operation will be in place.



Activities of the regulatory authorities

→ System access charges

→ Price investigations and setting

Pursuant to section 55 EIWOG, E-Control has been charged by the E-control Commission with investigating system access charges in all 16 Austrian grid zones. E-Control initiated these investigations in October 2001 when this responsibility was transferred from the Ministry of Economic Affairs and Labour. They are expected to be completed by mid-2002. Even before 1 October 2001, E-Control investigated system access charges in the grid zones of Salzburg AG and STEWEAG on the instructions of the Ministry.

In the course of the investigations, the cost and tariff structures of the grid operators were studied in detail and some of the tariff-based components – grid utilisation charge, grid provision charge, network loss charge and service charges – were reset.

By 1 January 2002 there had already been noticeable reductions in the system access charges for the grid zones operated by Verbund-APG, Grazer Stadtwerke and STEWEAG. On 1 April 2002 the BEWAG, and probably other grid zones will follow. The amended System Access Charges Order is posted on the E-Control website at www.e-control.at.

Total reductions of nearly € 50 million (m) have already been realised by the procedures for resetting system access charges in which E-Control has been involved.

→ Resetting system access charges

A key responsibility of E-Control is the critical review and management of system access charges. This has many different aspects, including identifying the grid operation costs on which system access charges are based, defining the target agreements and productivity discounts (benchmarks) provided for by the EIWOG, and designing the tariff structure itself.

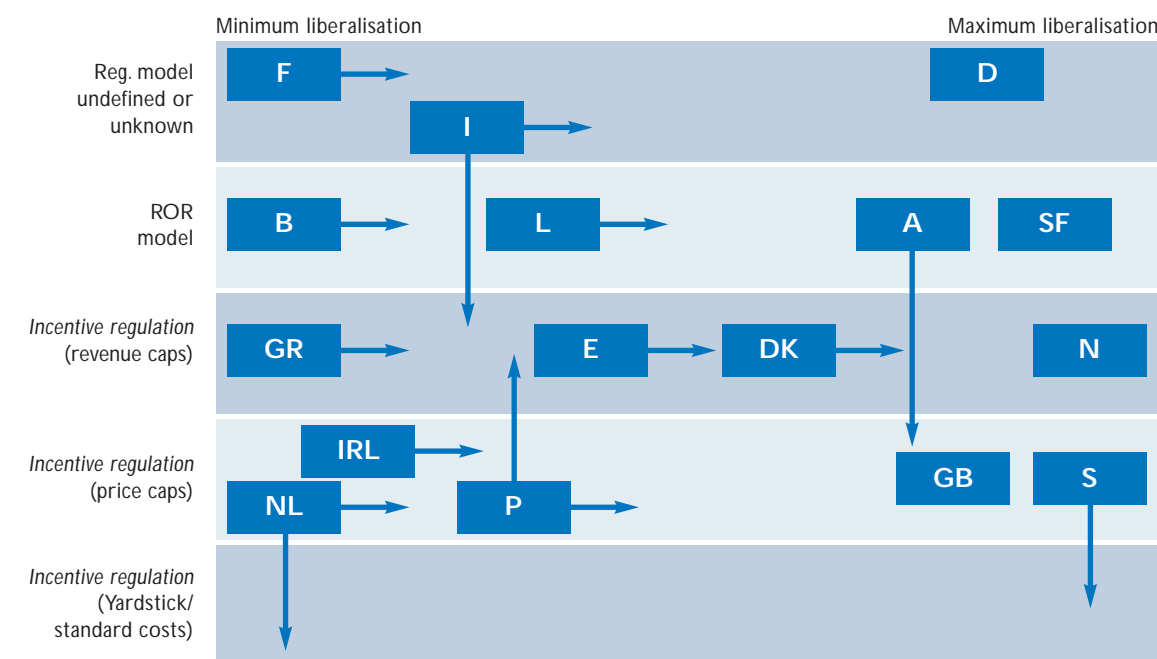
E-Control sets out to cooperate closely and constructively with industry and other interested parties on the development of new system access tariff structures. To this end, ongoing discussions will be sought with grid operators and other interested parties.

In consultation with the E-control Commission, E-Control plans to unveil the main results of the project by the end of 2002. The following activities were carried out in 2001.

- Collection and analysis of information on foreign tariff systems, regulatory models and benchmarking methods;
- Development of a questionnaire on tariff-related structural data;
- Assessment of a combined database and data analysis systems; and preparations for, and specification of adjustments to the requirements of Austrian grid operators;
- Evaluation of a well-tried Internet-based system used by the Norwegian regulator to collect financial and technical indicators.

→ European regulatory models

Figure 2



→ Electricity Supply Agreement Order pursuant to section 13 EIWOG

Section 13(1) EIWOG 2000 provides that no electricity may be imported from third countries for final consumption in Austria where power is generated at plants that do not correspond to the technological state-of-the-art requirements, or which represent a direct or indirect hazard to the life or health of people, animals or plants in Austria, or which cannot furnish proof of proper waste disposal practices. Pursuant to section 9(1)(5) Federal Act Regulating the Tasks of the Regulatory Authorities in the Electricity Sector and the Establishment of E-Control and the E-control Commission (hereafter, the "Regulatory Authority Act") and article 8 Energy Liberalisation Act (Federal Law Gazette I 121/2000), E-Control is responsible for monitoring the import of electrical energy from non-Member States of the European Union, and particularly for issuing orders under section 13 EIWOG.

In order to be in a position to issue such orders, at the start of September 2001 E-Control commissioned an independent consortium consisting of KEMA Consulting GmbH (Bonn, Germany), KEMA Nederland B.V. (Arnhem, The Netherlands) and NRG (Arnhem, The Netherlands) with analysing the thermal and nuclear power stations in those third countries from which it is possible to procure electricity and to ascertain whether these countries meet the conditions of section 13 EIWOG.

To cover the period until the findings of the report became available, transitional orders were issued for October and November 2001. On the basis of the report and of a comprehensive legal analysis of the applicability of section 13 EIWOG to EU candidate countries, the Electricity Supply Agreement Order was ultimately issued on 17 December 2001, listing those countries from which electricity imports are prohibited under section 13 EIWOG.

→ CBT tariff system

The Council of European Energy Regulators (CEER), of which E-Control is a member, names promoting the creation of a European electricity market as one of its prime objectives. The cross border transit (CBT) tariff system is scheduled for 1 March 2002, which will standardise payments for cross-border supplies inside the European Union. These payments cover the additional costs of international power transmission.

The model has been developed in accordance with the basic CEER specifications by the European Transmission System Operators (ETSO) in consultation with the European Commission, and is initially to be applied for one year. Thereafter, it is to be replaced by a permanent system.

When this tariff system is introduced, a supplier will be able to supply any customer in the European Union at no additional cost after paying a border-crossing fee levied when the first border is crossed. This will represent a major step towards the realisation of an integrated European electricity market.

→ Reciprocity

Pursuant to section 20(1)(3) EIWOG, provincial subsidiary legislation must provide for the right "to deny eligible parties system access, inter alia, because a customer to whom the delivery is made or is to be made is not deemed to be an eligible customer. "This means that it is necessary to investigate whether a comparable customer in the country of origin could likewise be supplied from Austria.

Among other things, this provision represents the implementation of the reciprocity clause contained in Article 19(5) of the Electricity Directive, which is to apply for a period of nine years after the entry into force thereof (until 19 February 2006). Under Austrian legal rulings however, the Austrian reciprocity clause is also applicable to third countries.

E-Control has a duty under section 10(1)(3) Regulatory Authority Act to determine the conditions for reciprocity with countries making deliveries to Austria. E-Control construes this duty as an obligation to establish criteria for assessing whether and when reciprocity exists. In drawing up these rules – necessary in the interests of comparable systems – the main consideration must be the vantage point of the customer in the other system concerned. A start has already been made with this work.

→ System access denial hearings (section 20[2] EIWOG)

Under section 20(2) EIWOG in conjunction with section 16(1)4 Regulatory Authority Act, the E-Control Commission must, within one month of the submission of a petition by a party alleging that its legal right to system access has been infringed by denial thereof, determine whether the conditions for legal denial of access (insufficient capacity, etc.) are met.

To date, the E-control Commission has initiated 18 proceedings for declaratory judgements concerning the legality of the denial of system access. Seventeen of these, relating to the legal situation created by the original version of the EIWOG, have been resolved by discontinuation or the issue of a notice. One case, pertaining to the legal situation since 1 October 2001, is still pending. In 12 instances, matters before the Minister of Economic Affairs and Labour have been transferred to the Commission. The other six cases relate to direct applications to the E-control Commission.

The proceedings concluded by notice largely concerned the first-order issue of whether the petitioner was an eligible customer (i.e. an auto-producer or an independent producer). One case ended with the dismissal of the petition because the plaintiff was not identical to the buyer with respect to the transport service. In another case, the E-Control Commission ruled that spent lye from paper production was considered as domestic biomass in the meaning of the applicable provincial act. In a further matter,

it was determined that the distribution system operator was not an autoproducer because it had resold the electricity generated. Three notices related to the so-called "leasing model". The specific form of the model, which involved the simultaneous transfer of operational responsibility to the lessor, was not accepted because neither was the economic risk thereby transferred to the lessee nor did the latter have any means of influencing day-to-day operation of the plant. In consequence, there was no right to system access in these cases. The remaining cases were mostly dropped due to arbitration by the E-Control Commission and resultant withdrawals of the pleas.

In retrospect, it can be seen that the legal decision-making period of one month is too short for formal investigative proceedings.

→ Arbitration hearings (section 21[2] EIWOG)

As noted in the previous section, the E-control Commission rules on disputes relating to system access. Courts of law decide in all other disputes between eligible network customers and grid operators. Contentious proceedings may only be passed to arbitration procedures upon service of a notice by the E-control Commission. One case is currently pending which involves the payment of a service charge by the operator of a small power plant.

→ Market abuse hearings (sections 9[1]1 and 9[2] Regulatory Authority Act)

E-Control's competition control responsibilities involve ensuring that market participants are given equal treatment by the grid operators. If, in the exercise of its supervisory and monitoring roles, E-Control identifies any market abuse, it must immediately take all steps necessary to prevent such abuse and to restore compliance with the law.

To date E-Control has initiated proceedings in around 30 cases of market abuse. Fifteen have already been discontinued, either because it became clear in the course of the proceedings that the monopolist had not abused its market power or because it immediately desisted from the malpractice in question. Three cases originating from system access disputes dating back to the former regulatory system were resolved by arbitration hearings at E-Control.

Most pending market abuse proceedings were instituted by new suppliers or their customers, and concerned alleged unequal treatment by grid operators. The proceedings largely concern problems and abuses in connection with changes of supplier, and the question as to whether customers who had expressed a desire to move to a new supplier or had already done so received treatment by the grid operator equal to that accorded to customers who did not change their suppliers. These cases principally concerned equal treatment with respect to the exchange or installation of meters, special forms of supply (e.g. interruptible supply and district heating) as well as the collection of direct and indirect cancellation fees.

All the proceedings discontinued to date led to the rapid cessation of the abuses in question and restoration of compliance with the law.

→ Appeals under the Other Market Rules

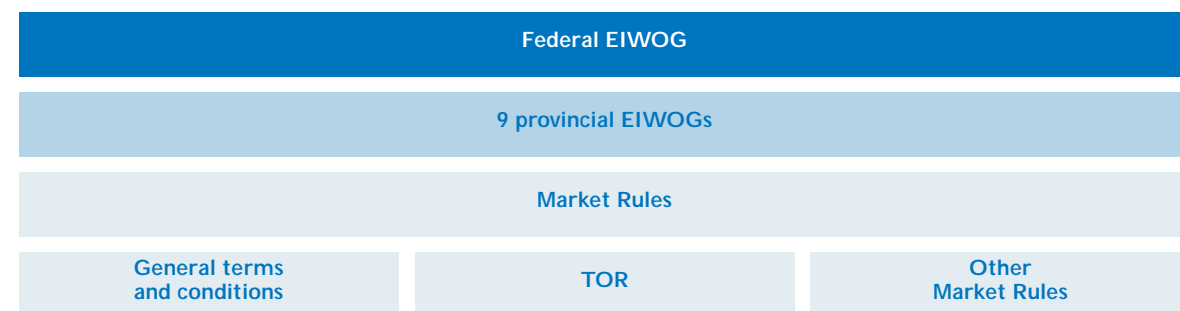
Chapter 7 of the Other Market Rules provides for appeals in the event of unclear situations relating to changes of supplier. This so-called "arbitration clause" has been included in the general terms and conditions of most distribution system operators. The appeals procedure makes provision for the former supplier to appeal against disconnection within a five-day period. E-Control may determine in an arbitration opinion that, notwithstanding the competence of courts of law, the change of suppliers is to be carried out in cases of doubt if the customer so wishes and the new supplier meets all the required technical standards.

Most of the 15 appeals were withdrawn after mediation by E-Control, as they involved matters which the new and former suppliers were able to settle before the commencement of proceedings. In six cases however, E-Control found that the technical conditions had been met and that the change of suppliers must be effected.

E	Activities of the regulatory authorities
	→ Market rules

→ Structure of the legal framework

Figure 3



Under section 10(1)(1) Regulatory Authority Act, E-Control has a duty to formulate proposals for market rules and to make these available to market participants and grid operators. Section 7(24) EIWOG states that the market rules shall be the sum of all regulations and statutory or contractual provisions which electricity market participants must comply to the interests of an orderly functioning market.

→ General terms and conditions

The general terms and conditions for the operation of a distribution system form the contractual basis on which electricity market participants obtain access to.

Starting in March 2001, E-Control collaborated with the Austrian Association of Electricity Utilities (VEÖ) on the drafting of proposed general terms and conditions. Representatives of the Austrian electricity industry played an active part in the talks with the Association, and the interests of individual market participants were as far as possible taken into account.

In the course of the negotiations, E-Control posted a preliminary version of the general terms and conditions on its website. Market participants, various public bodies and non-government organisations (e.g. chambers, the Ministry of Justice and the Austrian Consumers Association) were able to access to this draft. Extensive comments were received from market participants, the Ministry of Justice (Consumer Protection Section) and the Austrian Consumers Association, and were to a large extent taken into consideration.

Because the E-control Commission is responsible, by section 31 EIWOG, for approving the general terms and conditions of the operators of distribution systems, the E-control Commission was involved in the drafting from June 2001 onwards (when it was formally appointed by the Federal Government). E-Control kept the Commission informed on an ongoing basis as to the status of the negotiations on the general terms and conditions.

At its meetings the E-control Commission dealt in particular with the basic rules for system access and with changes of supplier, focusing on the fine-tuning of specific provisions to ensure compliance with the Consumer Protection Act and the Data Protection Act.

Pursuant to section 26(2)(1) Regulatory Authority Act, the Electricity Advisory Board discussed the general terms and conditions for grid operators at its meeting of 11 July 2001.

In mid-July 2001, the general terms and conditions for access to the distribution system jointly drafted by the Austrian Association of Electricity Utilities, E-Control and the E-control Commission were posted on E-Control's web site (www.e-control.at).

From August to mid-December 2001, the E-Control Commission received applications from distribution and transmission system operators for approval of their general terms and conditions. These applications were largely based on the draft, enabling the approval procedure to go ahead very quickly.

As most grid operators proved to be highly constructive in their approach, and were willing to modify their applications in response to the suggestions of the E-control Commission, it was possible to issue the first approvals in September. The general terms and conditions for over one hundred grid operators received clearance by the end of October.

The E-control Commission likewise dealt rapidly with applications received thereafter, though problems arose with the arrangements for changes of supplier. The Commission took the view that the clauses submitted were not conducive to fair competition, and required the applicants to modify the relevant provisions. Detailed negotiations with the applicants, as well as the fact that the provincial legislation required that interest groups be heard, in some cases delayed approval. The terms and conditions of these grid operators were approved in January 2002.

	Activities of the regulatory authorities
	→ Renewable energy sources

→ Technical and Organisational Rules

The Technical and Organisational Rules (TOR) for network companies contain groundrules intended to assure largely uninterrupted operation of the interconnected system under conditions of full market opening. The TOR also contain principles for planning the future grid expansion and assuring security of supply.

In 1999 the Austrian Association of Electricity Utilities was requested by the Ministry of Economic Affairs and Labour to prepare draft Technical and Organisational Rules based on preliminary work performed by it internally. These were discussed by a working party of the Electricity Advisory Board and the amended in consultation with the social partners over the course of 2000. E-Control reviewed the TOR in terms of their completeness and conformity with the contents of the general terms and conditions for distribution and transmission systems and the Other Market Rules. Certain discrepancies were identified and rectified. The contents of the TOR will continue to evolve in step with technological progress and network requirements, having due regard to the interests of system users.

→ Other Market Rules

A working party was set up in May 2001 under the chairmanship of E-Control to formulate the Other Market Rules, taking preliminary conceptual and strategic work by market participants as a basis. In intensive discussions, the key issues to be addressed were outlined with the market participants, and formulated as sections of the Other Market Rules (sections 1–10). In essence the Other Market Rules are a formalised description of the business relationships between market participants and their interaction. Based on this, a detailed account is given of the operational and data processes required for secure information transfers and communication between market participants. The rules also contain related definitions of data formats and time limits for certain processes, in order to permit concerted action by market participants in the relevant areas. Since January 2002 the contents of the Other Market Rules have been augmented by experience gained from the market.

An expressed aim of the EIWOG 2000 (section 3[3]) is that of further increasing the already high share of the output of the Austrian electricity industry accounted for by renewable energy sources. Apart from cutting emissions of greenhouse gases, the use of renewables has the effect of reducing import dependency and increasing domestic output.

E-Control is obliged by its supervisory responsibilities to review compliance with the "green" power targets. In addition, E-Control maintains the registration database for small-hydro plant certificates.

Assisted "green" generation plants Text box 1

Under section 40(1) EIWOG, generation plants are recognised as "green" if they are powered by wind, solar or geothermal energy, solid or liquid biomass, biogas, sewage or landfill gas. Incinerators fired by waste or sewage sludge are not recognised as "green" power plants, however. Under the EIWOG, assistance is provided to small-hydro plants (maximum electric capacity £ 10 MW), by way of small-hydro plant certificates.

The Act contains the following detailed provisions:

→ Since October 2001, in addition to hydro-power at least 1% of total energy supplies (defined as final consumption) must be generated at "green" power plants (biomass, wind, photovoltaic, geothermal or landfill gas plants). Every second year the required share of energy supplied by "green" resources will rise by one percentage point on 1 October. The share must reach 4% by October 2007. The market participant required to attain this target is the grid operator, which must take "green" power at fixed injection tariffs.

→ In addition, as from January 2002 at least 8% of total energy supplies (in terms of final consumption) must be derived from small-hydro plants; each electricity trader or (in the case of direct purchases from a foreign supplier) final customer must provide proof of compliance in the form of certificates. The initial accounting period is from January to September 2002.

Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market (OJ L 283 of 27 October 2001, p. 33) prescribes an increase of 13.9% (base year 1997) to at least 22.0% (as a share of total electricity consumption in the EU) by 2010. An increase from 70.0% (as of 1997, excluding the Freudenau and Lambach power stations) to 78.1% is prescribed for Austria. In other words, there are additional goals to be met for electricity generation from renewable energy sources.

Under the EIWOG, "green" generators are assisted by the injection tariffs – i.e. guaranteed prices for electricity from wind power, biomass (solid, liquid or gaseous), sewage gas and photovoltaic sources – and small-hydro plants through the certificate system. Both forms of support result in additional costs. The total cost of financing the injection tariffs for "green" generators currently amounts to approx. €29m per annum and is likely to rise to at least €94.5m (projected level on attainment of the 4% target in October 2007). The additional cost of "green" generators is ultimately borne by all electricity consumers, through a "green" power surcharge on the system access charge, and the small-hydro plant certificates. The "green" power surcharge averages 0.0727 cent/kWh.

→ "Green" surcharges

as of December 2001

Table 1

Tyrol	0,060 cent/kWh
Vorarlberg	0,081 cent/kWh
Styria	0,029 cent/kWh
Carinthia	0,140 cent/kWh ¹⁾

¹⁾ aggregate of CHP and "green" plant

Table 2: Injection tariffs in cent/kWh for "green" power provides an overview of the injection tariffs for "green" generators in Carinthia, Tyrol and Vorarlberg, approved in October and November 2001:

The small-hydro certificate system raises additional amounts, in at least double-digit million annual figures, to support mini-hydro generation. Every mini-hydro plant (€ 10 MW) operator will in the future receive certificates in addition to electricity revenues. The certificates have a tradable value, and are intended to permit economic operation of small-hydro plants by enabling them to generate sufficient revenue. Many of the mechanisms for promoting "green" power provided for by the EIWOG are innovative in character. Initial experience with implementation shows that certain adjustments are necessary. For example, standard nation-wide parameters would facilitate the fair distribution of additional expenses arising from the extra costs of "green" power, and a standard arrangement for power source identification would cut the administrative workload. Likewise, economic efficiency would

benefit from a national perspective – e.g. concentration of wind power usage at favourable locations in Lower Austria and Burgenland, small-hydro plant usage in the western provinces and biomass usage in the southern provinces.

