Impediments to Electricity Trading in CEE*

Austria, Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia

*connectedthinking

PRICEWATERHOUSECOOPERS

Introduction

The European Regulators Group for Electricity and Gas (ERGEG) launched the Electricity Regional Initiative (ERI) and Gas Regional Initiative (GRI). The ERI and GRI are European-wide initiatives, their purpose being to make a real contribution towards achieving the integration of national markets by facilitating the creation of regional energy markets in the fields of electricity and gas. The ERI covers seven regions in Europe which form the electricity Regional Energy Market (REM).

In 2006 PricewaterhouseCoopers analysed for the region 'Central-East' covering the markets of Austria, Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia the impediments for electricity traders. In the market survey we analysed regulatory, administrative and information-related impediments to electricity. The main result of the survey was that traders are faced with significant impediments in their daily work and already simple adoptions of national legislations could decrease these barriers.

Now we performed an update of this market survey and we can see that certain markets show a strong improvement in the recent years. Also certain market participants like the Austrian Energy Exchange EXAA was able to contribute to a better functioning of a possible regional energy market.

Nevertheless we can see that the unified regional electricity market is not completed. Traders believe that international independent coordination offices and market coupling could bring the development a big step further.

PricewaterhouseCoopers has a worldwide network of energy experts covering the areas of energy, utility and mining. We analysed the national markets together with these experts. In addition, we asked traders which are active in these seven markets to share their experiences and opinions. Based on the research carried out, which forms part of the basis of the results within the survey, our intention is to make a firm contribution towards the further development of the regional energy markets.

Looking ahead, there is considerable need for regulatory frameworks to be put in place in order to provide a better environment for energy traders. This survey shows some of the next steps that can be taken towards achieving this.

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Overall Rating and comparison with the PwC Traders' Survey 2006

An overall evaluation shows that the trader community would strongly welcome the further streamlining of procedures in the regional electricity market in this region. Traders in the region are still faced with barriers in the course of their day to day business. The majority of traders would welcome the introduction of an international and independently run coordination office in this region. The mission of this office would be to reduce certain barriers in the case of transmission capacities and balancing energy.

As in the PwC Traders' Survey 2006, Germany was once again rated as the most attractive market. The Czech Republic was nominated as the 2nd best market, with Austria coming third. If we compare the results of the single questions, Slovenia was rated better than the Czech Republic.

Compared with the PwC Traders' Survey 2006, we can see that Slovenia had the strongest improvement rating. However, certain market participants like the Austrian EXAA also received better results. Overall, we can see a general improvement in the national markets, though little to no considerable progress was made in the development of the regional electricity market.

Network access and bureaucratic formalities

This section deals not only with the ministries responsible for general network access but also other areas controlled by regulation authorities, such as market rules. Market participants like traders are affected by numerous regulations, resulting in a significant amount of bureaucratic formalities in the case of network access.
We asked traders about their experiences with regard to administrative obstacles.

Traders stated that Austria and Germany are the markets with the fewest administrative and regulatory obstacles. In all other countries, traders claimed, there is still a need to further reduce barriers concerning bureaucracy. Slovenia and the Czech Republic were ranked as the best of the new Member States.

As English is a common language shared across Europe, there should be no problem for each country to present relevant market documents and market information in English as well as in its own language. The survey shows that there is no problem in obtaining relevant information in English in Austria, Germany and Slovenia; however, in the other countries this is a problem. This section is aimed at ministries, regulation authorities, power exchanges and transmission system operators.

Obtaining trading licences should be an efficient process and possible within a reasonable period of time. While some countries in the survey do not require any trading licences, acquiring a trading license is most cumbersome in Hungary, followed by Poland and the Czech Republic. In addition, the requirement to establish a subsidiary in some countries is a clear and highly encumbering impediment for traders.

In terms of the level of transaction costs, traders see no urgent need to reduce transaction costs in Germany and Austria. Considerable improvements are still needed in Poland and Slovakia. Here, the ministries and regulation authorities are required to simplify the different systems.

With regard to cross border capacity auctions, traders encounter serious problems in obtaining relevant information in Hungary, Poland and Slovakia. The map below illustrates cross border congestion in Central and Eastern Europe. In general, there is congestion at all borders, except between Austria and Germany.

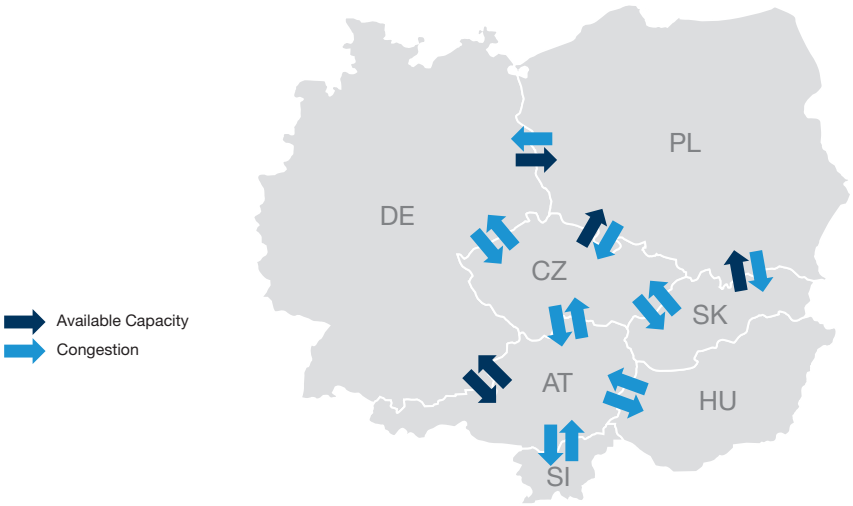


Figure 1:
Cross border congestion in Central and Eastern Europe

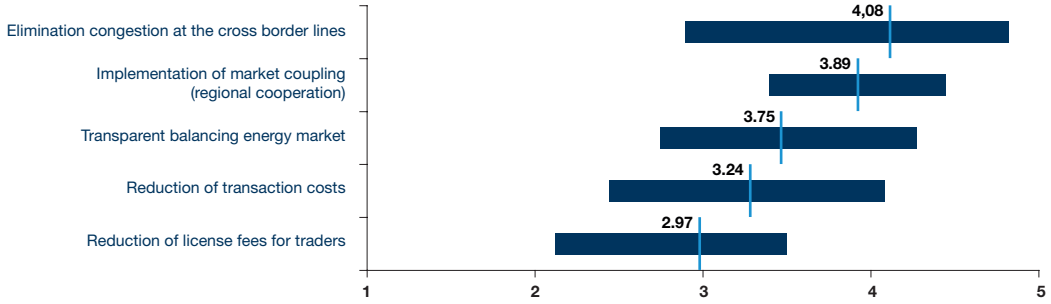
Source: PricewaterhouseCoopers, Traders' Survey 2008

Finally, we asked the traders how the CEE regional market could be made more attractive through certain measures such as the elimination of congestion at cross border lines, the reduction of licence fees, transparent balancing, market coupling and transaction costs. The results show that the most urgent measures to be implemented are the elimination of congestion at cross border lines and the implementation of market coupling. There seems to be less demand for measures like the reduction of licence fees and transaction costs. A better transparent balancing energy market was regarded as being of medium importance.

Figure 2:
Traders' view: Average & range of measures throughout the region where '5' represents the most urgent and '1' the least urgent measure

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Market structure and timetable

Traders need sufficient liquidity in order to make a market structure attractive. Beside the OTC markets, a power exchange is usually the most transparent place for trading.

For the purpose of the survey, the five existing power exchanges which currently operate within these seven countries were analysed. In countries with no power exchange, the traders were asked about the OTC markets.

Austria's EXAA provides the simplest access rules, followed by the EEX. The most complicated rules for power exchange memberships were regarded as being at the POLPX. The OTE and BORZEN also have fairly complex rules. Traders stated that they were satisfied with the lots throughout all exchanges, whereas there is some space for improvement for the bulletin boards at the POLPX and BORZEN.

In view of the market structure and timetable we asked traders about the urgency of certain measures like price publication, product mix, information on power plant production, balancing energy trade, transaction costs and the size of the physical market needed to improve the functioning of the exchanges. The survey results show that there is a need to increase the size of the physical market as well as to provide more information about power plant production. For the traders an extension of the product mix or more transparency in price publication is important only to a lesser extent. The reduction of transaction costs and a balancing energy trade for the regional market are not as urgent as the first two measures.

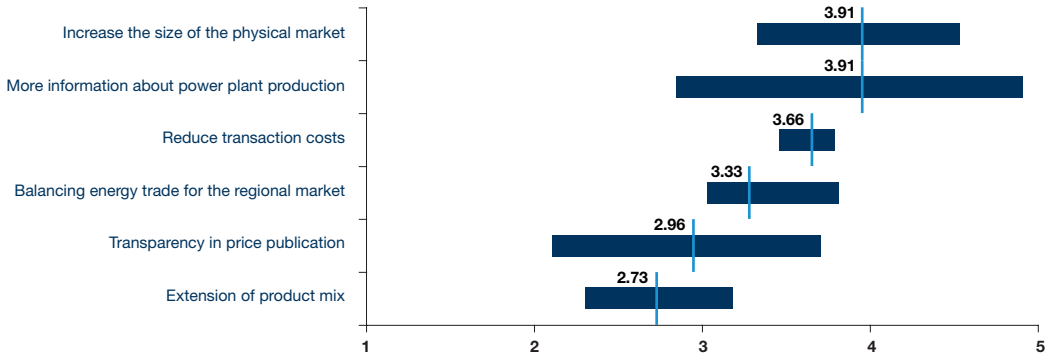


Figure 3:
Average & range of measures of all exchanges where '5' represents the most urgent and '1' the least urgent measure

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

The balancing market is an integral part of any well developed energy market. Traders stated that Austria has the best market conditions regarding access to the national balancing market. Its balancing energy market was considered by traders to have the lowest market-oriented prices, the fewest barriers and the best conditions for participation in the tendering of balancing energy. The Austrian market, with a separated clearing and settlement company, could still be selected as having the best practice within the region, and as a good example for other ministries and regulation authorities considering how to adapt their own national market.