If Austria attains its twin targets for "green" and small-hydro power this will result in a reduction in CO2 emissions of about 2 million tonnes/year. This is about 13% of the reductions required to reach Austria's Kyoto target for 2010.

Some provinces (Carinthia, Styria and Vienna) also promote combined heat and power (CHP) generation. CHP plants generate power and heat simultaneously. Through the combined generation of power and heat, CHP plants are normally more efficient than separate generation, thereby substantially reducing primary energy inputs and CO2 emissions. Because CHP energy costs are above the average market price, electrical energy from CHP plants is supported by the imposition of a CHP surcharge. Section 7(49) EIWOG defines CHP power as electrical energy generated directly and at maximum efficiency as a by-product when generating district heat. The promotion of combined heat and power is also used by other European Union Member States as a means of achieving climate change targets. However, the initial stages of implementation of this policy in Austria, with CHP surcharges of up to 0.7427 cent/kWh, constitute a threat to fair competition.

→ Injection tariffs for "green" power in cent/kWh

Table 2

Renewable energy sources	Tyrol*	Vorarlberg**	Carinthia*
Wind power	8,28	10,90	10,75
Solid biomass	5,25 – 8,28	9,44 – 15,98	6,69 – 17,45
Liquid biomass	8,28 – 11,04	14,53	7,27 – 14,50
Gaseous biomass	8,28 – 11,04	12,42 – 15,98	12,45 – 16,00
Sewage and landfill gas	5,52	9,01	9,00
Photovoltaic	35,88	36,33 – 72,67	54,50 – 72,70

* Orders concerning Tyrol and Carinthia dated November 2001 ** Order concerning Vorarlberg dated October 2001 – permits an advance tariff payment through which percentages of the injection tariffs for the next ten years may be prepaid.

→ Power source identification

Since October 2001 electricity traders and other suppliers of Austrian final customers have been obliged to disclose in electricity bills the shares of the various primary energy sources from which the electrical energy delivered by them has been generated (section 45[3] EIWOG). By informing consumers of the origin of the electricity purchased by them, itemised billing enables demand to exercise a long-term influence on the types of generation employed. The details of such disclosures are governed by orders issued by the provincial governments. The following is the standard lay-out for power source itemisation on electricity bills:

→ Standard lay-out for power source identification

Table 3

"Green" Power	... %
Hydro	... %
Gas	... %
Oil products	... %
Coal	... %
Nuclear	... %
Other	... %
UCTE mix	... %
Hydro	... %
Nuclear	... %
Conventional thermal	... %
Total	100 %

The question as to whether an electricity trader must disclose a given standard mix for all final customers (retailer mix), or different products with varying power source itemisation (product mix) for given final customer groups, is regulated at a provincial level. Orders governing electricity itemisation were issued on 31 December 2001 in Upper Austria and Vorarlberg (retailer mix), Carinthia, Lower Austria and Tyrol (product mix). For the percentage of electricity of indeterminate origin, the aggregate European generation mix is used ("UCTE mix": for details, visit www.ucte.com). In 2000 aggregate European generation comprised 47.0% conventional thermal power, 37.3% nuclear power and 15.7% hydropower.

→ Outlook

Many of the mechanisms for promoting "green" power provided for by the EIWOG are innovative in character. Initial experience with implementation shows that certain adjustments are necessary. For example, standard nationwide parameters would facilitate the fair distribution of additional expenses arising from the extra costs of "green" power, and a standard arrangement for power source identification would cut the administrative workload. Likewise, economic efficiency would benefit from a national perspective – e.g. concentration of wind power usage at favourable locations in Lower Austria and Burgenland, small-hydro plant usage in the western provinces and biomass usage in the southern provinces.

As of January 2002, at least 8% of all electricity supplies must come from small-hydro plants. When electricity is procured directly from a foreign supplier of final customers, all electricity traders must furnish proof, in the form of small-hydro certificates, that 8% of energy sold by them originates from small-hydro plants. To this end E-Control has set up a fully electronic small-hydro certification system. All participants concerned are authorised to access this via the Internet.

→ How the Austrian certification system works

The certificates are issued for each 100 kWh of power injection from small-hydro plants. There are thus an annual total of some 40m certificates, valid throughout Austria. These are held in a central database operated by E-Control. The certificates are generated at the end of each month when the grid operators report the energy injected by small-hydro plants to the central database. The certificates are automatically credited to the accounts of the generators.

As certificates have a maximum validity of two years a total of some 80m certificates must be continuously held in the database. After they expire, the certificates can no longer be used by the suppliers.

Trading in certificates is conducted outside the central database. Changes of title must however always be recorded on the database. The transfer of ownership occurs by transferring certificates from one account to another.

Every six months E-Control checks whether suppliers are in possession of certificates on their accounts representing 8% of the energy sold by them. During these compliance checks the certificates are cancelled from the supplier's account, thereby expiring. If a supplier has an insufficient number of certificates, i.e. fails to comply with the quota, E-Control sends a reminder, establishes a grace period and thereafter, in the absence of corrective action, sends a notice to the provincial government. The latter then makes a balancing charge.

The proceeds of the balancing charge go to a fund earmarked for the promotion of "green" generation capacity. The provinces must enact subsidiary legislation governing the detailed arrangements for the administration of the fund. The proceeds of the balancing charge may only be used to promote "green" generation capacity, and small-hydro plants are excluded from funding.

→ Purpose of, and access to the central database

At the heart of the small-hydro certification system is the central database. All small-hydro certificates are generated by it, administered via the participant accounts and redeemed by the suppliers. However, it is not possible to buy or sell small-hydro certificates via the central database.

Access to the central database is available for all participants at the scheme via the Internet (www.kwkw-zertifikate.at). The participants in the small-hydro certificate system include:

- Nine provincial governments
- Some 1,000 plant operators
- Some 150 grid operators
- About 170 suppliers

If a plant operator does not have Internet access, it may sell the certificates by means of so-called "withdrawal orders" which are directly confirmed by E-Control.

→ Certificate trading


The certificates must be traded outside the central database. Apart from the possibility of trading certificates bilaterally, an interface to possible exchanges is also planned. Special accounts will be set up to support trading on exchanges and thus the related transfer of title.

→ Installation in 2001

In May E-Control invited bids in accordance with the Federal Procurement Act by an EU-wide announcement. The installation contract was awarded to Atos Origin Information Technology GmbH.

Work on the project at E-Control began on 1 August 2001. The specifications were established by the end of September. Acceptance of the first part of the database took place in December. A steady flow of notices from provincial governments was received from September. These notices are the basis for plant operator grid access.

Tests were performed in conjunction with grid operators in December, enabling the database to be launched on schedule on 1 January 2002. The first certificates, for January, were generated at the start of February 2002.

	Activities of the regulatory authorities
	→ Settlement of equalisation payments

There are currently approx. 150 independent grid operators in Austria, consolidated in 16 grid zones with varying system access tariffs. The system tariffs allocated in the grid zones must be calculated on the basis of the aggregate costs of all grid operators active in the grid zones. The differences in different operators' cost bases necessitate equalisation payments. The amount of the equalisation payments depends on the difference between the revenues and the recognised costs of each grid zone.

Since 1 October 2001 E-Control has been responsible for the settlement of equalisation payments. Grid operators have highly divergent expectations of this system. To create a sound information base for this task, comprehensive surveys and analyses of the cost base and network structure of each grid operator are required. E-Control is currently drafting an order relating to this work.


	Activities of the regulatory authorities
	→ Stranded costs

Under sections 13 and 29(1) Regulatory Authority Act, since 1 March 2001 E-Control has been responsible for the task, laid down by section 69 EIWOG 2000, of enforcing the latter's provision concerning stranded costs. This involves collecting and administering in trust contributions towards stranded costs.

Major changes were brought by the new Stranded Costs Order (Federal Law Gazette II No. 354/2001). For example, the previously uniform rate of 0.0417 cent/kWh (0.574 g/kWh) for all grid operators in Austria was replaced by 132 different contributions. This change, necessitated by Commission Decision SG (2001) D/290567 of 25 July 2001, reflects the differing amounts of supplies from Verbund-APG to electricity suppliers (and their customers). This distribution key will remain in force until collection of the contributions to stranded costs has been completed. A further change in the legal situation was created by the possibility for E-Control of assessing incorrect or unpaid amounts by notice.

A total of approx. € 45m should have been paid to the Ministry of Economic Affairs and Labour or E-Control in contributions for the period from 19 February 1999 to 30 September 2001. In reality, only a small proportion of this sum was remitted by the grid operators. One of E-Control's first tasks was issuing written demands for payment of the outstanding amounts and ascertaining the basis of calculation for the corresponding notices. It was possible to disburse the amounts collected to the four beneficiary companies before the end of 2001.

From the responses of the grid operators to date, it is evident that proceedings will have to be instituted in a large number of cases. Up to € 132.61m must be administered prior to the expiry of the amended Stranded Costs Order in 2006.

	Activities of the regulatory authorities
	→ Security of supply and quality

Even in a liberalised electricity market, the security and quality of electricity supplies are major issues. Efficient allocation of resources and investment is of great importance, particularly in view of the cost pressures in the area of grid operation which have arisen through liberalisation.

For this reason, simultaneously with the liberalisation of the electricity market in October 2001 E-Control launched a project aimed at long-term security of supply and supply quality in Austria. In addition to E-Control staff, Austrian academics and power industry experts are also involved in the project, which is intended to create a platform for wide-ranging discussion and cooperation.

Another important aspect of E-Control's work is international activities through membership of the CEER working groups on security of supply and congestion management, and attendance of meetings and conferences organised by industry associations and organisations such as ETSO, Eurelectric and UCTE. The results of the project work are presented in detail at events organised by E-Control.

	Activities of the regulatory authorities
	→ Electricity statistics

The EIWOG 2000 ushered in a fundamental realignment of responsibilities in the statistics area. Section 52 EIWOG empowers the Minister of Economic Affairs and Labour to "order the preparation of statistical surveys and other statistical studies concerning electricity". The Act also states that "the statistical surveys and other statistical work shall be conducted by Elektrizitäts-Control GmbH".

The Energy Emergency Powers (Amendment) Act responds to the changed circumstances in the industry by reassigning the statistical responsibilities of the federal system operator and the provincial system operators to E-Control and the provincial governors (Energy Emergency Powers Act 1982 as amended, Federal Law Gazette No. 149/2001). Section 11(2) of the Energy Emergency Powers (Amendment) Act authorises E-Control to order periodic surveys to serve as a basis for contingency plans.

The main development in E-Control's statistical work in 2001 was the transfer of the statistical responsibilities from the federal system operator and the provincial system operators. This had become necessary because of the changed legal and market environment. The year also witnessed a start with the task of revising the contents of statistical surveys to reflect the new market structure and the changed roles of the market participants.

Pursuant to section 52 EIWOG, the Ministry of Economic Affairs and Labour issued a new statistics order for the electricity industry (Federal Law Gazette No. 486/2001) regulating the collection, distribution and publication of statistical data for the electricity industry.

The federal and provincial system operators and E-Control agreed means of assuring the continuity of data collection, validation and analysis. At the same time, E-Control began collecting the statistics specified in the Statistics Order issued by the Ministry of Economic Affairs and Labour. In January 2002 E-Control began collecting and analysing the monthly returns in accordance with the new Statistics Order.



Activities of the regulatory authorities

→ International cooperation

→ The Florence Process

The Florence Process is a forum for dialogue between the European Commission, regulators, government representatives and the electricity industry. Since its establishment E-Control has played a full part in this process.

The eighth meeting was held in Florence from 7–8 May 2001. The agenda included the Commission proposal for a new electricity Directive and a Regulation on cross-border exchanges in electricity. There was agreement that the provisional tariffication system worked out by ETSO and CEER should take effect as soon as possible. The interim scheme was implemented on 1 March 2002.

The meeting also discussed the various mechanisms for allocating scarce interconnection capacity in the European Union, and the supply crisis in California.

In this regard, the Commission introduced its Green Paper on security of energy supply. The general consensus was that a crisis like the one in California could be ruled out in Europe, because of the regulatory errors made in California (see Text box 9: Security of supply: what went wrong in California) had been avoided in Europe.

→ Council of European Energy Regulators

The Council of European Energy Regulators (CEER) is an association of 15 European energy regulators which acts as a focal point for contacts between regulators and the European Commission's Directorate General for Energy and Transport. The CEER is working towards the continued development of the European energy market, and has formed various working groups for this purpose.

The 11th CEER meeting was held in Vienna from 28 September to 1 October 2001. For the first time, representatives of the regulators of the EU candidate countries were invited to attend the last day of the meeting. The subject discussed was the impact of the coming amendments to the Electricity Directive for the candidate countries.

E-Control has chaired a CEER working group on balancing power and peak loads, and is participating in a working group on congestion management – a major problem for Austria.

→ Council working groups

E-Control attended three meetings of Council working groups that dealt with cross-border supplies and their tariffication. The Commission proposal for a regulation establishing a common tariffication system was explained in the course of the discussions.

→ Eurostat and the International Energy Agency

In 2001 Eurostat undertook a new study on the effects of electricity market liberalisation. E-Control has commented on the value and measurability of the proposed indicators.

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Activities of the regulatory authorities

→ Public information activities

→ Lecturing

One of the E-Control's goals is to provide both market participants and final customers with comprehensive information about the functioning of the market and the legal framework. To this end the E-Control staff gave more than 100 presentations at conferences, international meetings, and on-site training courses for Austrian customers. More than 3,000 persons were reached in this way.

Particularly noteworthy was the training programme held in connection with the small-hydro certificate database. In November E-Control introduced plant and grid operators, as well as suppliers throughout Austria to the small-hydro certification system, holding 18 courses attended by more than 750 people.

→ Consumer brochures and hotline

On 31 July 2001 the E-Control consumer brochure, conceived as a guide to the changes in the electricity market, appeared in an edition of 100,000. It outlines the free electricity market and the changes brought about by liberalisation, and tells consumers where to turn with questions or problems. The brochure also provides answers to the main questions concerning changing supplier, general information and tips, details of authorities and their areas of responsibility, and offers an overview of renewable energy and nuclear electricity in Austria. The brochure was launched on 31 July 2001 and has since been distributed free of charge by E-Control, the Austrian Federal Economic Chamber, the Austrian Federal Chamber of Labour, and the Presidents' Conference of Austrian Chambers of Agriculture.

At the end of August E-Control set up a telephone hotline in cooperation with the Austrian Consumers Association to act as a contact point for inquiries on all electricity market liberalisation matters. By dialling 0810 810 224 (at local rates), consumers can find out about the opportunities and risks associated with switching suppliers, as well as notice periods, grid operators' duties, and so on. From September to December 2001, approx. 3,000 callers took advantage of this offer. Calls concerning questions that the hotline staff are unable to answer are transferred to E-Control.

→ Media relations work

E-Control attaches great importance to public relations work because of the need to raise public awareness of the advantages and problems associated with liberalisation. We therefore held press conferences on 1 March, 15 May, 31 July, 6 September and 23 October, frequently issued press releases, briefed journalists off the record and held round table discussions on energy issues.

Run-up to 1 October 2001

E-Control undertook a wide range of activities, particularly the ongoing PR effort, to alert as many people as possible to the full liberalisation of the electricity market on 1 October 2001.

A joint press conference was held with the Minister of Economic Affairs and Labour, Dr. Martin Bartenstein. Journalists were offered background briefings with the Finnish regulator. Consumers were offered advice in cooperation with the Vienna, Innsbruck and Klagenfurt Chambers of Labour. A text message tariff calculator service was provided in cooperation with the Ö3 radio channel. Placements in the Kronen Zeitung daily newspaper and News magazine were arranged, and advertisements were run in the main regional dailies across Austria.

Numerous off-the-record briefings and interviews by E-Control's Chief Executive, Walter Boltz led to widespread coverage, thus helping to put the public in the picture about liberalisation.

→ Website

Content

E-Control's website, at www.e-control.at, went online in mid-May 2001. In addition to general information on E-Control and the type of liberalisation implemented in Austria, a special area has been created which is only open to a limited group of registered users. The latter can download documents on expert proceedings and submit opinions online. There are plans to expand and improve this step towards e-government.

→ E-Control

Figure 4



Other features of the content are:

- Legislation and orders relating to liberalisation including the Electricity Directive, the EIWOG, provincial subsidiary legislation, the order on system access charges, etc.;
- Decisions by E-Control and the E-control Commission with regard to their respective responsibilities;
- Statistics including price comparisons, energy balances, and capacity breakdowns by energy sources;

The E-Control site recorded some 160,000 hits in 2001.

Tariff calculator

E-Control has a legal obligation to prepare and publish electricity price comparisons for final customers. The wide variety of products in the energy sector make it all the more important to bring transparency to this market.

In recent months it has become evident that, despite all efforts, it is extremely difficult to find a common denominator for nationwide electricity price comparisons. Regional consumer behaviour (e.g. day only consumption versus day and night power, etc.), contractual terms (e.g. commitment periods and notice periods), and payment terms (type of payment: remittance form, direct debit authorisation, etc.) as well as payment intervals (monthly, bi-monthly or quarterly) vary widely.

For this reason, E-Control has decided to install an electronic tariff calculator in the form of an Internet application. This tool solves the comparability problem. This project was implemented in cooperation with the Austrian Federal Chamber of Labour, the Austrian Federal Economic Chamber, and the Presidents' Conference of Austrian Chambers of Agriculture.

Users of the calculator receive much more wide-ranging information than would be possible with conventional price comparisons in the form of tables. The electronic tariff calculator has been online since the start of September 2001, and by 31 December it had been used by approx. 120,000 visitors to the E-Control site to compute their charges.

→ Tariff calculator

Figure 5



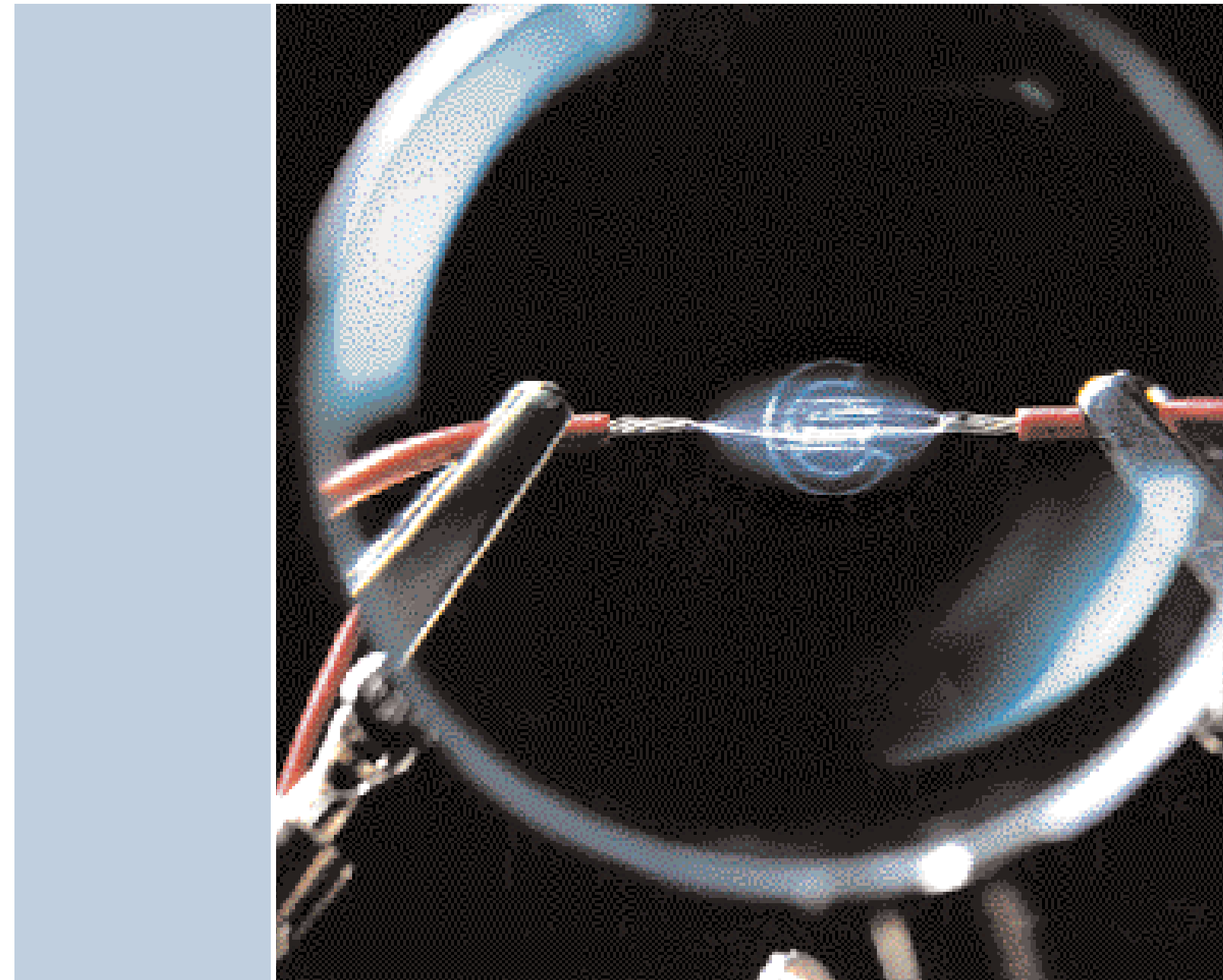
In addition, a text message service providing comparisons of domestic rates was launched on 1 October 2001. This was developed in cooperation with Ö3. Mobile phone subscribers could receive messages informing them about the cheapest provider for three different consumption patterns (single-person households with 1,500 kWh in annual consumption; median four-person households consuming 3,500 kWh/year; and large households using 6,000 kWh/year). All subscribers had to do was to send a text message with a phone number and a four-digit postal code (e.g. 1010) to 0900-600 600. This service was used some 25,000 times prior to 31 December.