Different market structures lead to different market rules. As all market players have to exchange information, schedules and data, the effective management of the timetable of the data interchange is essential if an effective and efficient market is to be achieved. As traders act in a concert with different market players, they are highly dependent on a well-structured timetable. These timetables have to be adjusted in order to meet the needs of transmission system operators and power exchanges as well as clearing and settlement companies (where they are separated from transmission system operators).

The survey results show that ministries and regulation authorities are required to provide a well defined market structure. Initial improvements could be achieved by adopting a clear, market-based mechanism to price balancing energy with simple access rules and no barriers for all participants intending to enter a national balancing energy market. Furthermore, balancing energy should be offered at power exchanges. Traders are also in favour of the establishment of an international and independently run coordination office to manage the regional market for balancing energy.

IT platforms and data delivery

Extensive data and information exchange requires cost effective IT systems. The survey results show that differing IT systems for billing, nomination, balancing energy and software are causing problems for traders and creating additional implementation costs. Ministries and regulation authorities are required to define commonly used data formats in the national market rules.

PwC asked the trader community to assess where they see considerable potential for the improvement of the status quo with regard certain measures like increasing usability and software compatibility together with decreasing fees and software implementation costs. The results indicate that a decrease in software implementation costs and increased levels of usability would result in considerable potential improvements. Moreover, better software compatibility and lower current fees would be welcomed by the traders.

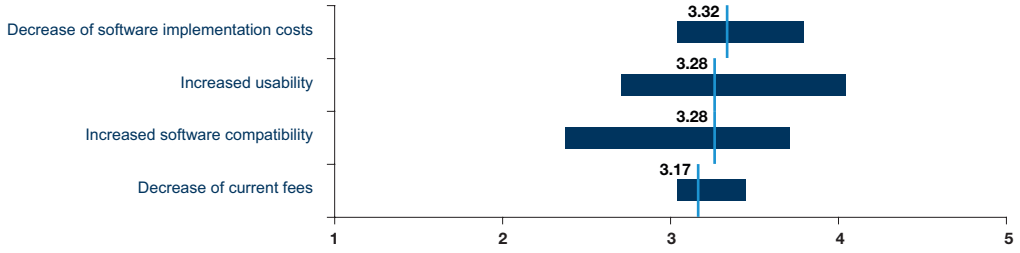


Figure 4:
Average & range of improvement measures (IT) for all exchanges where '5' represents the most urgent and '1' the least urgent measure

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

Regional market and international cooperation

An integrated, efficient and effective level of international cooperation is dependent on the further development of the regional electricity market. Beside regulation authorities, ministries as well as TSOs are also named in this survey. TSOs are especially required for handling congestion. APG and RWE were named by the traders as the TSOs which best manage access to interconnection lines.

The results further show that an overwhelming 93% are in favour of a regional independent coordination office which should organise regional auctions for cross border capacities. All respondents stated that they would welcome a secondary market for cross border transmission capacities. In addition, the results demonstrate that a use-it-or-get-paid for it option for holders of transmission rights would be openly welcomed by traders. Finally, the trader community claimed that the existence of a secondary market in inter-connector capacity rights would provide proper price information.

Traders active in the CEE market have to deal with several major impediments. The regional energy market proposed by ERGEG could help mitigate the effects of these impediments.

National markets within CEE have been fully opened since July 2007, and liquidity is improving. With regard to international trading, market based cross border capacity allocation mechanisms which are conducted as auctions are now becoming common place. Electricity traders still however constantly face regulatory challenges, language barriers and inefficient trading platforms, thereby reducing the liquidity of the market.

PwC went to the very core of the market, questioning the trader community in a survey specially designed to find out how the trade obstacles in the Central and Eastern European electricity markets are perceived by energy traders.

Four typical barriers to market entry were identified:

- Network access administration and bureaucratic formalities
- Market structure and timetable for the trading day
- IT platforms and data delivery
- Market fragmentation and international cooperation

The above issues were incorporated into and dealt with in the survey.

PwC asked the traders to answer the questions only in respect to countries which are foreign markets to them. For example, where the core business and head office was situated in Austria then the traders would to skip the Austrian market in the evaluation.

Network access administration and bureaucratic formalities

Open network access is a fundamental requirement for any effective market. In addition to network access, administration and bureaucratic requirements should be as low as possible. Beside national laws, there are many additional rules which market participants have to fulfil before they can gain access to the network. In most cases, the market rules define the set of additional requirements and are the main basis for further improvements.

In the survey, PwC asked the traders about the markets in which they are active. All traders surveyed were active in the German market, followed by Austria (80%) and the Czech Republic (73%). 40% of respondents currently trade in the Slovak market. 55% to 60% of the respondents also undertake trading activities in Hungary, Poland and Slovenia.