→ Renewables

Figure 6

Renewables

To help meet the objectives of the EIWOG, E-Control is cooperating with the Technical University of Graz on the development of a renewables information service which will be accessible via the E-Control site. This will introduce visitors to the basics of "green" power generation and will be progressively expanded into a service page on the role of renewable power sources in liberalisation.



Europe's electricity grids are highly interconnected compared to other parts of the world. Nevertheless the systems of some EU Member States are relatively cut off from others, due to inadequate interconnection capacity with neighbouring countries and network congestion. Austria is not such a country.

In 2000 Austria's cross-border interconnection ratio (ratio of import to total capacity) was approximately 20%, while imports represented 23% of consumption. By way of comparison, Germany's interconnection ratio was about 10%.

The European interconnected grid system can be viewed as follows:

- Central Europe (core UCTE network): Austria, Belgium, France, Italy, Luxembourg, Netherlands and Switzerland; and
- Peripheral area: Greece, Iberian peninsula, Ireland/Northern Ireland and Scandinavia.

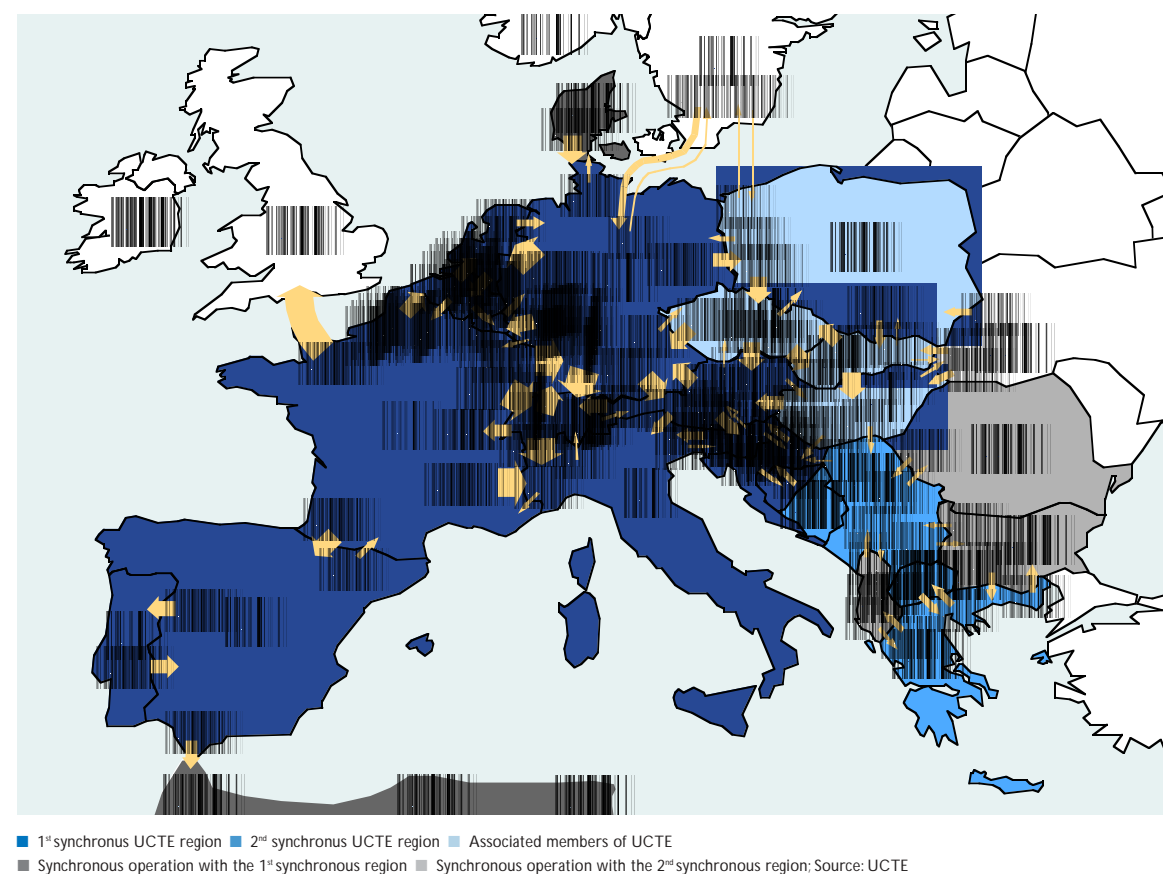
Graphic 1 shows the volume of electricity exchanges between European countries. The four main peripheral regions have low import capacities relative to total installed capacity. The lowest are those of the Iberian peninsula (3% of installed capacity) and the United Kingdom (3%), followed by Scandinavia (4%) and Italy (7%).

The relationship between the interconnection ratio and the share of electricity imported shows that there is a clear correlation between import capacity and physical import volume. Some countries (Italy, the Netherlands, Portugal and the UK) fully utilise their import capacity, which may be an indication of congestion.

Graphic 2 reveals a significant increase in exchange volumes in recent decades. By 2000 exchanges as a share of the total supplies of UCTE countries stood at 12.2%, and intra-UCTE exchanges as a share of the total UCTE supplies at 9.6%. This represents an increase of some 60% compared to the 1980s. The growth of exchanges between UCTE members and third countries (including CENTREL members) over the same period was still greater; there was a sixfold increase.

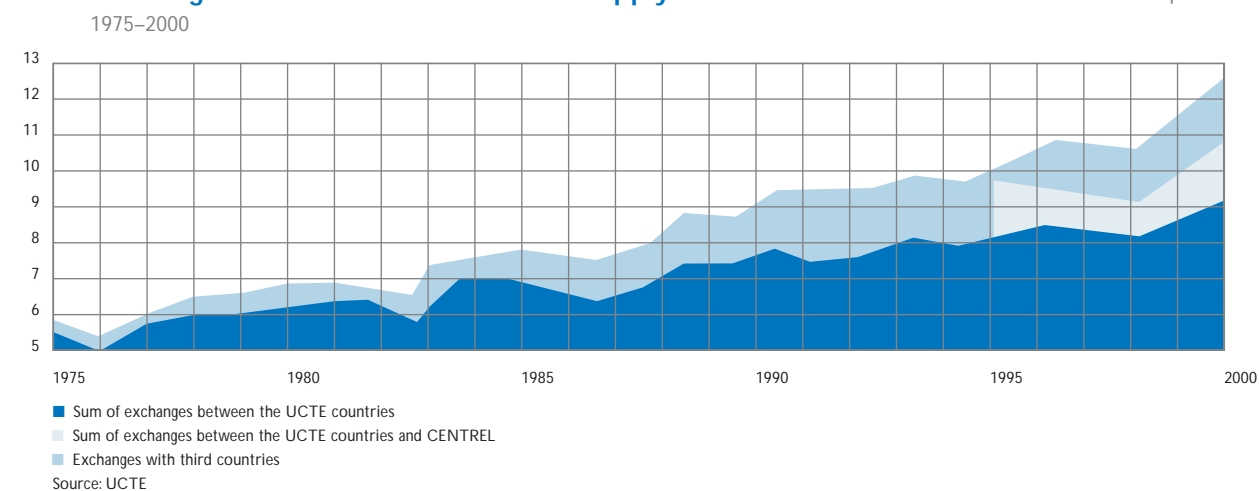
→ Physical electrical energy exchanges within the UCTE in 2000 in GWh

Graphic 1



→ Exchanges as a share of total UCTE supply in %

Graphic 2



→ Market participants

Electricity market liberalisation has added to the responsibilities of market participants. The balancing group model applied in Austria, which uses independent settlement agencies, has created new participants including the balancing group representatives and settlement agencies.

The market participants include:

- Grid operators,
- Suppliers
- Balancing group representatives
- Settlement agencies/balancing group coordinators
- Control area managers
- Exchange
- Customers

Grid operators

The grid operators are responsible for managing network operations and for maintaining customer data. Even in the post-liberalisation situation they remain monopolists. As the customer side metering equipment is normally owned by the grid operator, and it is the latter that records the meter readings, grid operators continue to play a central role in liberalised markets. They must aggregate the meter readings according to a variety of criteria and transfer them to the suppliers, balancing group representatives and settlement agencies. There are about 150 registered grid operators in Austria.

Balancing group representatives

The balancing group representatives bear the business risks of their balancing groups. Their principal duties include forecasting demand and organising supply for their balancing groups to meet it as precisely as possible, so as to minimise the need for balancing power.

Since 1 October 2001 all customers have been required to be members of balancing groups. This membership is usually indirect, via the supplier. There are currently 29 balancing group representatives in Austria.

Apart from these commercial balancing groups there are also special-purpose balancing groups for calculating network losses, for "green" power generators and for CHP plants. These must be established and managed by the grid operators, and are primarily for the purpose of measuring the respective energy volumes. The special balancing groups are exempted from the clearing fee charged to pay for the settlement agencies.

Settlement agency (balancing group coordinator)

The settlement agencies play a central role in the balancing group system, as they are responsible for measuring the balancing power taken by each balancing group. The settlement agency acts as an interface between the grid operators and the balancing groups. The grid operators transfer to the settlement agency all the meter data required to ascertain the actual consumption of electrical energy.

Another important task of the settlement agency is that of accepting nominations and ranking them in a merit order which can subsequently be called up by the control area manager.

There are two settlement agencies in Austria:

- APCS Power Clearing and Settlement AG for the Verbund-APG control area; and
- A&B - Ausgleichsenergie und Bilanzgruppen-Management AG for the VKW and TIWAG control areas.

Control area managers

The international interconnected system consists of a large number of independently operated grid zones. Within the grid zones that are referred to as control areas, the amounts of electricity generated and consumed are constantly balanced. The responsibility for balancing supply and demand in a given control area lies with the transmission network operator that acts as the control area manager. In order to exercise this function, the control area manager requires special peaking power stations which, among other things, are responsible for load frequency control to maintain the network frequency of 50 Hz, and for ensuring that contracts to supply neighbouring control areas are met. Another duty of the control area manager is that of making load forecasts so as to predict network congestion. To enable the control area manager to fulfil its responsibilities, the balancing group representatives must report to it all supplies that cross control area boundaries. The

generation schedules of large power stations must also be notified to the control area manager.

In Austria, there are three control areas run by different control area managers. The Verbund-APG control area covers the provinces of Burgenland, Carinthia, Lower Austria, Salzburg, Styria, Upper Austria and Vienna. The TIWAG control area encompasses the province of Tyrol, and the VKW control area the province of Vorarlberg.

Exchange

At the time of the full marketing opening on 1 October 2001 Austria did not yet have a power exchange, though plans to establish one were already well advanced. According to the future operators Energy Exchange Austria (EXAA), located in Graz, will open at the end of the first quarter of 2002. Initially, only spot trading is envisaged for this exchange. However, trading in small-hydro certificates is also planned. The general terms and conditions of the settlement agency will contain the trading rules of the exchange, including those to be observed by balancing group representatives.

→ Rules for market participants

Electricity liberalisation calls for a clearly defined and well balanced interplay of all market participants. In Austria, these relationships are largely defined by the market rules. They are also subject to the provisions of federal and subsidiary provincial legislation.

Components of the market rules Text box 2

- General terms and conditions of
 - Distribution network operators
 - Transmission network operators
 - Balancing group representatives
 - Balancing group coordinators
- Technical and Organisational Rules for networks (TOR)
- Other Market Rules

The Other Market Rules include definitions and descriptions of the responsibilities, business processes and procedures of market participants which must be followed in order to assure uniform compliance with the statutory requirements. These deal with the following issues, among others.

Schedules

All schedules to be sent by the balancing group representatives to the settlement agency or the control area manager are defined down by the Other Market Rules. The data format selected is KISS-A, which provides a simple schedule template based on MS-Excel. Initial experience with this format, has shown it to perform well in practice, permitting largely trouble-free schedule transfers.

Supplier changes

Clear procedures are required to enable consumers to switch suppliers. The Other Market Rules establish a procedure for ensuring that switchovers are efficiently processed and cannot take place without the knowledge of all concerned. Both the notice periods, and the form and content of the information transferred between the network operator, and the former and new supplier are precisely regulated. E-Control must rule on objections from existing suppliers against planned changes.

Data formats and standardised load profiles

The data formats laid down by the market rules largely relate to the data that a network operator must transfer to the settlement agency, the balancing group representatives and the suppliers. The MSCONS format, which permits automated data processing, is normally used.

The law requires the compilation of standardised load profiles for final consumers with an annual consumption of less than 100,000 kWh or a connected load of less than 50 kW. Because of this, the Other Market Rules provide for 11 standard load profiles corresponding to the representative VDEW (German Electricity Association) load profiles. In addition, an initial temporary solution has been arrived at for the preparation of load profiles for interruptible supplies, and profiles have been created for small injection generators.

Information transfers from grid operators to other market participants

Grid operators play a central role in the data management regime of the liberalised market, as they acquire, process and manage all the metered volumes of the customer systems connected to their networks. As a result the Other Market Rules specify in detail the data to be transferred by grid operators, and the formats, timing and recipients.

The data is to be sent to the appropriate market participants on a monthly basis. The grid operator must also transfer data received from small-hydro plants to the central small hydro database. Many of the mechanisms for promoting "green" power provided for by the EIWOG are innovative in character. Initial experience with implementation shows that certain adjustments are necessary. For example, standard nation-wide parameters would facilitate the fair distribution of additional expenses arising from the extra costs of "green" power, and a standard arrangement for power source identification would cut the administrative workload. Likewise, economic efficiency would benefit from a national perspective – e.g. concentration of wind power usage at favourable locations in Lower Austria and Burgenland, small-hydro plant usage in the western provinces and biomass usage in the southern provinces.

Balancing power

The balancing market compensates generators for maintaining the balance between supply and demand in a control area, and plays a key part in the smooth functioning of the electricity market and the interaction of market participants. By dispatching balancing energy, the control area manager fulfils its obligation to make the control band width managed by it available again within 15 minutes. Balancing power nominations are notified to the balancing group coordinator one day in advance. The latter compiles a so-called "merit order list" from these, ranking the bids in terms of price. The control area

manager can dispatch balancing power as required, in order of merit. By dispatching balancing power disparities between actual and forecast power, consumption within control areas can be evened out.

In the interests of security of supply during the initial period, a market maker was appointed for the APCS settlement agency. Up to the end of 2001 there was little need for the market maker to intervene, showing that the market was highly stable, and that the transition from a monopolistic to a liberalised market took place in an orderly fashion.

By December 11 suppliers of balancing power had been registered in the APG control area. When the balancing market opened on 1 October 2001 it was found that most of the balancing groups were injecting more power than required into the grid, owing to inaccurate consumption forecasts. Because of this, control area managers were obliged to constrain-off considerable amounts of power. This meant that bidders had either to reduce injection or to use the surplus electricity to run the pumps at storage power stations.

Because of the large surplus on the grid, on a number of occasions constrained-off payments had to be made to balancing power suppliers in October 2001. The balancing energy market settled down at the start of November 2001. Due to improved forecasting by balancing groups, it was less often necessary to dispatch balancing power than had been the case in October. There were even days in November when no balancing power needed to be dispatched at all, and control area managers were able to rely entirely on secondary control.

In the APG control area settlement for balancing power is on a quarter-hourly basis, and pricing is on a supply and uptake basis. In addition, the control power, the constrained-on power and the market maker's fee are included in the total price.

In the TIWAG and VKW control areas no balancing power was dispatched from the merit order list. The entire divergence of the balancing groups from their forecast, quarter-hourly demand figures, was balanced by secondary control on the part of the control area manager. In these two control areas the prices for the return of secondary control power and for constrained-on power were between €14 and €18/MWh.

→ Ownership structures

Cross-holdings and alliances

Since the start of liberalisation in Austria, electricity companies have increasingly been investing in each other and entering into various forms of alliances. Foreign companies, too, have already shown an interest in Austrian electricity utilities, and have invested in Austria.

However, even after full liberalisation the State remains the majority owner of the Austrian electricity companies. This is a consequence of the Austrian Federal Constitution, which contains provisions governing the ownership of Austrian electricity companies (Federal Law Gazette I no. 143/1998), and determines the amount of the public shareholdings in Verbund-APG and the provincial electricity utilities. At least 51% of these undertakings must be owned by the State. Constitutional amendments require a two-thirds majority in Parliament.

Public ownership of the electricity companies often leads to the pursuing of economic policy goals (e.g. employment or industrial policy) in the public interest, as well as business objectives. In consequence, the tariffs of the provincial and municipal utilities vary widely. The utilities' pricing policies are still more disparate where they provide other services such as gas supply, district heating or public transport. Cross-subsidisation is possible not just between the various areas of electricity operations (generation, transmission and distribution, trading and retailing) but also between different parts of companies (power, gas, district heating and public transport).

Also characteristic of the Austrian electricity industry are cross-holdings which give the companies blocking minorities in each other (e.g. Verbund-APG, EVN and Wienstrom), thereby enabling them to stand in the way of investees' strategic business decisions. Recently however, the Federal Government has been making efforts to unwind these cross-holdings.

The past few years have also seen the formation of strategic alliances. Apart from EnergieAllianz – a marketing alliance between EVN, Wiener Stadtwerke, Linz AG, Bewag and Begas – there have been signs that a merger of the hydropower interests of E.ON and Verbund-APG is on the way. Another alliance is Energie-West, a line-up between TIWAG and other Tyrolean utilities which also has plans for close cooperation between TIWAG and VKW.

Other strategic alliances have arisen through investments by foreign companies. RWE AG has taken an interest in Kärntner Energie Holding, and the French electricity company EDF has a holding in STEWEAG. RWE's investment in the spring of 2001 was the first by a large German electricity company in an Austrian provincial utility.

There have long been close contractual relationships between Germany's Energie Baden Württemberg (EnBW) and Vorarlberg's Illwerke, as well as E.ON and TIWAG.

The main reasons why Austrian companies are attractive targets for foreign investors are their geographical location in Central Europe, their low generation costs due to the high proportion of hydropower, and their pumped storage stations. The liberalised market puts a significant premium on the flexible load control offered by pumped storage stations. Because of its closeness to the transformation countries, Austria is often seen by foreign companies as an entry point to Southeastern Europe.

New suppliers

Most of the new suppliers only entered the market with the introduction of full liberalisation. However some new participants attempted to gain a foothold on the Austrian market by winning industrial customers after the first stage of liberalisation came into force in February 1999.

In addition to the new subsidiaries of some provincial utilities (e.g. Switch and MyElectric) which have focused on marketing, private companies like Oekostrom AG and Alpen Adria Energie AG have been founded. The latter specialise in power from "green" and small-hydro generators. Some provincial utilities have also established separate sales channels for "green" power.

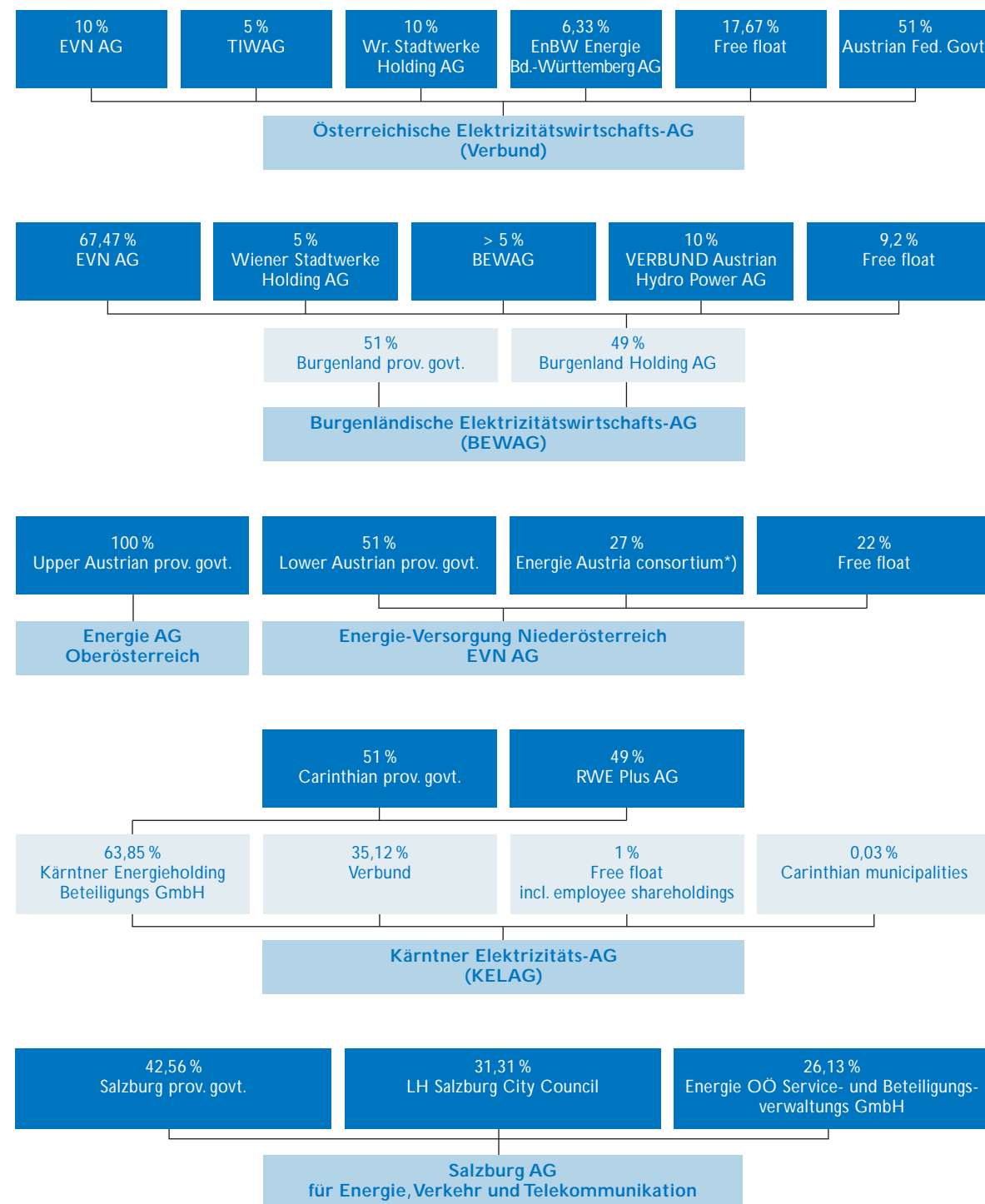
By the end of 2001 some 20,000 Austrian domestic consumers, farms and small businesses had changed their electricity suppliers. To date however, large consumers and chains – customers with large numbers of outlets, such as retail chains, Austrian Federal Railways and the Post Office – have made most use of the possibility of looking for the cheapest supplier. The number of industrial consumers (e.g. in the paper industry) that have switched is considerably smaller, but their demand is much higher.

Other countries' experience with liberalisation shows that only a few customers switch during the initial stages. The churn rate has risen sharply after some months. For instance, in the United Kingdom over 30% of all domestic and small business consumers have moved to a new electricity supplier. At approximately 65-70%, the proportion of industrial consumers that have switched is much higher, though it should be noted that a change may mean returning to the original supplier (see Figure 8).

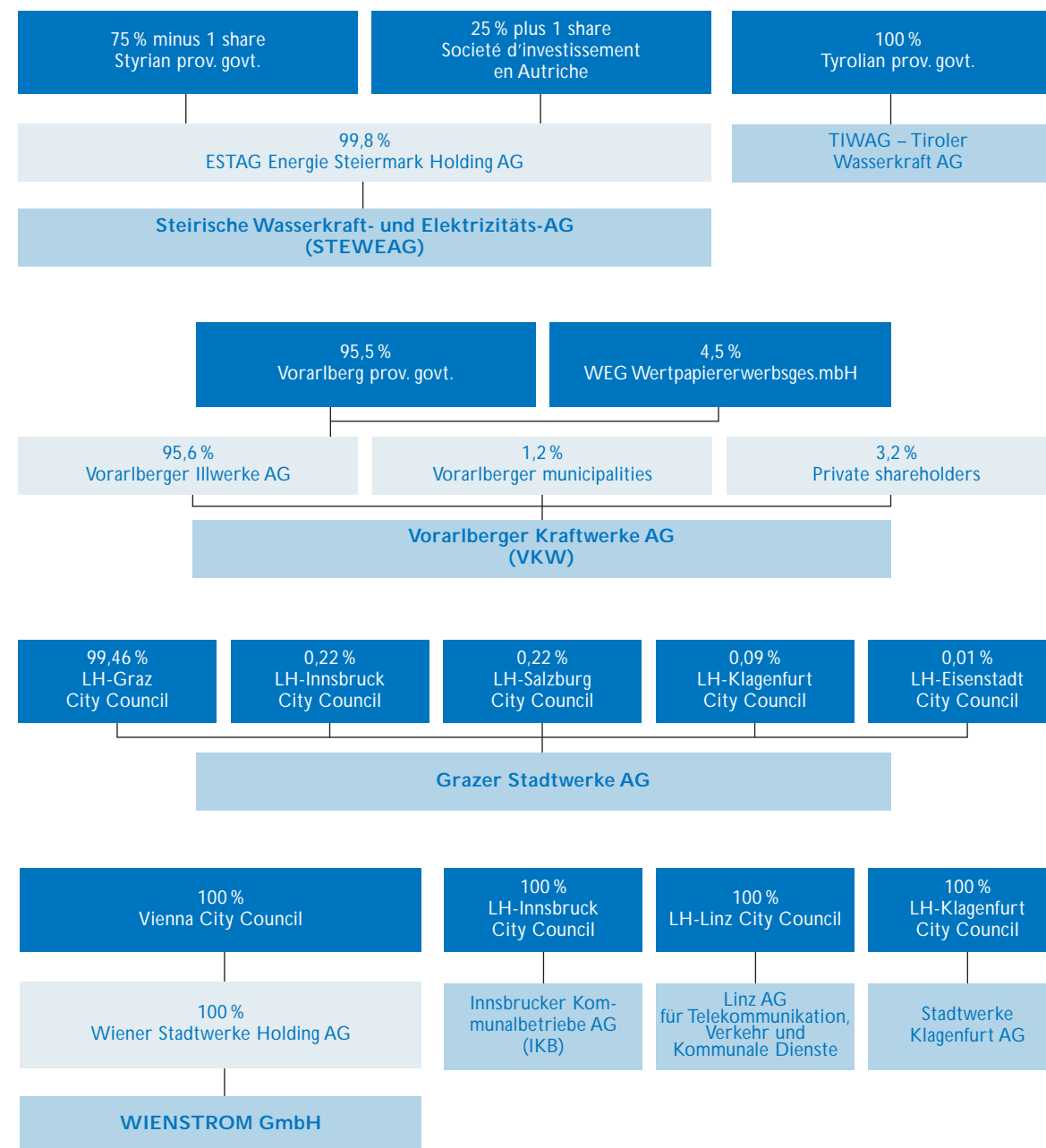
→ Ownership of Austrian electricity companies

Figure 7

as of 31 December 2001



*) ESTAG, Energie AG OÖ, Verbund

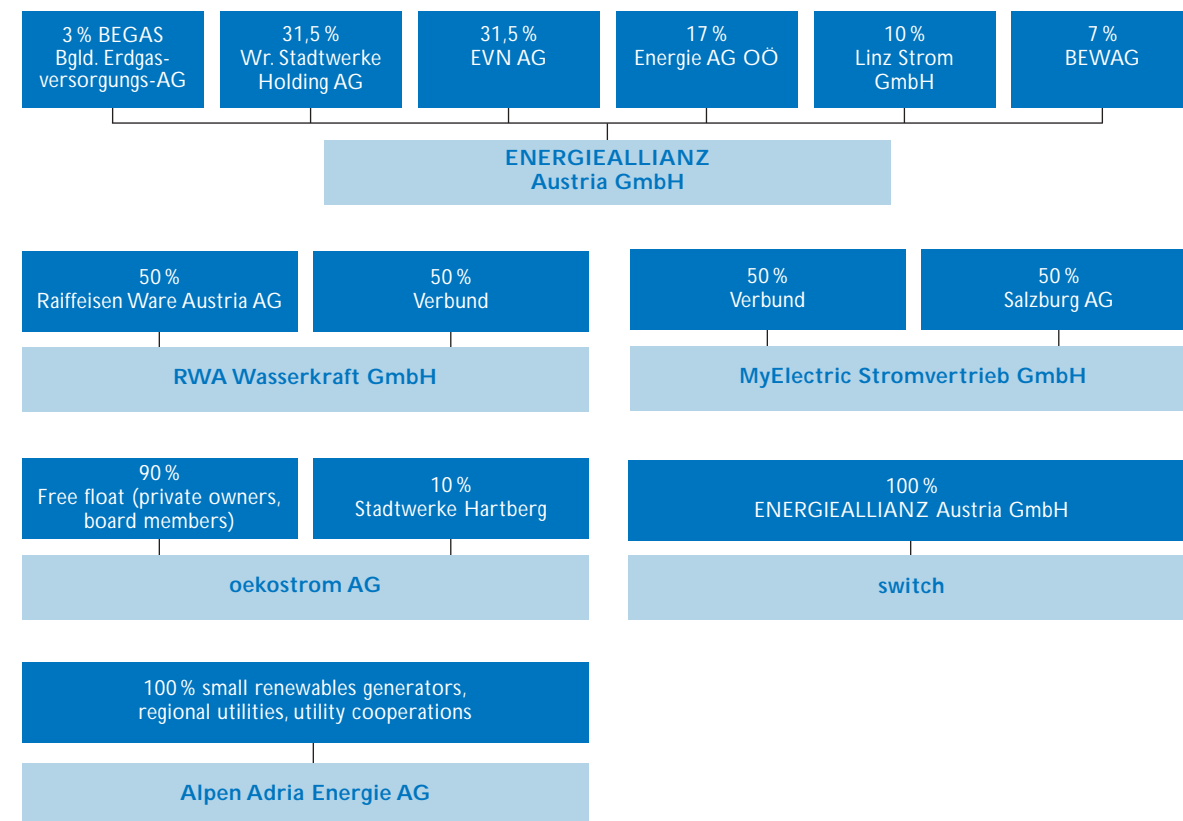


	The Austrian electricity market
	→ The status quo

→ **New entrants to the Austrian market**

as of 31 December 2001

Figure 8



Business activities on the Austrian electricity market have been unbundled into separate operations (generation, transmission and distribution, trading and marketing) along the value chain. The different business segments now face completely different trading conditions. While grid operators' prices are still regulated – the grid tariffs are set by the E-Control Commission – the prices of the other links in the value chain are determined by supply and demand. This being so, it is necessary to focus on the individual segments to form a view of trends in the liberalised market. The following account looks at the Austrian electricity market in terms of the various areas of operations (a separate section is devoted to "green" power).

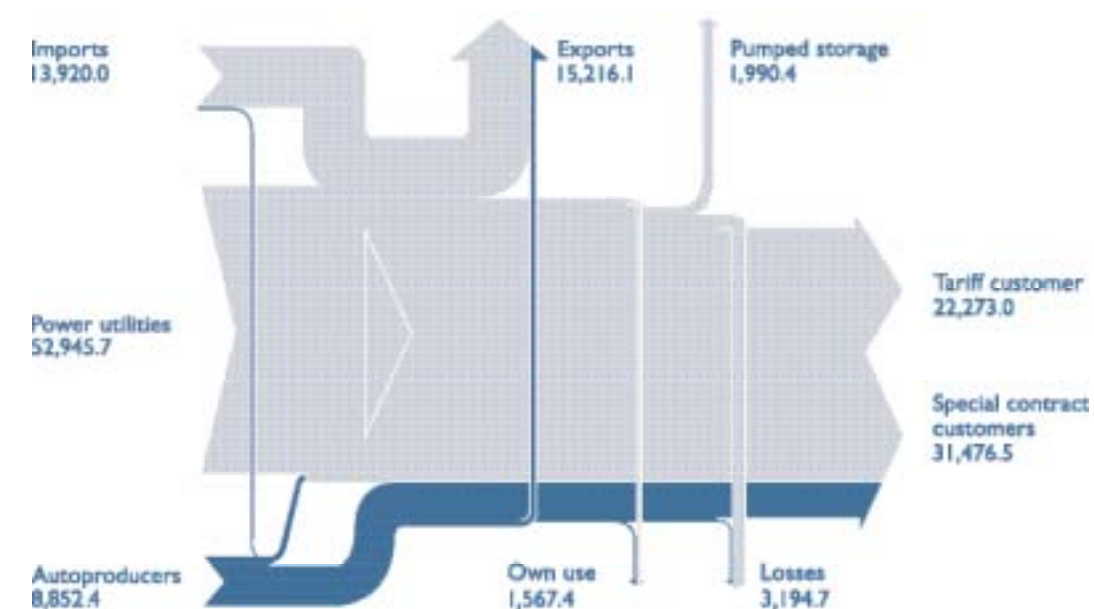
Differences between electricity trade statistics Text box 3

In Austria there are two sets of statistics for the import and export of electrical energy. Due to the different collection methods employed, these are not comparable. The federal system operator records the electrical energy metered at the contractual supply points, namely physical imports and exports. However, external trade in electricity does not always correspond to physical transmission, as some volumes arise from balancing arrangements. Statistics of this kind are collected by the federal statistical office, Statistik Österreich. Under the category "Import/export of electrical energy", the foreign trade statistics show the sales and purchases of power that are subject to customs and similar regulations. This means that supplies resulting from exchange agreements (e.g. peak for base load power) are not always recorded.

→ **Flow chart of the electrical industry**

as of 2000, in GWh

Graphic 3



Source: BLV, E-Control

Electricity industry terminology Text box 4

The changes in the electricity sector, particularly as a result of the statutory requirements of the EIWOG, have led to the use of new definitions and terms. A comprehensive glossary of the new terms can be found in the Annex under Glossary. Due to the fact that the methodology of the collection of national statistics has not changed, there are still definitions that do not translate into the new terminology. Federal statistics have so far distinguished between two types of companies:

→ Power utilities (PU), which were previously mostly completely vertically integrated, i.e. performed all functions, and prior to liberalisation had a statutory duty to supply electricity;

→ Autoproducers (AP) generating power primarily for their own consumption, but also in some cases feeding into the public grid.

The – at least functional – unbundling of generation, transport, distribution, sales and purchasing has led to the emergence of the term “electricity company”. An electricity company is a business that performs at least one of these functions, i.e. may be vertically integrated but need not be so. The duty to supply has been replaced by the general obligation of the grid operators to provide a connection.

→ Generation and supply

Geological conditions in Austria mean that a large part of the country's electrical energy is generated by hydropower. While storage power stations are particularly prevalent in western Austria, the largest run-of-river power stations are situated on the Danube, in eastern Austria. The Danube is one of Austria's main sources of base load generation. More than 25% of total power output comes from Danube power stations. In all, some 70% of Austria's annual electricity output is provided by hydropower, with thermal power stations balancing seasonal fluctuations in power demand.

Installed capacity

At the beginning of 2001 (reporting date 1 January 2001) Austrian power stations had a total maximum capacity of some 18,230 MW. Austria is rich in hydropower stations, with a combined capacity of 11,660 MW or an exceptional 64% of the total. At present some 40 MW of maximum installed capacity is accounted for by wind farms and photovoltaic power plants. The total maximum installed capacity of the thermal power stations is 6,535 MW (36%).

All Power utilities (PU) together have a maximum capacity of 16,525 MW, or 91% of total Austrian installed capacity, while autoproducers (AP) account for 9%. The structure of the capacity of the power utilities and autoproducers differs greatly. In the case of the power utilities some 67% is accounted for by hydropower stations, while in that of the autoproducers the proportion

is only around 33%. Thermal power stations account for the most of the installed capacity of the autoproducers.

Under the UCTE guidelines, a snapshot of the power balance is taken on the third Wednesday of each month, the reference point being 11.00 am.

According to this retrospective power balance, in winter 2000 the Austrian power utilities had between 3,600-4,800 MW of surplus capacity (this is the “surplus of available capacity” as defined by UCTE). However, it should be noted that, with the exception of the month of March, on these three Wednesdays there were no outages of thermal power stations and the discharge of the rivers was up to 40% above the long-term mean. In addition, the calculation of this surplus capacity takes into account the capacities of storage power stations that are exclusively available to foreign partners under long-term agreements, and thus cannot be used to meet demand in Austria. There are therefore limits to the extent to which the reserve capacity reported in the UCTE retrospective balance can be regarded as actual free capacity (see *Graphic 5*). Comparison of the maximum load occurring at 11.00 am on the third Wednesday of the month for each country with the available guaranteed capacity at this reference point or the maximum electric capacity reveals significant variations between UCTE member countries. Thus in France the difference in 2000 between actual load and the guaranteed capacity was remarkably small, while the difference as compared with the installed load was comparatively large. As such comparisons are merely statistical snapshots of electricity systems, they provide only rough indications of trends.

Basic power station terminology Text box 5

Hydropower station: Converts the potential energy of water into electrical energy.

Run-of-river power station: A hydropower station without significant storage facilities, where the usable inflow can only be exploited at the point of time when it occurs.

Storage power station: A hydropower station whose exploitable inflow can be modified using a dam located in the developed section.

“Small hydro plant”: There is no internationally agreed definition of this term. In the past in Austria it referred to a hydro power plant with a maximum electric capacity of ≤ 5 MW. A degree of uniformity in the terminology came with EU legislation and its implementation by the EIWOG, whereby particular attention is focused on small hydropower stations ≤ 10 MW in connection with renewable energy sources as a whole.

Thermal power station: A power station where thermal energy is converted to electrical energy.

Maximum electric capacity: The maximum possible active power of a power station (block), limited by the weakest link in the chain.

Combined heat and power plants: Plants where electrical energy and useful heat are generated simultaneously.

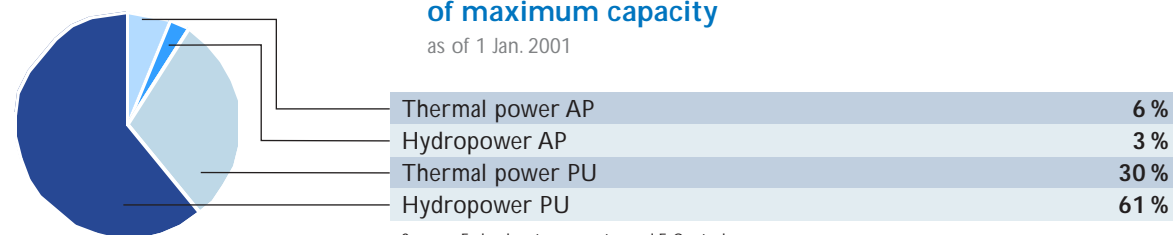
Structure of supply

Over the past decade the Austrian electricity market has registered a decline in the share of total supply accounted for by domestic generation, which fell from some 88% in 1990 to around 82% in 2000. In 2001 however there was a slight upswing to 83%. The share of imports of total supply was up from 1990, and in the past two years (2000 and the 1st to 3rd quarters of 2001) almost 20%.

→ Installed capacity in Austria by % of maximum capacity

as of 1 Jan. 2001

Graphic 4

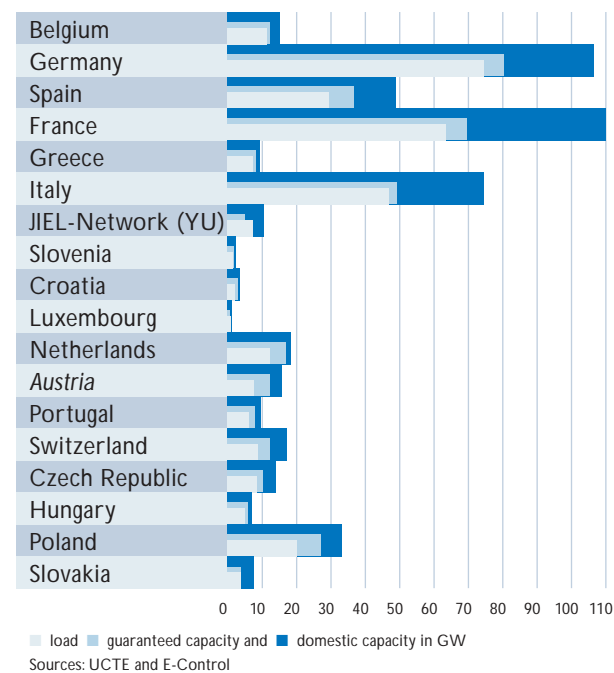


Sources: Federal system operator and E-Control

→ UCTE power balance

Retrospective balance for 2000, in GW

Graphic 5



The share of total supply met by the power utilities fell from 75% in 1990 to around 70% in 2000 and 2001, whereas that accounted for by autoproducers remained constant at around 12%.