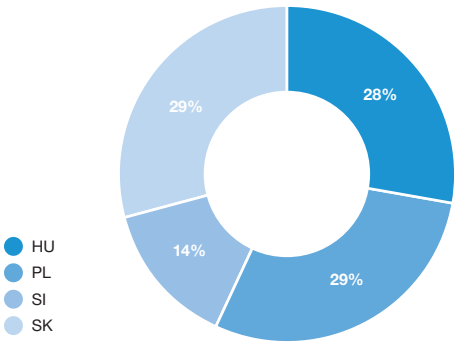
In addition PwC asked which of the seven markets the traders plan to be active in in the near future. It is noteworthy that almost 90% of the traders surveyed intended to become active in Slovakia and 75% in the Czech Republic. Only 17% of the non-active traders see Poland as one of their future markets.

Bureaucratic and administrative obstacles to market access remain the most significant barriers to market entry in for traders in CEE, especially in Poland, Slovakia and Hungary. The lowest administrative and regulatory barriers are in Slovenia. Interestingly, Austria, Germany, and the Czech Republic were not mentioned by the traders. It was largely held among traders that peculiar bureaucratic procedures, export fees, language barriers, branch offices and overwhelming amounts of paperwork were the main impediments.

Figure 5:
Traders' view: Markets with the greatest administrative and regulatory obstacles to electricity trading

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Further, 60% of active and non-active traders have experienced distortions within electricity trade in Slovakia and Poland as well as Hungary. Only a small selection of traders mentioned distortions in Czech Republic and Slovenia, whereas in Austria and Germany not a single distortion was noted. The two main distortions were cited as being export fees and the scarcity of cross-border capacities or their unpredictable allocation.

Trading Licence

Certain countries still require traders to obtain a local trading licence. In addition to technical requirements, obstacles also arise due to high costs and the requirement for the permanent establishment of a local company. In some particular instances, access to the market is only made possible for companies registered in their own respective countries.

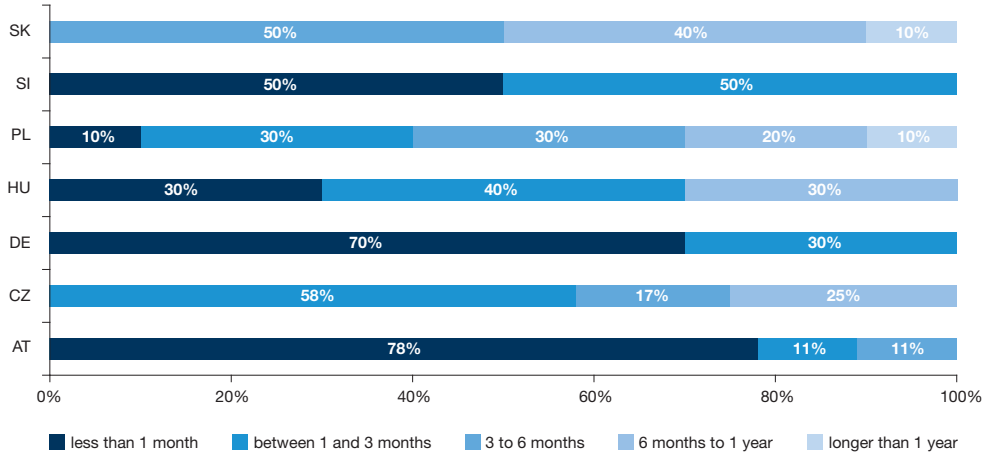
According to 40% of the respondents, obtaining a trading licence is most cumbersome in Hungary, followed by Poland and the Czech Republic. In these countries there are unreasonably long procedures for admission as electricity traders. The main impediments that have been encountered are the need to establish a subsidiary or a licensed company in the country to be traded in, long procedures, the setting up of balancing groups as well as overall administrative obstacles. Germany and Austria (both countries in which local trading licences are not issued) were not considered to have any major obstacles.

PwC asked traders to indicate the average time it takes to receive a trading licence. In Hungary, Poland, Slovakia and the Czech Republic, 70% of traders claimed that they had to wait for up to six months and sometimes even longer to be admitted as traders, whereas the time given for Austria and Germany was less than one month.

Figure 6:
Traders' view: Average time it took a trader to obtain a trading licence

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Language

A common market composed of different national markets will need one language not only for the exchange of market data but also in order to facilitate effective market access. English is used on a common basis in many of the energy markets.

It is noteworthy that traders often need a local representative or even a native speaker for going about their business in other countries. In Slovakia, most traders need a local representative; 27% of traders need one for regulatory issues and 55% needed one to make their work more efficient. 18% mentioned that they had no need for a local representative in Slovakia. With regard to language barriers, traders evidently experience no problems regarding working efficiently and communicating with regulatory authorities in Austria and Germany. No native speaker is needed for the purpose of dealing with regulatory issues in Slovenia and Austria.

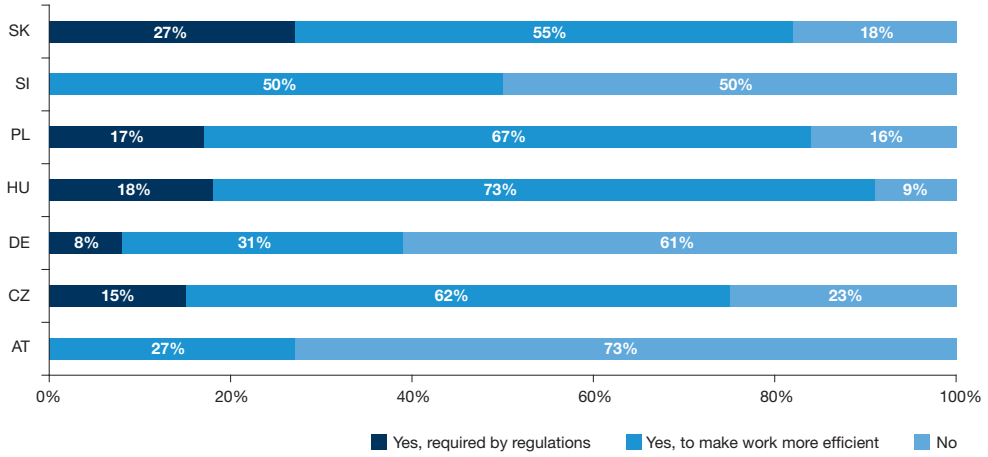


Figure 7:
Traders' view: Need for local representatives or native speakers to do work properly

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

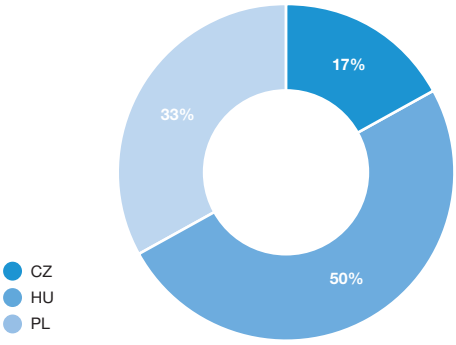
As mentioned earlier, language barriers, especially concerning the availability of information in English, impede access to the markets and remain a major issue. Countries identified as the markets with the greatest problems in providing relevant trader information like access rules, forms, etc. in English were Hungary (50%), Poland (33%) and the Czech Republic (17%).

The absence of English translations is apparent upon examination of publications like forms, market data, rules, contracts, communication (mail), tenders, TSO documents, grid code or the balancing procedure. All relevant market players (ministries, regulation authorities, TSOs, etc.) are due to change this situation.

Figure 8:
Traders' view: Markets with the greatest obstacles for obtaining information about access rules, forms, etc. in English

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Cross border capacity and power generation

Obtaining information about cross border capacity auctioning is crucial for all market participants. Serious obstacles in this regard appeared to be in Hungary (40%), Poland (30%) as well Slovakia (20%) and the Czech Republic (10%). Traders complained about the non-transparent calculation of net transfer capacity values, different auctioning systems (which are not synchronised) and the non predictable available transfer capacity.

The picture is similar with regard to power generation. 40% of traders experienced obstacles when it came to gaining information on power generation in Hungary and Poland (20% in Slovakia), where it was stated that there was a lack of information about planned outages, forecasts and specific plant data. Traders also claimed that there was a lack of regular data updating and data transparency in these countries.

Improving attractiveness

We asked traders to assess the most urgent measures according to different levels of urgency. The outcome of the assessment can be used to show how the attractiveness of certain markets can be improved.

The three measures which were deemed to be the most urgent were:

- Elimination of congestion
- Transparent balancing energy
- Implementation of market coupling

The reduction of transaction costs and licence fees was not considered to be as important as the other three measures for the traders, therefore these issues are not illustrated. Demand for lower transaction costs only appeared to be an issue in Poland and Slovakia.

Elimination of congestion

The elimination of congestion was selected as the most urgent measure of all those presented to the traders. In Slovakia, Poland, Hungary, Slovenia and the Czech Republic, congestion should be eliminated to increase the attractiveness of the respective markets. Beside physical congestion, there are also impediments like the above mentioned lack of information on cross border capacities and the non-transparent calculation on 'Net Transfer Capacity (NTC)' values. As Figure 1 already shows, there is no congestion between Austria and Germany all other lines a congested.