As regards the utilities, on average about three-quarters of domestic power output comes from hydropower stations (maximum around 79%, minimum around 69%) and one-quarter from thermal power stations (see Graphic 6). In the case of autoproducers the ratios are reversed.

The autoproducers increased their share of injection to the public grid from some 1% in 1990 to just under 2% in 2000.

Supply terminology

Text box 6

Total supply comprises not only total gross generation by power stations owned by Austrian electricity companies (power utilities and autoproducers) but also electricity imports. Public supply refers only to the electrical energy fed into the public grid.

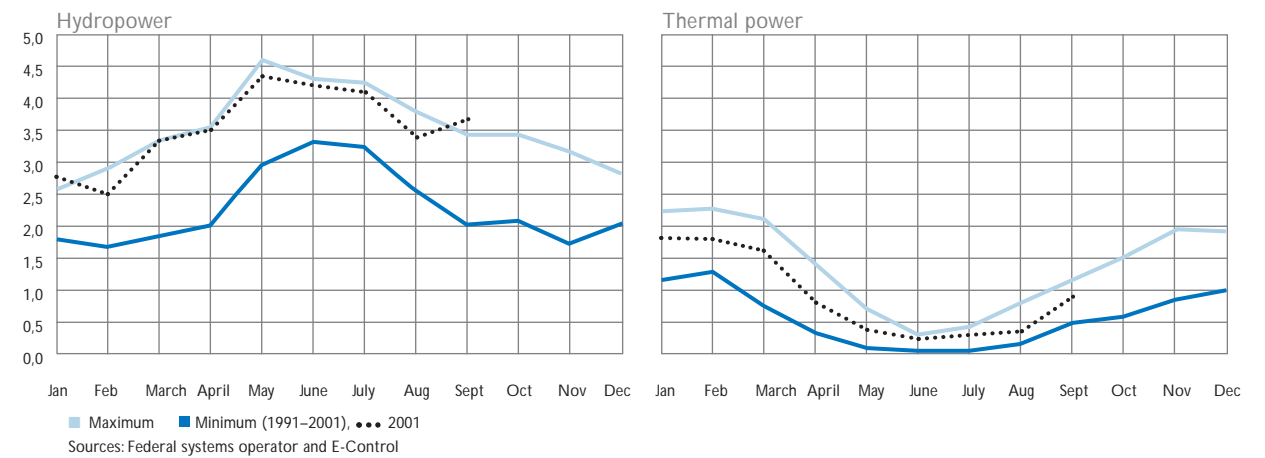
Supply by primary energy sources

Austria's geography enables it to source a higher proportion of its electricity from hydropower than other European countries. While other European countries rich in water resources rely on a mix of thermal and nuclear power to compensate for seasonal fluctuations, Austria almost exclusively uses thermal power stations.

In the first three quarters of 2001 more than 72% of domestic power generation came from hydro-stations. In all, this was the highest share for hydro-power stations after 1987 (72.7%) and 1988 (74.5%). The reason for the high generation figures was the unusually high water supply. The share of 71% of overall Austrian hydropower generation accounted for by run-of-river power stations was correspondingly high. Storage power stations made up 29% of the total.

→ Monthly maximum and minimum public power supply 1991–2001 in Twh

Graphic 6



As in previous years, there was increasing use of solid fuels at thermal power stations. In 2001 (1st to 3rd quarters) hard coal accounted for 25% of heat generation (compared with some 16% in 1999 and 24% in 2000), and brown coal for just over 8%.

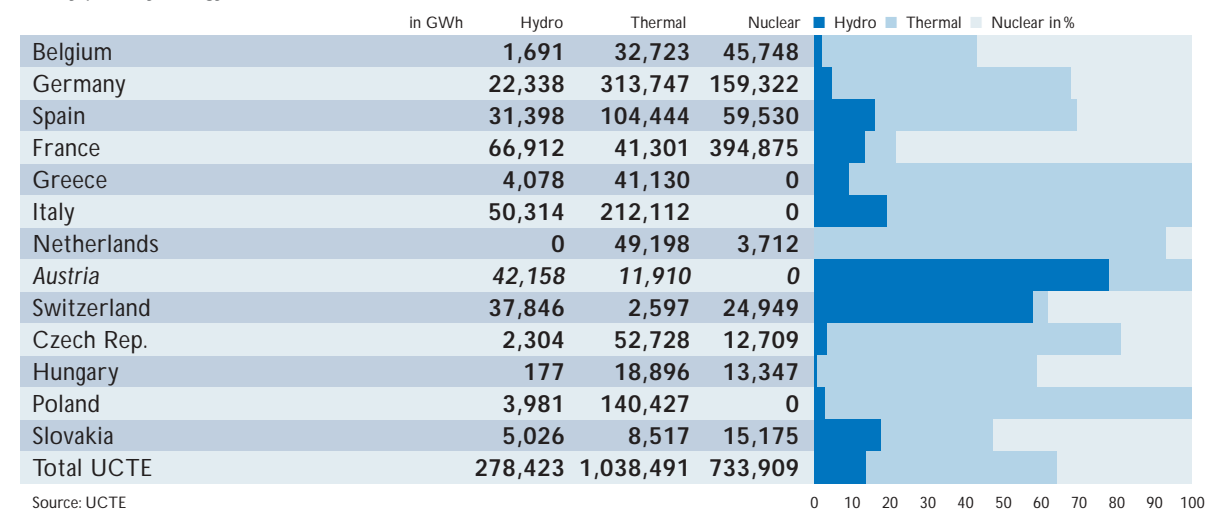
Not only solid fuels, but others too were more heavily used than in the past. The total share

claimed by the latter rose by about 2% to 18%. Among the "other fuels" are the biogenous fuels which the EIWOG defines as biomass, tree bark and wastes, as well as biogas, landfill gas and sewage gas. A total of some 430 GWh of biogenous fuels were used for power generation in 2000 – a slight drop from the previous year. The electricity utilities only generated 15 GWh from biogenous fuels.

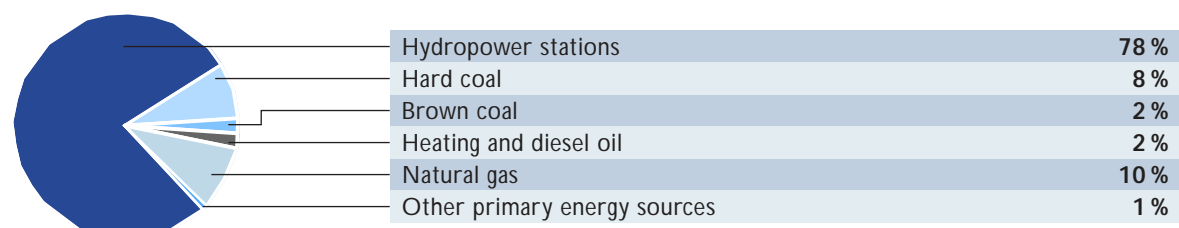
→ European comparison of energy generation

by primary energy sources, 2000

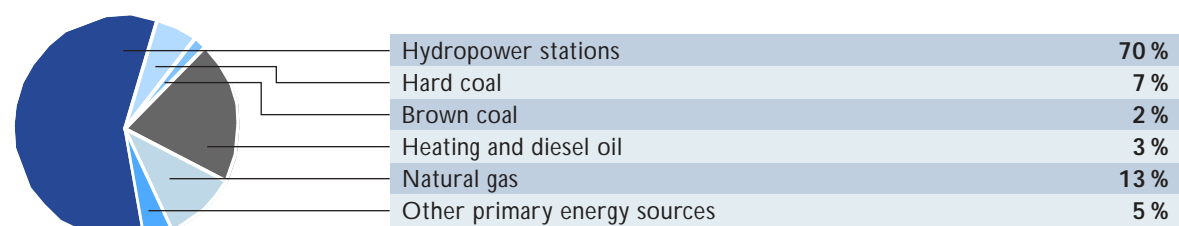
Graphic 7



→ Public generation in 2000 by energy sources Graphic 8



→ Total generation in 2000 by energy sources



Sources: Federal system operator and E-Control

Physical power imports and exports

There was a marked increase in physical exchange volume (imports plus exports) in 1998, and they reached a peak of more than 29,100 GWh in 2000. Increases were recorded in both physical imports (up by 18%) and exports (up by 20%).

Imports were flat in the first quarters of 2001 while exports fell back. Between 1990–2000 Austria was a net exporter to Italy, Slovenia and Switzerland, and a net importer from the Czech Republic, Germany and Hungary. Counter to the long-term trend, there were net exports to Germany over the first three quarters of 2001, such that the only net imports were from the Czech Republic and Hungary.

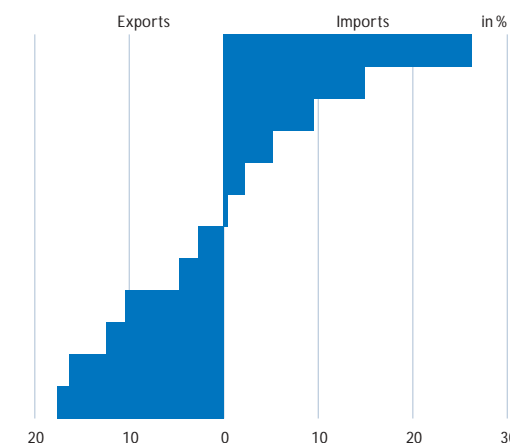
Apart from a few exceptional years, Austria has been a net power exporter, but measured against domestic power consumption the proportion of exported power is relatively low compared with other traditional exporting countries (see *Graphic 9*).

→ Net imports/exports from/to European countries Graphic 9

as % of domestic power consumption in 2000

Netherlands	26.33 %
Italy	14.93 %
Hungary	9.59 %
Belgium	5.22 %
Spain	2.28 %
Germany	0.43 %
Austria	2.69 %
Poland	4.71 %
Slovakia	10.42 %
Switzerland	12.44 %
France	16.34 %
Czech Republic	17.58 %

Source: UCTE



→ Distribution and consumption

Demand structure

In the 2000 calendar year Austrian final customers consumed 53,750 GWh of electricity – a year-on-year increase of 3.2%.

Some 87% of total final consumption was met from the public grid. The share of power demand met from the public distribution system in 2000 was 3.9% up on the previous year. Some 22,250 GWh were supplied to tariff customers – consumers supplied at standard tariff rates in accordance with sellers' general terms and conditions. This represented a decline of almost 90 GWh (0.4 %) compared to 1999. The share of total supply taken by tariff customers declined to just below 44%. As a result both of tariff changes and of electricity market liberalisation, a substantial number of tariff customers with high annual consumption negotiated or were offered special rates in 2000. When the figures are corrected for this factor they show an increase in consumption by tariff customers of at least 3.5% in 2000.

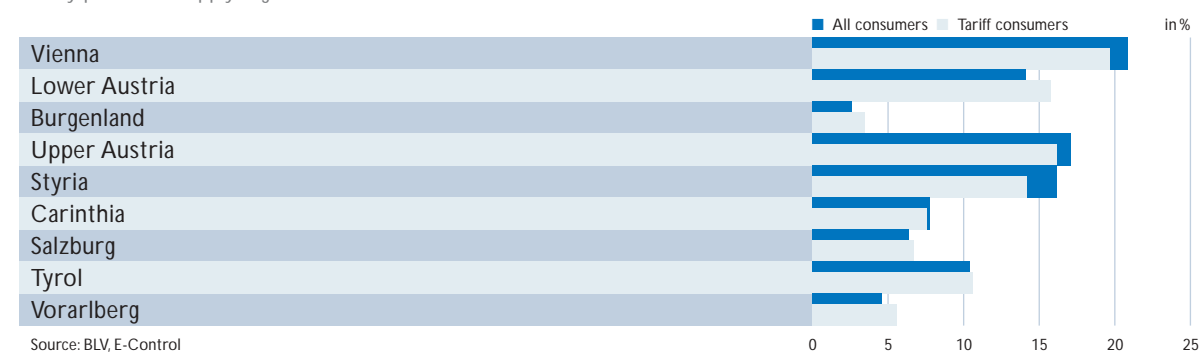
The Vienna provincial supply region, which includes parts of Lower Austria, is the area with the highest share of national electricity consumption (see *Graphic 10*).

Manufacturing industry is the consumer group with the highest share of consumption of electricity from the public grid, at 29%. Consumers paying domestic tariffs accounted for 22% of the demand. The 4% decline of this group's share of the total (1999: 26%) was also due to tariff changes. The proportion of consumers who could no longer be assigned to given forms of economic activities rose from 13% in 1999 to 17% in year 2001. In the past this group largely consisted of consumers paying small business tariffs or mixed tariffs. However, a growing number of consumers paying special rates is not categorised by economic activities. Another large consumer group is that of transport and communication companies, which account for a relatively stable 6% of total public grid demand.

→ Electricity consumption in % of total in 2000

by provincial supply regions

Graphic 10



Source: BLV, E-Control

Prices paid by final customers

Liberalisation has given all final customers – from industrial to residential consumers – the option of switching electricity suppliers. Along with this choice competition has emerged among the various suppliers. Major consumers began benefiting from this change in 1999, and domestic consumers on 1 October 2001. In many provinces of Austria electricity tariff rates for private consumers were reduced in the run-up to the liberalisation.

Competition has reduced the differences between the prices charged to the respective customer groups, and has largely eliminated regional disparities within given groups. The (ex tax) electricity prices charged to small business customers have fallen by more than 40%, and those charged to residential customers by over 10%. Unlike the pricing for these customer groups, the rates charged to industrial customers are not transparent. However E-Control believes that this customer segment, is paying considerably less than prior to deregulation.

The overall effect of these price reductions – net of all surcharges and tax increases – has been an annual saving of some € 440m for Austrian consumers. The main beneficiaries have been energy-intensive industrial companies and small businesses, whose international competitiveness has significantly increased as a result (see Graphics 11 and 12).

The price reductions have varied widely between consumer groups, because the prices contain highly customer specific components. These include: the price of the energy itself, the system access charges, taxes, surcharges and levies (see Text box 7). Of these, only the energy price is influenced by competition. The system access charges are set by the E-control Commission, and the various surcharges, taxes and levies by the provincial governments and the ministries responsible. In the case of residential consumers the energy price comes to little more than one-fifth of the electricity bill. The price reductions enjoyed by this group have largely been cancelled out by the introduction of surcharges for "green" electricity and CHP plants, and the increase in the electricity tax.

The following graphic shows the components of the residential energy prices in different sectors of the grid.

→ Comparison of electricity prices for small businesses in 1999 and 2001

cent/kWh, annual consumption of 10,000 KWh, prices inc. grid charges, ex tax

Graphic 11

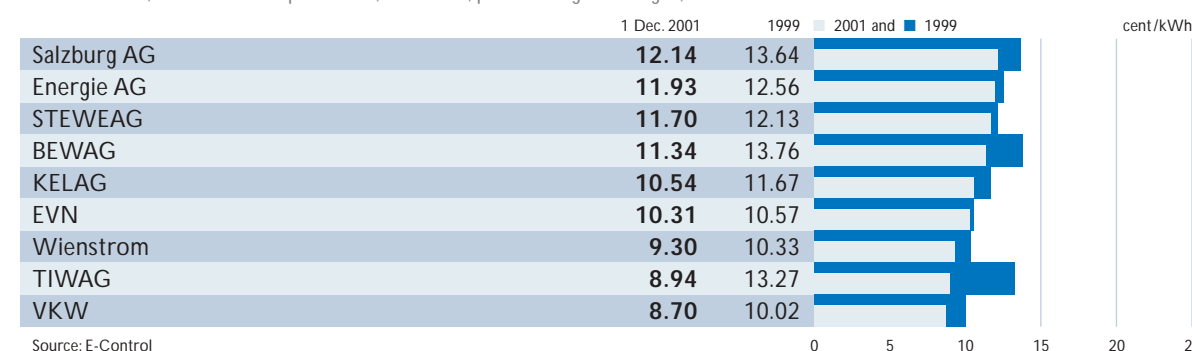


Source: E-Control

→ Comparison of electricity prices for domestic consumers in 1999 and 2001

cent/kWh, annual consumption of 3,500 KWh, prices inc. grid charges, ex tax

Graphic 12



Source: E-Control

Electricity price breakdown

Text box 7

The charges consist of three elements:

1. The energy price (this is the price received by the supplier);
2. The system access charge (this is the price received by the grid companies);
3. Taxes and levies.

Energy price

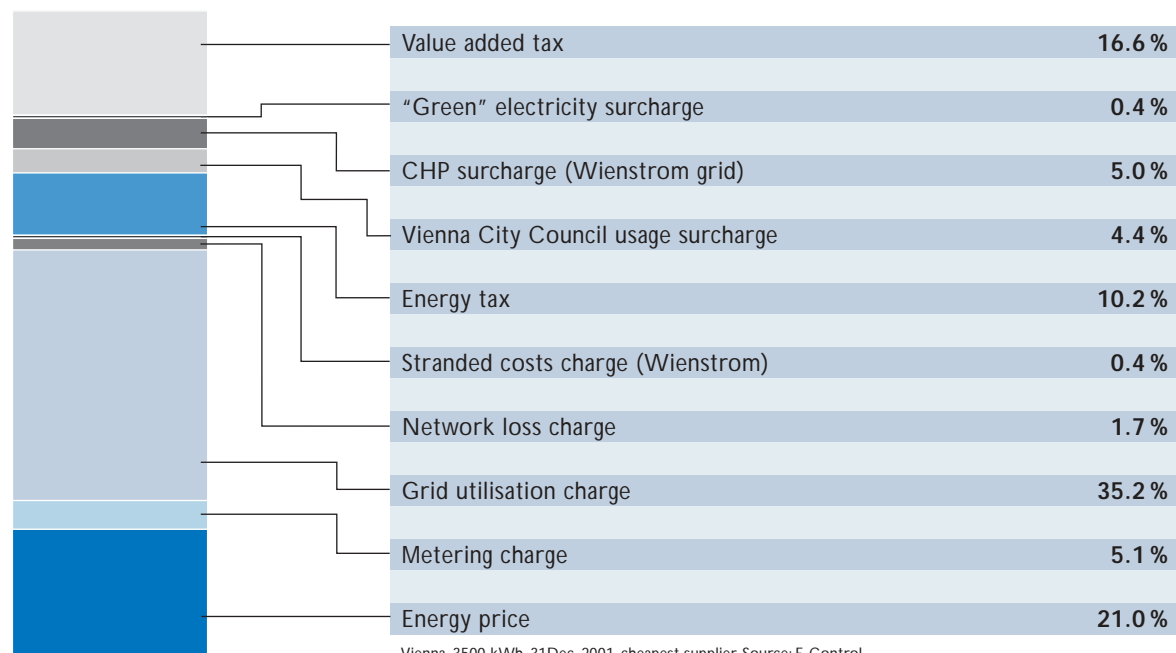
Electricity consumed (variable, liberalised price) plus
Metering charge (annual charge)

System access charge

Grid utilisation charge 5.09 – 7.99 cent/kWh (typical household)
Network loss charge 0.15 – 0.36 cent/kWh (typical household)
Metering charge 11.0 – 33.0 €/year (typical household)

Taxes and levies

Electricity tax 1.5 Cent/kWh
Stranded costs charge 0 – 0.0922 cent/kWh
"Green" electricity surcharge 0 – 0.124 cent/kWh
"Green" electricity surcharge Vienna 0.7427 cent/KWh; Styria 0.217cent/KWh; Carinthia 0.042 cent/KWh (information from Carinthian provincial government)
Municipal charge Varies widely from authority to authority
Value added tax 20 %

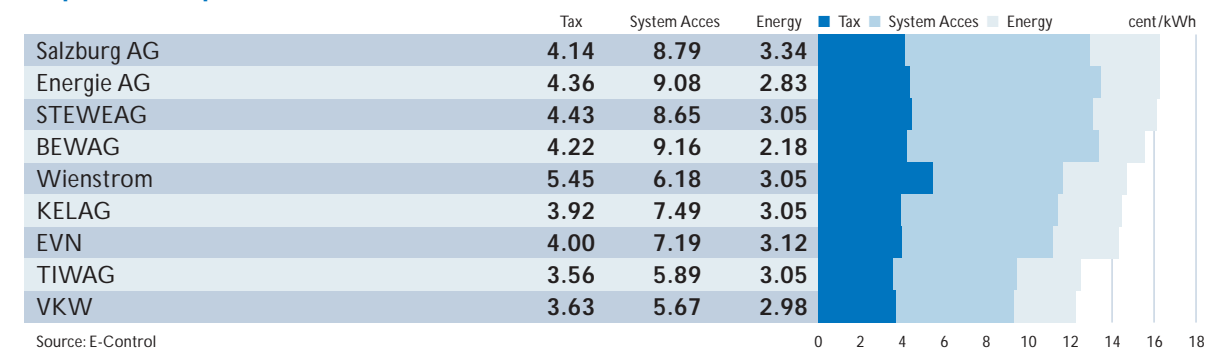


Vienna, 3500 kWh, 31Dec. 2001, cheapest supplier, Source: E-Control

→ Composition of the residential electricity prices of provincial power utilities

annual consumption 3,500 kWh, as of 31 December 2001

Graphic 13



Source: E-Control

→ Transmission and distribution

Grid

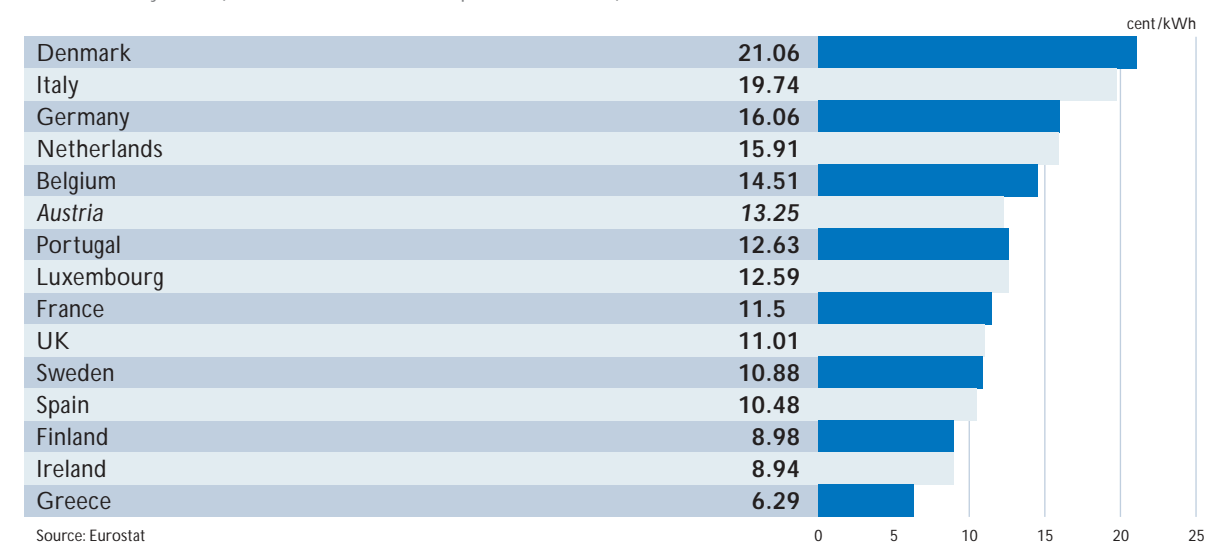
The length of the Austrian high voltage grid was about 9,500 km in 2001. Expansion programmes in recent years have mainly concerned the 380 kV lines.