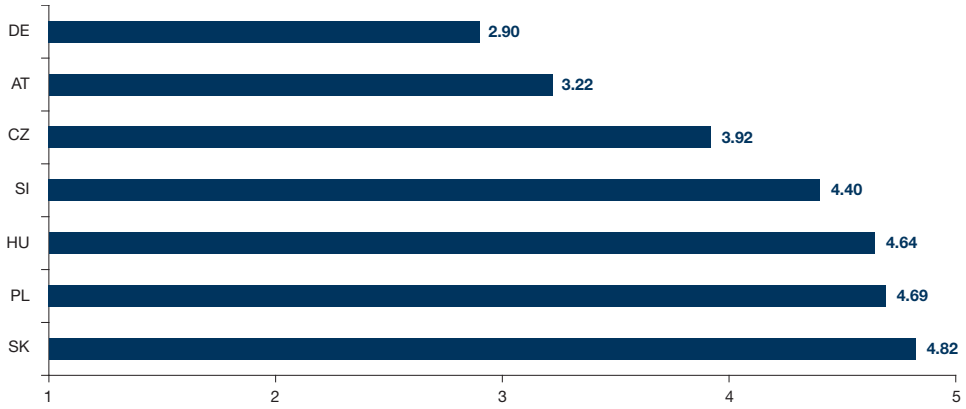


Figure 9:
Traders' view: Elimination of congestion at cross border lines by country based on perceived level of urgency where '5' represents the country with the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

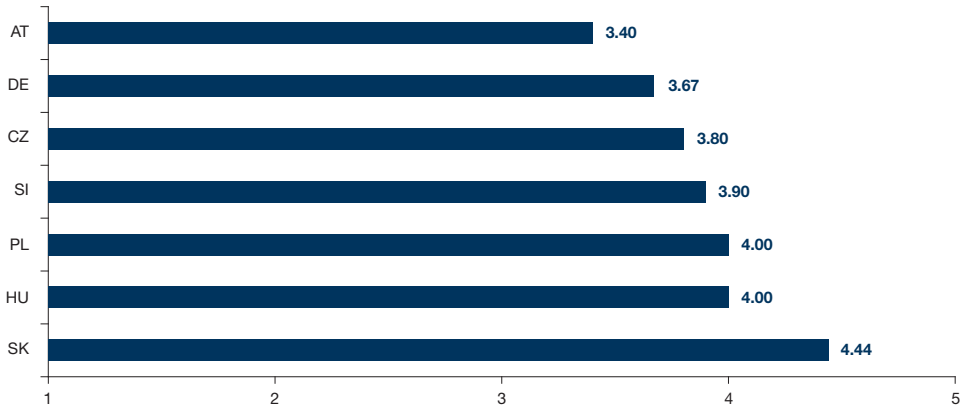
Implementation of market coupling

Market coupling or regional cooperation can be positive for the efficiency and effectiveness of a market because more market participants, higher liquidity and higher transparency requirements can boost the levels of trade there. Implementation of market coupling is perceived to be most urgent in Slovakia, followed by Poland and Hungary. Even in the case of Austria, which has the lowest value of 3.40, implementation is still seen an urgent measure which is necessary in order to increase the attractiveness of the entire regional energy market.

Figure 10:
Traders' view: Implementation of market coupling by country based on perceived level of urgency where '5' represents the country with the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Transparent balancing market

In order to achieve an efficient and effective balancing market it is important to avoid asymmetric information. In Austria the balancing market is perceived to work very good while countries such as Slovakia, Hungary, Poland and Slovenia still lack sufficient levels of transparency.

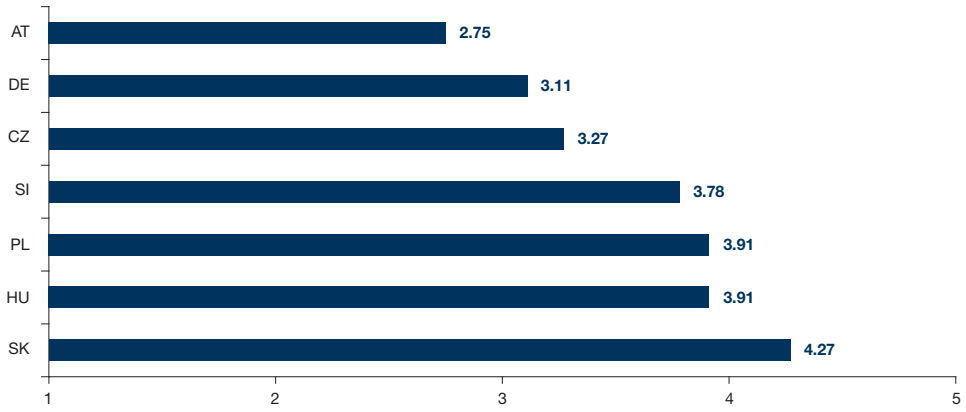


Figure 11:
Traders' view: Implementation of a transparent balancing energy market by country based on perceived level of urgency where '5' represents the country with the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

Market structure and timetable

This chapter highlights the experiences of traders regarding power exchanges and different timing schedules within the market. We understand that a liquid market is first defined by a well developed OTC market. A publicly available price index is important for market development and OTC markets, in general, do not present price indices. Our focus here was therefore on power exchanges where indices are usually published.