Totally, there are about 150 grid operators in Austria, but the ten largest operators – the nine provincial utilities and APG – own 98.5% of the combined length of the transmission systems (380 kV, 220 kV and 110 kV lines). APG owns some 92% of the 380 kV and 220 kV lines, while about 80% of the 110 kV lines belong to the provincial utilities (see Graphic 15).

→ Comparison of European electricity prices for domestic consumers

as of 1 July 2001 (cent/kWh, annual consumption 3,500 kWh)

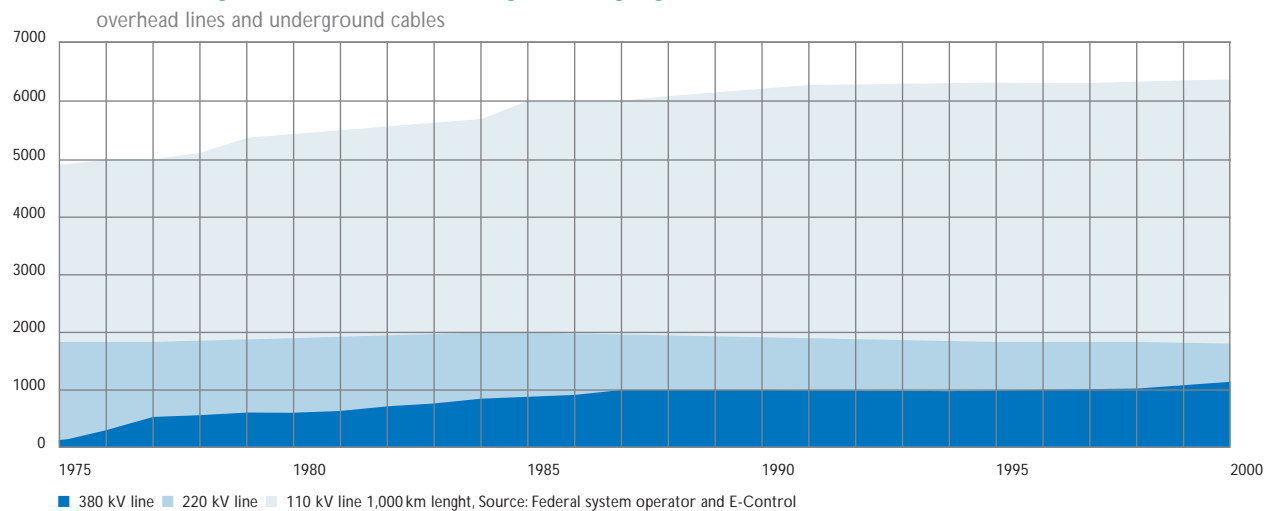
Graphic 14



Source: Eurostat

→ Total length of the Austrian high voltage grid in 2000

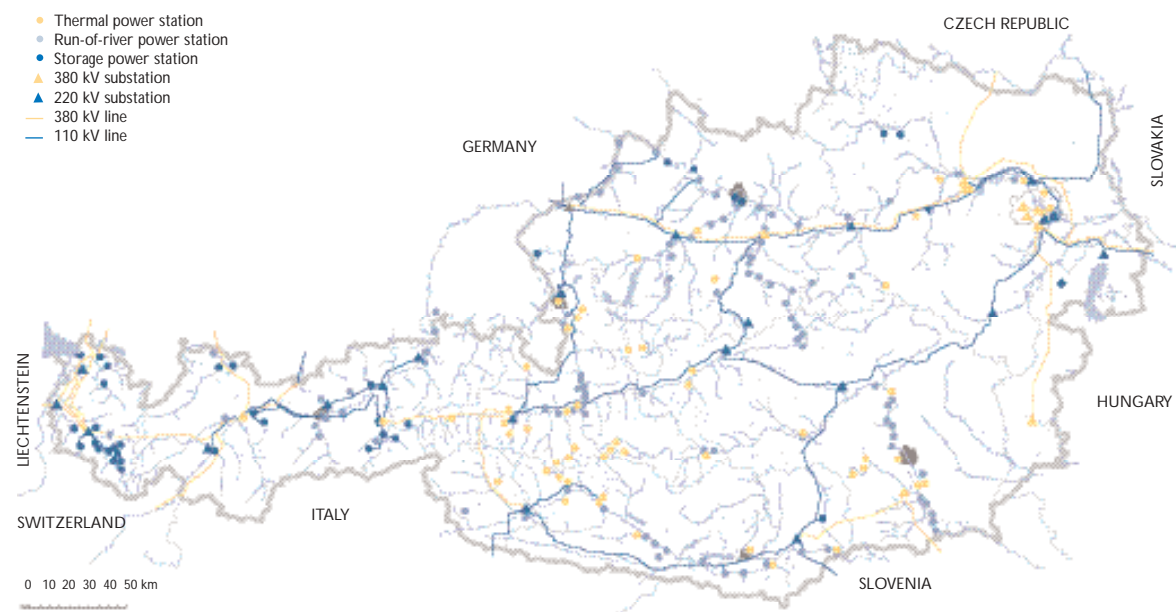
Graphic 15



→ The Austrian extra-high voltage grid

Figure 9

(380 kV and 220 kV lines), as of 1 January 2001



Sources: Federal system operator and E-Control

Grid levels as defined by the EIWOG

Text box 8

Section 25(5) EIWOG defines the grid levels that serve as a basis for system access charges.

Grid level 1

High voltage (380 kV and 220 kV including transformation from 380 to 220 kV)

Grid level 2

Transformation from extra-high to high voltage

Grid level 3

High voltage (110 kV, including plant with an operating voltage between 37 and 110 kV)

Grid level 4

Transformation from high to medium voltage

Grid level 5

Medium voltage (operating between 2 kV and 36 kV, as well as transformation to other voltage levels between these levels)

Grid level 6

Transformation from medium to low voltage

Grid level 7

Low voltage (1kV and below)

Transmission losses

System losses occur during the transformation and transmission of electricity. These losses are caused by the physical resistance of the conducting materials and grow as the load rises, i.e., with increasing currents. As the transmitted power is proportional to the product of the voltage and current, energy transmission at higher voltage means lower current and therefore also lower transmission losses.

Transmission losses represent real costs for the economy. Due to the fact that every withdrawal of electrical energy affects the load flow on the grid, which in turn causes transmission losses, the costs of these losses cannot be allocated to individual grid users. The cost of transmission losses must therefore be borne by all grid users on a pro rata basis, in the form of a regulated grid loss charge.

In 2000 the total transmission losses in Austria was some 3,200 GWh, corresponding to around 4% of total availabilities.

Cross-border electricity supplies

The liberalisation of the European electricity market has expanded international power trading, resulting in increased imports, exports and transit flows via Austria. At present, no system charges are required in Austria for power imports. In the case of power exports, the generator pays the grid operator a regulated network loss charge (export fee). The charge for electricity transit flows through Austria is freely negotiable between the exporter and the transmission system operator concerned. At present international electricity exchanges represent 10% of total supply in Europe, and the share is rising steadily.

Transmission and distribution losses

Text box 9

Network losses are those losses of electrical energy that occur during its transformation, transmission and conversion between the power station grid supply points and consumers' or resellers' meters.

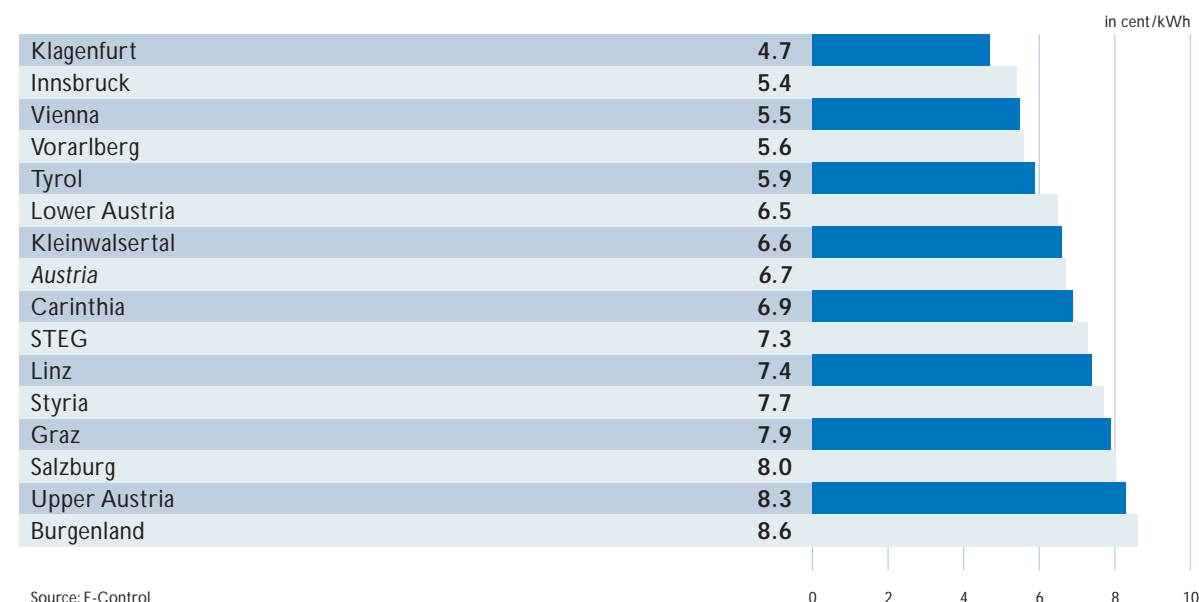
Step-up losses occur with the transformation of the generator voltage to the output voltage of the power station (grid voltage).

Transmission losses are the sum of step-up losses at the power station transformers and the network losses.

→ System access and network loss charges

at Grid level 7 (3,500 kWh) in Austria (as of 31 December 2001)

Graphic 16



Source: E-Control

The success of a pan-European power market will depend critically on the unification of network tariffs for cross-border transmission. In technical terms this calls for the installation of adequate transmission capacity as well as the creation of an efficient international congestion management system.

System access charge

Comparison of system access charges in Austria presents a very mixed picture. The provincial utilities with the lowest system access charges are those in Vienna and Vorarlberg. The highest grid charges are levied in Upper Austria and Burgenland. Figure 16 shows that Austria can be divided into three broad regions: in western and eastern Austria (with the exception of Burgenland) the system access and network loss charges are below average, whereas in central Austria they are in some cases considerably higher.

Besides progress in unbundling, in its first report on the implementation of the internal electricity and gas market (SEC [2001] 1957), the European Commission also compared network tariff structures in Member States. The study shows that network tariffs are excessive in Austria, Germany, Portugal and Spain. According to the Commission, insufficient unbundling and excessive network tariffs have created unequal conditions for companies and thus distortions of competition on the European market.

→ Trading

Wholesaling

The unbundling of the value chain and freedom of choice for electricity consumers has created a new market – the wholesale electricity market. The participants in this market are the generators, suppliers, traders, brokers and large-scale industrial consumers on the other. Electricity is traded like any other commodity on this market.

Delivery is on the extra-high voltage level of the grid (normally 220–380 kV). Prior to liberalisation electricity was not traded on a market. The large integrated electricity companies supplied each other with power, but these delivers often had the character of physical exchanges and thus of mutual assistance.

What are modern electricity markets like?

In essence, these consist of spot and forward markets. The spot markets are also known as the day-ahead markets, as the contracts made on them must not be fulfilled until the next working day. Delivery is delayed, because it must be notified to the transmission grid operator in question in time for transportation to take place. On the forward markets, electricity for future deliveries is traded. The traders agree the price on a given trading day, but delivery only takes place within a pre-agreed time window. Such markets may be centralised and regulated (exchanges) or unregulated (over the counter).

In Austria, liberalisation has led to the gradual emergence of a liquid bilateral wholesale market for a variety of electricity products. About 20 domestic and foreign power trading companies are active on this market. Turnover is high, amounting to some 200 TWh/year according to some assessments, or four times annual domestic electricity consumption. This volume is possible because the power may be sold and resold several times before physical delivery.

The Graz electricity exchange is expected to add to trading volume. Energy Exchange Austria (EXAA) plans to open in March 2002. Spot deliveries in the form of hourly contracts is expected to initially be traded on this exchange. The subsequent introduction of electricity trading based derivatives is also planned.

Breakdown of the system access charge under the EIWOG

Text box 10

Section 25(1) EIWOG determines the charge for system access which is composed of:

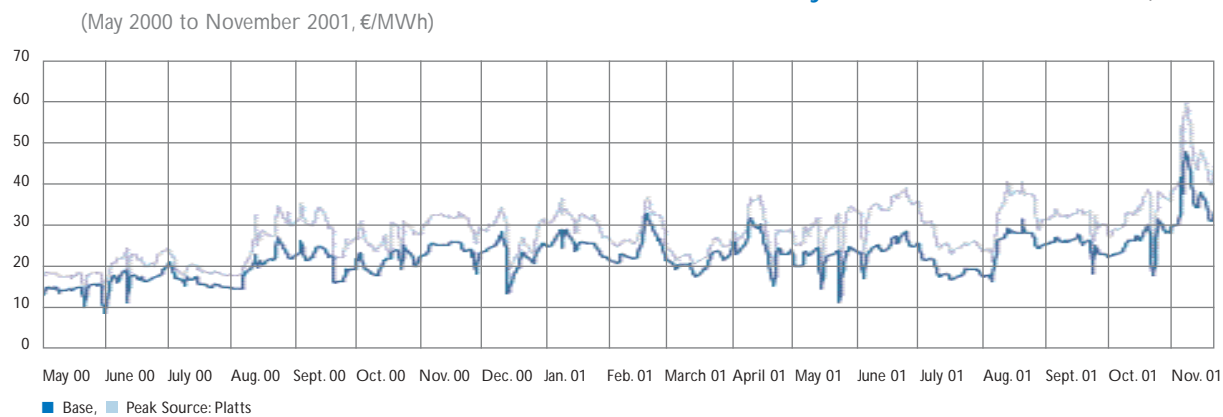
1. Grid utilisation charge
2. Grid provision charge
3. Network loss charge
4. Service fee
5. Metering charge
6. Grid admission charge and
7. Charge for international transactions (where applicable)

The E-Control Commission determines charges 1–4 and 7 by regulation. The system access charges are determined on a cost-plus basis, and must reflect realistic cost allocation. Central to rate setting is the principle of equal treatment for all system users; the system utilisation tariffs for network access must be set as fixed prices.

The price of electricity – as of all other freely traded commodities – reflects the interplay of supply and demand. The main influence on prices on the demand side are short-term temperature fluctuations. When temperatures fall, more electricity is consumed, normally resulting in higher prices. In Austria, with its many hydropower plants, the main factors on the supply side are water levels, reservoir inflows and any unscheduled power station outages. As Austria is very highly integrated with the Central European electricity market, price movements in other countries have a major impact on Austrian wholesale prices (for instance if prices fall in Germany Austrian prices follow).

→ Price movements on the Austrian wholesale electricity market

Graphic 17



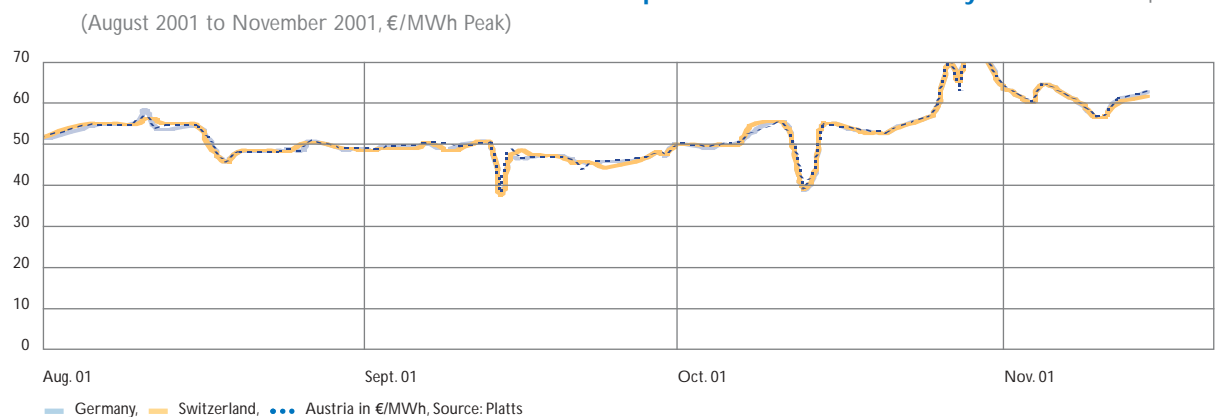
Wholesale prices should not be confused with retail prices. Domestic prices are composed of a large number of components, including network charges, surcharges and taxes. Wholesale prices (energy prices) represent just under one-quarter of the final price (see Source: E-Control).

→ "Green" power and the environment

In the past few years the last scientific doubts have been dispelled that global warming and climate change are occurring because of human influences because of exponential growth of resource use, and related increase in concentrations of CO₂ and other greenhouse gases. In the next hundred years the mean global temperature is forecast to rise by 2–5°C (Intergovernmental Panel on Climate Change, a UN scientific organisation). Microclimate change is demonstrably leading to an increase in weather damage and related insurance claims.

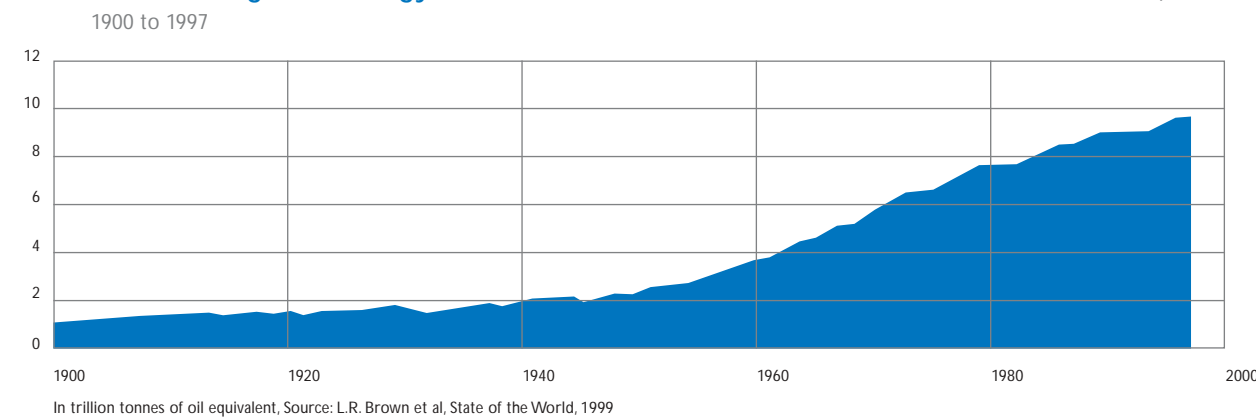
→ Price movements on selected Central European wholesale electricity markets

Graphic 18



→ Increase in global energy use

Graphic 19

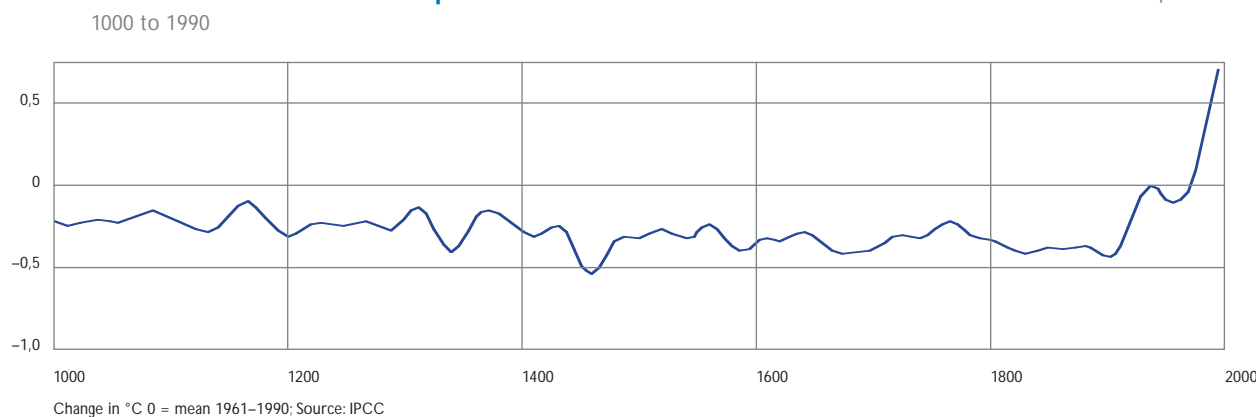


Between 1990–2000 annual global anthropogenic (human induced) CO₂ emissions rose from about 21bn tonnes to some 24bn tonnes, and in the absence of a significant change in the trend they will reach 30bn tonnes by 2010. Austria has an advantageous generation capacity structure, because about 72% of the country's power comes from renewable energy sources – most of it (about 63%) from large hydropower stations with capacities in excess of 10 MW. This is the highest share of power generation accounted for by renewables in any EU Member State.

The world's energy industries, and in particular power generation, are one of the main causes of greenhouse emissions, and are second only to motor traffic. In 1999 electricity generation in Austria gave rise to 65.8m tonnes of CO₂ emissions – the equivalent of some 8.1 tonnes of CO₂ per capita; this was less than the EU average of 8.9 tonnes per capita. With some 1.3% of the world's population, Austria is responsible for about 2.7% of global CO₂ emissions.

→ Global mean surface temperature

Graphic 20



→ Greenhouse gas emissions in Austria

Emissions in mio. tons CO₂ equivalent

Table 4

	1990	1999
Industry (inc. process emissions, excl. power consumption)	20.40	20.81
Traffic (CO ₂)	13.90	18.23
Small-scale consumption (mainly space heating)	13.83	13.40
Electricity generation and district heating	12.38	11.37
Waste (CH ₄ , expressed as CO ₂ equivalent and CO ₂)	6.24	5.33
Agriculture: total CH ₄ and N ₂ O expressed as CO ₂ equivalent	5.59	4.96
Refineries	2.14	2.66
Three other Kyoto greenhouse gases (H-FKW, PFKW and SF ₆)	1.74 (1995)	1.63
Other (CO ₂)	0.52	0.40
Other (N ₂ O and CH ₄)	0.43	0.45
Total emissions	77.19	79.22

Sources: Kyoto options analysis, Kommunalkredit Austria AG, November 1999; emission statistics for UNECE, Federal Environment Agency, January 2001; emission statistics for IPCC, Federal Environment Agency; draft climate change strategy, Ministry of Agriculture and Forestry, Environment and Water Management, September 2001

In Austria electricity and district heat generation result in emissions of about 11m tonnes of CO₂ (out of a total of approx. 66m tonnes of CO₂ and 79m tonnes CO₂ equivalent for all six Kyoto greenhouse gases). Austrian climate change policy is aimed at reducing these emissions.

Below gives an overview of the current situation in Austria with regard to the generation of power from renewable energy sources and to potential generation.

→ Overview of current power generation from renewable energy sources and potential generation in Austria

Table 5

	Electricity production (GWh/year)	Share (%)	Potential power generation (GWh/year)
Total generation	60,408	100,000	-
Hydropower	41,727	69,000	53,700
Solid biomass	1,636	2,700	8,300
Biogas and sewer gas	121	0,200	1,250
Landfill gas	100	0,170	150
Wind	51	0,080	2,600
Photovoltaic	2	0,003	8,200

Source: Technical University of Graz, October 2001

→ Excerpt from the EU Directive: targets for the production of electricity from renewable energy sources

Table 6

	RES-E 1997 (TWh) ^{**)}	RES-E 1997 (%) ^{***)}	RES-E 2010 (%) ^{****)}
Belgium	0.86	1.1	6.0
Denmark	3.21	8.7	29.0
Germany	24.91	4.5	12.5
Greece	3.94	8.6	20.1
Spain	37.15	19.9	29.4
France	66.00	15.0	21.0
Ireland	0.84	3.6	13.2
Italy	46.46	16.0	25.0
Luxembourg	0.14	2.1	5.7
Netherlands	3.45	3.5	9.0
Austria	39.05	70.0	78.1¹⁾
Portugal	14.30	38.5	39.0
Finland	19.03	24.7	31.5
Sweden	72.03	49.1	60.0
United Kingdom	7.04	1.7	10.0
Community	338.41	13.9	22.0^{****)}

**) Data refers to the national production of RES-E in 1997.

***) The percentage contributions of RES-E in 1997 and 2010 are based on the national production of RES-E divided by the gross national electricity consumption. In the case of internal trade of RES-E (with recognised certification or origin registered) the calculation of these percentages will influence 2010 figures by the Member State but not the Community total.

****) Rounded figure resulting from the reference values above

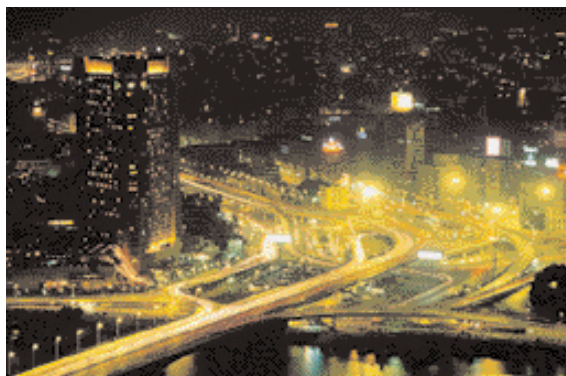
1) Austria states that 78.1% would be a realistic figure on the assumption that in 2010 gross national electricity consumption will be 56.1 TWh. Due to the fact that the production of electricity from renewable sources is highly dependent on hydropower and therefore on the annual rainfall, the figures for 1997 and 2010 should be calculated on a long-range model based on hydrologic and climatic conditions

Providing security of supply means ensuring that energy is constantly available to all consumers at affordable prices. In pursuing this goal in the interests of consumers, consideration must also be taken to the environmental issues and sustainability. Conscious of the exceptional importance of this issue, the European Commission has issued a Green Paper entitled "Towards a European strategy for the security of energy supply" (KOM[2000] 769). This provides an overview of the factors affecting security of supply, and provides a rough outline of the relevant policy options. The Green Paper not only addresses responses to crises, but also sketches out a long-term energy strategy.

The EU electricity Directive already contains important provisions aimed at safeguarding security of supply. It gives Member States the right to impose public service obligations on electricity companies to ensure security of supply, which free competition, left to itself, does not necessarily guarantee.

Because of the high degree of interconnection and the large number of suppliers, the internal market has helped to increase security of supply in Europe. Supply problems due to inadequate power generation capacity are unlikely to occur in the medium term, neither in Austria nor in Central Europe as a whole. At present there is surplus capacity of about 20% in Central Europe.

There is low likelihood that liberalisation of the European electricity market will lead to power outages and capacity shortages like those seen in California. The events of the summer of 2000 in California are attributable to regulatory errors (see *Text box 11: Security of supply: what went wrong in California*). No price caps are envisaged for the liberalised European market. Electricity price increases are passed on to final customers. At least in the medium term higher prices can be expected to result in reduced electricity demand.



Security of supply: what went wrong in California

Text box 11

The Californian electricity market was liberalised in April 1998. The existing electricity companies were completely unbundled, and new participants entered the market. Caps were introduced for retail prices. Electricity companies were obliged to sell their power to a new electricity pool, and to repurchase electricity at the pool price. The pool was thus a form of spot market. No production capacity could be bought in advance (at a given forward date). The suppliers thus bore almost all of the price risks. Until 1999 the pool prices were close to the marginal costs of the generation plants (\$26–31/MWh).

The Californian crisis arose from the combination of a number of factors. The main causes were:

→ Generation capacity shortages (insufficient investment incentives due to low prices; and long planning delays for new power plants due to cumbersome approval procedures – no new plant approved for ten years);

→ Growing power demand caused by rapid economic growth, population growth and high temperatures;
 → Higher primary energy prices (especially for gas);
 → Backlog of debts to the electricity supply utilities (approx. €12bn);
 → Retail price caps (no financial incentives to attract new suppliers into the market; and absence of price signals to final customers); and
 → No possibility for suppliers to hedge against price risks by making long-term contracts. The price caps meant that the supply utilities had to carry the additional costs.

The situation was exacerbated by the doubling of the price of natural gas, used to fire many power plants, in 2000, and by maintenance shutdowns affecting substantial amounts of generation capacity.



→ October

1 October 2001 Austria becomes the fifth EU member to fully liberalise its electricity market.

15 October 2001 In its capacity as the state competition authority the Baden-Württemberg economics ministry launches investigations of 86 grid operators on suspicion of market abuse by levying excessive system access charges in Germany.

17 October 2001 Opening of Italy's GME power exchange postponed until summer 2002. The market rules are still being discussed with participants.

18 October 2001 Belgian grid operator CPTÉ sells 30% of its interest in the transmission system operator Elia to local authorities. This move is intended to separate generation from grid operation.

23 October 2001 German power exchanges EEX and LPX announce their intention to merge. They are to be integrated by the start of 2002 (head office in Leipzig) and run joint spot and futures markets.

28 October 2001 Application for clearance of the formation of European Hydro Power (EHP), a hydropower joint venture between Verbund-APG and E.ON, submitted to the Vienna cartel court.

31 October 2001 German cartel office initiates an investigation of balancing power arrangements. Berlin's Bewag, EnBW, HEW and VEAG utilities are accused of charging excessive balancing power prices and thereby obstructing market entry by new suppliers with small capacity portfolios (large balancing energy requirements).

→ November

2 November 2001 EU accepts ETSO's cross-border tariff scheme proposals. The system is regarded as a transitional solution for 2002. A new system that will be still more transparent and easier to administer is to be introduced in 2003.

8 November 2001 European Court of Justice rules that the exemption of energy-intensive Austrian industrial companies, but not energy-intensive service businesses, from the energy tax infringes EU state aids law.

12 November 2001 Energieallianz receives clearance from the Vienna cartel court. The Upper Austrian provincial diet approves the sale of an interest (25% plus one share) in electricity company Energie AG to the planned Energieallianz.

14 November 2001 Styrian municipality of Kapfenberg sells a 35% stake in its utility to KELAG for €15.77m.

15 November 2001 Spain and Portugal decide to create a common electricity market as of 1 January 2003. The transmission grid operators will be merged. In the next five years 1,000 MW of new transmission capacity is to be installed.

15 November 2001 The European Commission is notified of the foundation of EHP.

16 November 2001 Verbund-APG decides to mothball its St. Andrä power station in Carinthia. The trial operation of a waste and bone-meal incinerator is met with strong opposition in surrounding areas.

22 November 2001 Verbund-APG takes a 50% stake in MyElectric.

22 November 2001 Lower Austrian provincial government makes an offer for a 6.4% holding in EVN which Energie AG (EAG) wishes to divest.

23 November 2001 EXXA power exchange opens offices in Graz. The exchange is due to open in March 2002. The major shareholders in the exchange are the Vienna Stock Exchange and the province of Styria, with 30% each, while nine power suppliers together will hold 24%, and Kontrollbank the remaining shares.

26 November 2001 British regulator Ofgem lifts price controls. In its view competition has now advanced so far that price regulation is no longer needed by most consumer segments.

26 November 2001 France's Powernext electricity exchange opens with a day-ahead market trading hourly contracts. Block contracts, as well as peak and base products are to follow. Futures contracts will be introduced in one year.

28 November 2001 MyElectric makes a contract with federal procurement company Bundesbeschaffung GmbH to supply government buildings with electricity (total volume 27 GWh).

30 November 2001 World's largest energy trader, Enron, files for Chapter 11 protection. Enron is simultaneously excluded from trading on a number of European power exchanges.

30 November 2001 Donaustadt power station comes on line. The €153m CHP plant supplies domestic consumers in the Vienna area with power and district heating.

→ December

1 December 2001 New order on electricity imports from third countries pursuant to section 13 EIWOG comes into force. Imports from 15 countries are prohibited in accordance with the recommendations of an independent expert opinion.

4 December 2001 Swedish company Vattenfall acquires an 89.6% interest in Berlin's Bewag from the US corporation Mirant. Bewag to be integrated in Vattenfall's German portfolio.

5 December 2001 Lower Austrian social partners commission an expert opinion on the constitutionality of the Vienna CHP order, as 240,000 Wienstrom customers in Lower Austria have also been required to pay the Vienna CHP surcharge since November.

6 December 2001 EnergieAllianz commences operations though the Burgenland companies have not yet formally joined. EA supplies about 72% of all electricity and 85% of all gas consumers in Austria.

14 December 2001 Verbund-APG founds APT Power Trading Slovenija in Slovenia with the aim of raising its share of the business market from a current 7–8% to 15–20% in the medium term. To date the company has won two large contracts with supply volumes of 800 GWh.

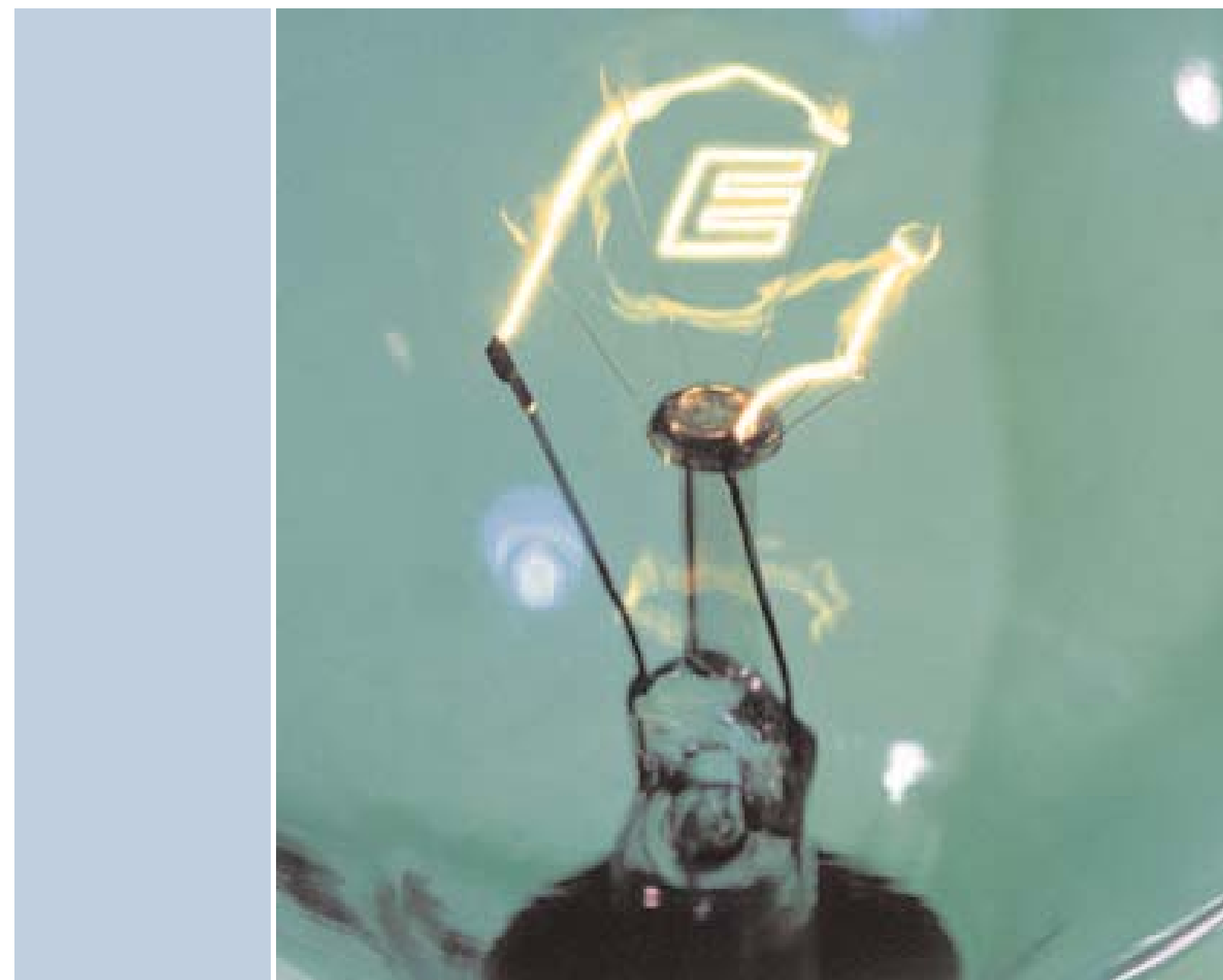
14 December 2001 Constitutional court rules that the limitation of the energy tax rebate to industrial companies is unconstitutional. This means that energy-intensive service companies will also be able to claim energy tax refunds, retroactive to 1 July 1996.

17 December 2001 Austrian electricity imports from Hungary, Poland, Slovakia and Slovenia become possible. Electricity imports from the Czech Republic are still prohibited as Austria has reserved the right to reopen the energy chapter in EU accession negotiations with that country. Transit flows are not affected by this order.

18 December 2001 European Commission approves the acquisition of joint control of STEWEAG by Verbund-APG and Energie Steiermark. STEWEAG contributes its power stations to Verbundgesellschaft in return for interests in its power stations and grid operations.

20 December 2001 The TIWAG general meeting and the Innsbruck city senate approve the acquisition by TIWAG of a 25% stake in the Innsbruck municipal utility IKB.

20 December 2001 The agreed disposal of the blocking minority in Energie AG is notified to the competent competition authority, the Vienna provincial court of appeal.