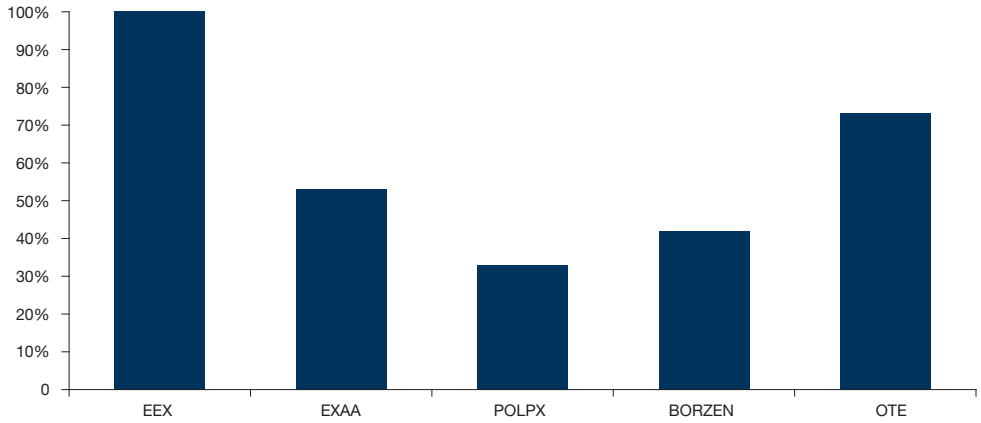
Power exchanges

Up to now, there are five power exchanges inside the Central European market. The EEX (Germany), EXAA (Austria), POLPX (Poland), BORZEN (Slovenia) and OTE (Czech Republic) play a central role in the successful trading of electricity in the region. Countries which do not have an established power exchange usually create a national trading platform, e.g. Piacter in Hungary. The survey results show that the traders strongly prefer the EEX for in contrast to the POLPX where the fewest traders are active.

Figure 12: Exchanges where asked traders are active

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Conditions of access and liquidity

One reason for low trade volumes can be complicated conditions of access for traders or complicated access rules for power exchanges. Such complexity increases market access costs and reduces the number of potential market participants.

The answers from the traders shown below address the issue of general access to trading systems (i.e. OTC) and power exchanges.

The trader community identified the EXAA as having the most trader friendly access rules, followed by the EEX. The OTE and BORZEN have partly complex and partly simple rules, with 56% of traders surveyed stating that they had encountered difficulties with the rules at the POLPX.

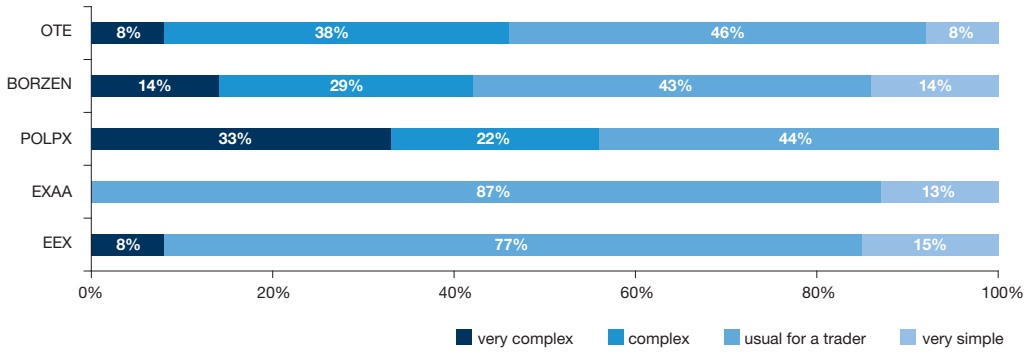


Figure 13: Traders' view: Complexity of access rules at each exchange

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

With regard to the EEX, the traders complained about the XETRA system and the amount of bureaucracy involved. One trader stated that at the POLPX the exchange has very demanding admission procedures and that Polish language skills are essential. The scheduling system at the OTE is not standardised, and is therefore time consuming. Further to this, the trader has to appear in person in order to obtain all required documentation.

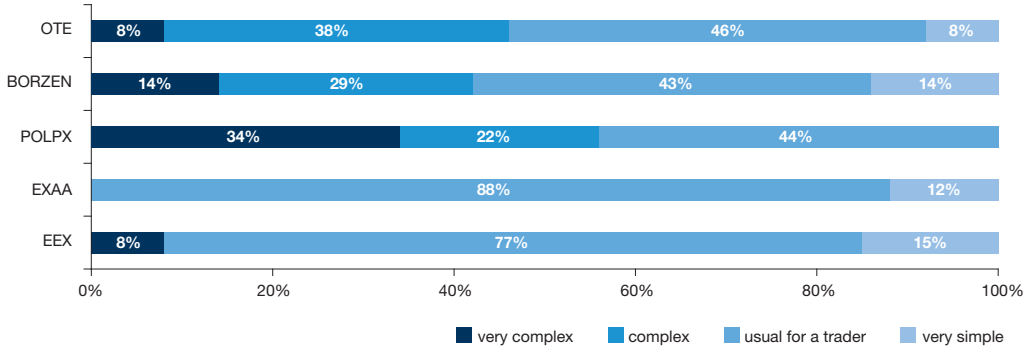
Bulletin board

The bulletin board is an important source of information for buyers and sellers at any exchange. In the survey, traders were asked how satisfied they are with the existing bulletin boards. On the one hand the results show that the traders were satisfied with the bulletin boards of the EXAA and EEX, however on the other hand the traders did express their dissatisfaction with the bulletin boards at the POLPX and BORZEN.