→ Balance sheet as of 31 December 2001


Assets, as of 31 December 2001

	EUR	ATS
A. Fixed assets		
I. Intangible assets	68,212.29	938,621.57
II. Tangible assets	487,800.24	6,712,277.65
III. Financial assets	0.00	0.00
	556,012.53	7,650,899.22
B. Current assets		
I. Inventories:		
raw material and supplies	28,512.22	392,336.70
II. Accounts receivable and other assets		
1. Trade receivables	8,101,181.18	111,474,683.36
2. Other receivables and assets	9,583.23	131,868.12
III. Cash on hand and bank accounts	1,200,117.19	16,513,972.57
IV. Trust accounts	79,763.50	1,097,569.69
	9,419,157.32	129,610,430.44
C. Prepaid expenses	1,965.53	27,046.28
Total assets	9,977,135.38	137,288,375.94

→ Balance sheet as of 31 December 2001

Liabilities, as of 31 December 2001


	EUR	ATS
A. Capital and reserves		
I. Issued share capital		
a) Share capital	3,700,000.00	50,913,110.00
b) outstanding contributions to share capital not called in to date	-2,775,000.00	-38,184,832.50
	925,000.00	12,728,277.50
II. Net profit (retained profit carried forward €0)	4,931.44	67,858.09
	929,931.44	12,796,135.59
B. Untaxed reserves	107,950.76	1,485,434.84
C. Provisions		
1. Provisions for severance payments	101,555.00	1,397,427.27
2. Tax provisions	46,018.00	633,221.49
3. Other provisions	370,810.59	5,102,464.96
	518,383.59	7,133,113.71
D. Current liabilities		
1. Trade payables	364,053.82	5,009,489.78
2. Other liabilities		
(whereof taxes €1,177,750)		
(whereof social security €64,055)	7,977,052.27	109,766,632.32
3. Trust accounts	79,763.50	1,097,569.69
	8,420,869.59	115,873,691.79
Total equity and liabilities	9,977,135.38	137,288,375.94
Contingent liabilities	72,672.83	1,000,000.00

	Financial statements
	→ Income statement for the year ended 31 Dec. 2001

→ Profit and Cost Account for the year ended 31 December 2001

	31 Dec. 2001 EUR	31 Dec. 2001 EUR	31 Dec. 2001 ATS
1. Turnover			
a) Revenues according to financing regulation	6,722,237.19		
b) less budget carried forward	-1,840,719.12		
		4,881,518.07	67,171,153.10
2. Other operating income		36,730.73	505,425.86
3. Personnel expenses			
a) Salaries	-1,447,030.92		-19,911,579.57
b) Expenses for severance payments	-101,555.00		-1,397,427.27
c) Expenses for retirements benefits	-22,346.90		-307,500.05
d) Expenses for legally required social security contributions and other payroll taxes	-292,738.05		-4,028,163.39
e) Other employee benefits	-3,957.33		-54,454.05
		-1,867,628.20	-25,699,124.32
4. Depreciation of intangible and tangible fixed assets		-141,051.71	-1,940,913.85
5. Other operating expenses			
a) Taxes excluding income tax	-47,520.43		-653,895.37
b) Others	-2,664,155.31		36,659,576.31
		-2,711,675.74	-37,313,471.69
6. Subtotal items 1-5 (operating profit)		197,893.15	2,723,069.11
7. Interest received and similar income		59,290.80	815,859.20
8. Interest payments and similar expenses		-82,643.55	-1,137,200.04
9. Subtotal items 7-8		-23,352.75	-321,340.85
10. Profit on ordinary business activities		174,540.40	2,401,728.27
11. Taxes on income		-61,658.20	-848,435.33
12. Net profit for the year		112,882.20	1,553,292.94
13. Release of untaxed reserves		35,984.81	495,161.78
14. Allocation to untaxed reserves		-143,935.57	-1,980,596.62
15. Earnings for the year		4,931.44	67,858.09
16. Retained profit carried forward		0.00	0.00
17. Net profit		4,931.44	67,858.09

E-Control GmbH, Vienna

	Financial statements
	→ Notes

→ Statutory requirements

The financial statements of Elektrizitäts-Control GmbH have been prepared in accordance with the Austrian Commercial Code (HGB) as amended.

For clarity of presentation certain items in the balance sheet and income statement have been aggregated, and are itemised in these notes.

The income statement has been prepared using the total cost method and is presented in vertical format.

All additional information required to present a true and fair view of the assets and liabilities, the financial position and the results of operations of the Company is included in these notes.

→ Accounting and valuation principles

The financial statements have been prepared in accordance with generally accepted accounting principles and the general requirement to present a true and fair view of the assets and liabilities, the financial position and the results of operations of the Company is included in these notes.

In preparing the financial statements the principle of completeness has been observed, and for valuation purposes the going concern principle has been applied.

The principle of individual valuation is applied to the disclosure of assets and liabilities. The principle of prudence is observed, and in particular only profits realised at balance sheet date have been taken into account.

All recognisable risks and impending losses arising in financial year 2001 or in earlier years have been reflected.

Valuation methods have been applied on the same basis as hitherto.

Intangible assets acquired for consideration have been capitalised at acquisition cost and are amortised over a maximum of between two and five years.

Tangible fixed assets are shown at acquisition cost or construction net of scheduled depreciation. Expected useful lives lie between two and five years.

Low value assets are capitalised and written off over four years.

A valuation reserve equivalent in value to the special depreciation allowances for tax purposes has been made.

Stocks of stationery and other office materials have been valued in accordance with the simplified valuation procedures provided for under Section 209(1) HGB (Austrian Commercial Code).

Deferred tax assets have not been capitalised in accordance with Section 198(10) HGB (Austrian Commercial Code). For further information refer to Section "Taxes on income".

In accordance with statutory requirements, the provisions reflect all recognisable risks and impending losses.

The provision for severance payments is calculated in accordance with established principles of financial mathematics on the basis of a discount rate of four percent, an age-related discount for staff turnover and a retirement age of 57 years for women and 62 years for men. Liabilities are shown at the amounts payable.

Foreign currency liabilities are valued at the higher of the exchange rate at the time incurred or the selling rate at balance sheet date.

→ Notes to the balance sheet

Fixed assets

Details of fixed assets and the changes during the year under review are shown in the fixed assets movement schedule (see Annex 1 to the notes).

Commitments arising from the use of fixed assets not disclosed in the balance sheet (leasing agreements) amount to €13,200 for financial year 2002. The total commitment for the next five years is €30,800.

Receivables and other current assets

The maturities of all receivables and other current assets are less than one year. Other current assets include income in the amount of €3,000 not receivable until after the balance sheet date.

Untaxed reserves

Details of changes in untaxed reserves are shown in Annex 2 to the notes.

Liabilities

The maturities of all liabilities are less than one year. Other liabilities include expenses in the amount of €129,000 not falling due until after the balance sheet date.

Contingent liabilities

Contingent liabilities disclosed below the line relate solely to a bank guarantee in respect of the rental property Rudolfsplatz 13A.

→ Taxes on income

Deferred tax assets not separately disclosed in the balance sheet pursuant to Section 198(10) HGB amount to €36,500 as at 31 December 2001. Tax expense for the year under review is not affected by the change in deferred taxes.

Employees	average	as of 31 Dec.2001
Managing director	1	1
Staff	21	42
	22	43

→ Supplementary information

Governing bodies of the Company

Appointed as Chief Executive
Walter Boltz

Members of the Supervisory Board in 2001

Dr. Walter Barfuss
(Chairman)

Dr. Bruno Zluwa
(Deputy Chairman)

Helmut Staudinger

Dr. Georg Obermeier

Vienna, 30 January 2001

DI Walter Boltz
Chief Executive





→ Fixed assets movement statement as of 31 December 2001


Annex 1

	Acquisition/ production costs as of 1 Jan. 2001	Additions	Transfers	Disposals	Accumulated depreciation	Book value as of 31 Dec. 2001	Book value as of 31 Dec. 2000	Depreciation 2001
	EUR	EUR	EUR	EUR	EUR	EUR	EUR	EUR
I. Intangible assets								
1. Electricity withdrawal rights	0.00	3,767.60	0.00	0.00	376.76	3,390.84	0.00	376.76
2. Software	0.00	90,380.01	0.00	0.00	25,558.56	64,821.45	0.00	25,558.56
	0.00	94,147.61	0.00	0.00	25,935.32	68,212.29	0.00	25,935.32
II. Tangible assets								
1. Other fixtures and fittings, tools and equipment	0.00	217,870.82	0.00	0.00	21,787.39	196,083.43	0.00	21,787.39
2. IT Hardware	0.00	241,110.24	0.00	0.00	57,344.19	183,766.05	0.00	57,344.19
3. Low value assets	0.00	143,935.57	0.00	0.00	35,984.81	107,950.76	0.00	35,984.81
	0.00	602,916.63	0.00	0.00	115,116.39	487,800.24	0.00	115,116.39
	0.00	697,064.24	0.00	0.00	141,051.71	556,012.53	0.00	141,051.71

→ Movements in untaxed reserves

Annex 2

	as of 1 Jan. 2001	Allocation	Transfers	Release due to expiry or use for intended purpose	Release due to disposal	as of 31 Dec. 2001
	EUR	EUR	EUR	EUR	EUR	EUR
I. Valuation reserve due to special depreciation allowances						
Low value assets (section 13 Income Tax Act)	0.00	143,935.57	0.00	35,984.81	0.00	107,950.76
	0.00	143,935.57	0.00	35,984.81	0.00	107,950.76

	Financial statements
	→ Auditors' report

	Notes

We hereby grant the financial statements of

Elektrizitäts-Control GmbH, Vienna

for the year ended 31 December 2001 the following unqualified audit opinion pursuant to Section 274(1) Austrian Commercial Code (HGB):

Based on our audit performed in accordance with our professional duties, the accounting records and the financial statements comply with the legal regulations in Austria. The financial statements present, in compliance with Austrian generally accepted accounting principles, a true and fair view of the assets and liabilities, the financial position and the results of operations of the company. The management report corresponds with the financial statements.

Vienna, 31. January 2002





→ Regulatory proceedings and orders of Elektrizitäts-Control GmbH and Elektrizitäts-Control Kommission

Regulatory proceedings

Network access refusal hearings pursuant to section 20(2) EIWOG (E-control Commission)	20
General terms and conditions of the distribution and transmission grid pursuant to section 31(24) EIWOG (E-Control Commission)	37
Balancing group representatives – approval of exercise of responsibilities under the provisions of provincial legislation (E-Control)	33
Balancing group representatives – approval of general terms and conditions under the provisions of provincial legislation (E-Control)	20
Approval of the general terms and conditions of settlement agencies pursuant to section 11 Settlement Agencies Act (E-Control)	3
Market abuse hearings pursuant to section 9 Regulatory Authorities Act (E-Control)	29
Appeal hearings in accordance with the Other Market Rules (E-Control GmbH)	15

Orders

Clearing fee order issued by E-Control pursuant to section 12 Settlement Agencies Act, Official Gazette in the Wiener Zeitung, issues 9, 10 Nov. 2001

Electricity supply contract order issued by E-Control pursuant to section 13 EIWOG, last published in Official Gazette in the Wiener Zeitung, issue 17 Dec. 2001

System access charges order issued by E-control Commission pursuant to sections 25 and 55 EIWOG, Official Gazette in the Wiener Zeitung, issue 28 Dec. 2001

→ Legal sources

Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity (OJ L 27/20)

Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market (OJ L 283.33)

Federal Act Regulating the Reorganisation of the Electricity Industry (Electricity Industry and Organisation Act [EIWOG]) Federal Law Gazette I 143/1998 as amended by Federal Law Gazette I No. 121/2000 (Art. 7 Energy Liberalisation Act)

Federal Act Regulating the Tasks of the Regulatory Authorities in the Electricity Sector, as well as the Establishment of Elektrizitäts-Control GmbH and the Elektrizitäts-Control Kommission, Federal Law Gazette I No. 121/2000 (Art. 8 Energy Liberalisation Act)


Federal Act Regulating the Rights and Obligations of Settlement Agencies for Transactions and Price Formation with Regard to Balancing Energy, Federal Law Gazette I No. 121/2000 (Art. 9 Energy Liberalisation Act)

Federal Act of 21 October 1982 on Control Mechanisms for Ensuring Security of Energy Supply (Energy Emergency Powers Act), Federal Law Gazette I 545/1982 as amended by Federal Law Gazette I No. 149/2001

Constitutional Act Regulating the ownership of Austrian electricity companies (Federal Law Gazette I No. 143/1998)

Order of the Federal Ministry of Economic Affairs and Labour on the Provision of Aids to Compensate for Loss of Revenue in Consequence of Market Opening and in Connection with the Construction and Operation of the Voitsberg 3 Power Station (Stranded Costs Order), Federal Law Gazette II 354/2001

Order of the Federal Ministry of Economic Affairs and Labour on Statistical Studies in the area of the Electricity Industry (Statistics Order), Federal Law Gazette II 486/2001

	Notes
	→ Glossary

Ancillary services: Any services necessary for the operation of a transmission or distribution grid.

Applicable operational codes: The recognised technical operating code, the technical and organisational rules for operators and users of transmission and distribution networks (TOR) under the EIWOG, and the technical operating rules for grid operators.

Applicable system access charges: The administratively set charges paid by grid users to grid operators for use of the grid.

Balancing power provider: A supplier that meets the technical requirements for utilities offering power on the balancing market.

Balancing circle: The German equivalent of an Austrian balancing group.

Balancing group coordinator: A natural person or legal entity that has an official licence to operate a settlement agency for the organisation and settlement of balancing power supplies within a control area.

Balancing group members: Suppliers and customers assigned to a balancing group for the purpose of balancing the electricity supply and demand in that group. Balancing group membership, direct: Where a market participant makes a contract for the procurement and settlement of balancing power with a balancing group representative this is referred to as direct balancing group membership.

Balancing group membership, indirect: When a grid user or an electricity trader makes an electricity supply contract with a supplier that includes the procurement and settlement of balancing power it is indirectly assigned to the supplier's balancing group. This is referred to as indirect balancing group membership. In such cases there is no direct contractual relationship between the grid user or trader and the balancing group representative.

Balancing group representative: An entity responsible for and representing a balancing group in its dealings with other market participants and the balancing group coordinator.

Balancing group revenue: The sum total of the procurement schedules and metered infeed for a given balancing group and clearing period plus the balancing power pur-

chased, on the credit side of the balancing account, or on the debit side, the total of the delivery schedules and metered consumption plus balancing power delivered.

Balancing group: A virtual group of suppliers and customers within which electricity availabilities (procurement schedules and infeed) and demand (delivery schedules and withdrawals) is balanced.

Balancing power supplier: A supplier that meets the technical standards for sellers on the balancing energy market.

Balancing power: The difference between the scheduled and actual demand for or deliveries of power to a balancing group within a given metering period; volume may be metered or computed.

CHP power: Electricity directly generated by a CHP plant at the same time as heat for district heating. CHP is the most efficient method of power generation.

Clearing interval: See clearing period.

Clearing period: The smallest time unit (15 minutes) for which the settlement agency calculates the prices charged for the balancing power and meters the amount of balancing power for volume clearing.

Combined heat and power (CHP) plants: Power stations that simultaneously generate both electricity and heat, the latter being used for district heating services.

Control area manager: The entity responsible for load frequency control in a control area; this function may also be performed by a third party domiciled in a European Union Member State.

Control area: The smallest unit in an interconnected system that is equipped and operated with a load frequency control system.

Control block: An observation unit in the UCTE grid which is composed of one or more control areas and collaborates with other control blocks in the system on load frequency control.

Customers: Final customers, electricity traders and electricity companies that purchase power.

Direct line: A line that does not form part of the interconnected system.

Distribution: The transport of medium or low voltage power on distribution networks to supply customers with electricity.

Electricity company: A natural person, legal entity or partnership gainfully generating; transmitting, distributing, supplying or purchasing electricity, and conducting commercial, technical or maintenance operations in connection with these functions, with the exception of final customers.

Electricity trader: A natural person, legal entity or partnership gainfully selling electricity.

Eligible network customer: A customer or generator.

Final customer: A consumer that purchases electricity solely for own use.

Financial clearing: Involves determination by the settlement agent of the financial balances in respect of the balancing power for each clearing period and balancing group, and drawing up the balancing groups' balances for the entire settlement period, as well as invoicing the various balancing group representatives.

These are the:

- General terms and conditions of balancing group coordinators (AB-BKO),
- General terms and conditions of balancing group representatives (AB-BGV),
- General terms and conditions of distribution network operators (AB-VNB),
- General terms and conditions of transmission grid operators (AB-ÜNB),
- Other Market Rules; and
- Technical and organisational rules for operators and users of transmission and distribution networks (TOR).

Generation: Electricity production.

Generator: A natural person, legal entity or partnership that generates electricity.

Grid admission charge: The one-time grid admission charge that compensates the grid operator for all

expenses arising directly from the connection or a change in a connection due to an increase in the connected load.

Grid connection: The physical connection of a customer's or generator's apparatus to the grid.

Grid level: A sector of the grid chiefly defined by its voltage level.

Grid operator: The operator of a transmission or distribution grid with a nominal frequency of 50 Hz.

Grid provision charge: This compensates the operator of the upstream grid for indirect expenses incurred in providing users with connections.

Grid provision costs: The indirect costs incurred by the operator of the upstream grid in providing users with connections.

Grid user: A natural person, legal entity or partnership that feeds electricity into or withdraws it from a grid.

Grid utilisation: Infeed or withdrawal of electricity to/from a grid.

Grid zone: A sector of a grid in which the same rates apply.

Group company: A legally independent business that is linked with another independent company in the meaning of section 228(3) Austrian Commercial Code.

Independent system operator: A transmission grid operator which is not controlled by a third-party company.

Infeed supplier: A generator or other electricity company that supplies electricity to a grid.

Initial clearing period: Period in which initial clearing is performed by the settlement agency.

Initial clearing: Takes place periodically (at least once a month) and involves determining the balancing power per balancing group on a quarter-hourly basis by netting off the aggregate scheduled volumes against the total of the aggregate metered volumes (time series of quarter-hourly amounts) and load profiles.

Integrated electricity company: A vertically or horizontally integrated electricity company.

Interchange schedule: A schedule agreed between two balancing groups where these are in different control areas.

Interconnected grid zones: Grid zones linked by interconnectors.

Interconnected system: A number of transmission and distribution grids linked by one or more interconnectors.

Interconnectors: Lines used to link electricity grids.

Internal schedule: A schedule agreed between two balancing groups in the same control area.

Load shape/load profile: The volume of electricity, measured at given intervals, that is delivered by an infeed supplier or procured by an offtaker.

Market participants: Balancing group coordinators (settlement agencies), balancing group representatives, balancing group members, wholesalers, distribution network operators, transmission grid operators, suppliers, electricity traders, generators, control area managers, grid users, customers, final customers and power exchanges.

Market rules: The sum total of all the legal and contractual rules and regulations that participants must observe in order to ensure that the electricity market operates in an orderly fashion.

Metering point: An infeed and/or withdrawal point at which the power flow is measured and recorded.

Network access agreement: A bilateral agreement between an eligible network customer and a grid operator, regulating connection with and utilisation of the latter's grid.

Network access applicant: A natural person or legal entity seeking access to an electricity grid.

Network admission: The initial connection to a grid or an increase in the connected load of an existing connection.

Network loss charge: This compensates the grid operator for the costs incurred in procuring the power volumes required to balance network losses.

Network losses: Due to the ohmic resistance of power lines, insulator leakage, coronas and other physical phenomena, differences arise between the volume of electrical energy fed into a grid and that withdrawn from it.

Off-taker: An end-user or grid operator that purchases power from an electricity grid.

Operating reserve: The reserve generation capacity held as cover for unscheduled outages.

Renewable energy sources: Hydropower, biomass, biogas, geothermal energy, wind and solar power, where these are used to generate electrical energy. Household waste and sewage sludge are not recognised as renewable energy sources.

Risk management: The settlement agency rates the creditworthiness of balancing group representatives, requests, collects and manages the securities provided by the latter, and realises them in the event of default.

Schedule: A document stating the volume of electrical power to be exchanged between balancing groups in terms of a projected mean value during fixed periods (metering periods).

Scheduled power exchange programme: The sum of the scheduled volumes to be exchanged between two control areas during a metering period (UCTE definition).

Second clearing: The adjustment of the balancing power attributable to each balancing group determined by the initial clearing on the basis of the annual generation and consumption volumes actually metered.

Settlement agency: A facility operated by balancing group coordinators that calculates the balancing power attributable to individual market participants and grid operators on the basis of the data provided by them. It also draws up a merit order for the dispatching of generation plant to provide balancing power on the basis of generators' bids, and determine balancing power prices. In addition it manages balancing groups and handles settlement within them.

Settlement period: Period in which financial clearing is performed by the settlement agency.

Standard load profile: A characteristic load profile for a given infeed generator or offtake group, computed by appropriate methods.

Supplier: A natural person, legal entity or partnership that provides other natural or legal persons with electricity.

Supply point: A designated, contractually determined point in an electricity grid at which power is exchanged between contractual partners. This may be identical with the metering point and ownership boundary.

Supply: The delivery or sale of electricity to customers. System access: Utilisation of a grid by customers and generators.

System operator: A grid operator possessing the necessary technical and organisational resources to take all steps required to maintain network operation.

Third countries: Countries that belong neither to the European Economic Area nor to the European Union. Transmission grid: An interconnected system with a voltage of 110 kV or more for the long-distance transport of electrical energy.

Transmission: The transport of electricity via a high voltage grid to supply power to end-users or distributors (customers) transmission; or distribution.

Vertically integrated electricity company: An electricity company that performs at least two of the following functions: electricity generation; trading;

Volume clearing: Netting off of the volume accounts set up for each balancing group at the settlement agency. Account is taken of the time series for each supplier or producer assigned to the respective balancing group by the grid operators, as well as any scheduled power exchange programmes (commercial schedules) exchanged between balancing groups.

Wholesaler: An electricity trader that performs no transmission or distribution functions either inside or outside of the grid in which it operates.



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CEER Council of European Energy Regulators
DEA Data Envelopment Analysis
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