Figure 14: Traders' view: Satisfaction with bulletin boards at exchanges

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Lots

Traders were asked if they were satisfied with the minimum volumes of the products traded. All traders surveyed stated that they were satisfied with the offered lots at the EXAA and EEX as well as at all other exchanges. Just one individual trader suggested a minimum trading lot of 400 MW for the OTE.

Measures for improvement required at power exchanges

The five power exchanges are still in growing in size and the markets are still underdeveloped in places. We therefore asked the traders to tell us more about the most and least urgent measures which needed to be made at each power exchange. A bigger physical market and more information about power plant production proved to be the two main issues for those traders surveyed. The broadening of the product mix and the more transparent publication of prices were deemed to be the least urgent measures. The reduction of transaction costs was ranked as the third most urgent measure followed by the possibility of trading balancing energy in the entire regional market.

Size of physical market within the seven countries

As the chart below illustrates, urgent action should be taken at the BORZEN, POLPX and OTE in order to increase the size of the physical market within the region. Further steps are also necessary (though not so critical in terms of urgency) at the EXAA and EEX.

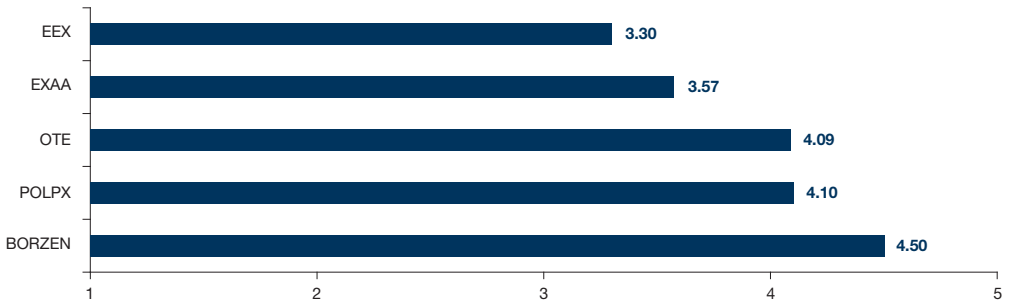


Figure 15:
Traders' view: Exchanges ranked after urgency to increase the physical market where '5' represents the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

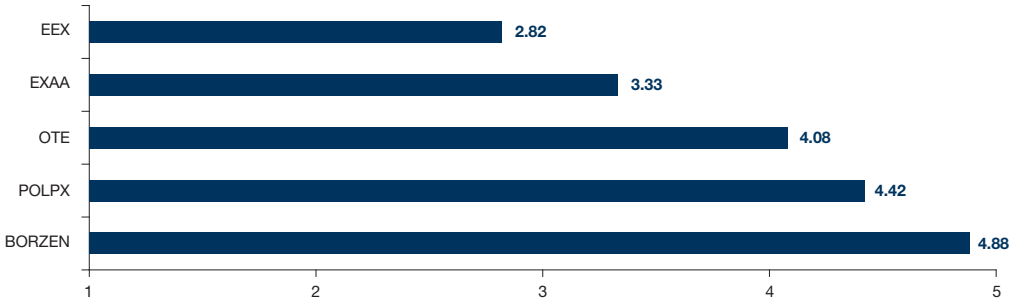
Information on power plant production

The trader community indicated that it is vital for the BORZEN, POLPX and OTE to improve the levels of information they provide on power plant production.

Figure 16:
Traders' view: Exchanges ranked according to levels of urgency regarding provision of information on power plant production where '5' represents the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



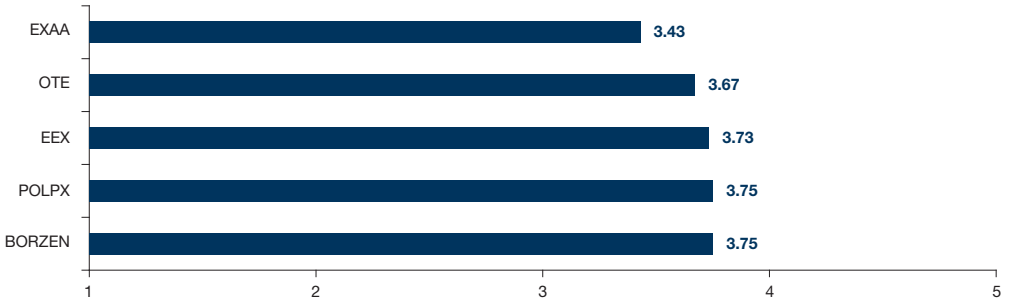
Transaction costs

Low transaction costs are always an important factor with regard to a well functioning exchange. Low transaction costs can increase the liquidity of a market and makes a trading place for traders more attractive. At the EXAA, the transaction costs seem to be more appropriate than at all other exchanges.

Figure 17:
Traders' view: Exchanges ranked according to levels of urgency with a regard to the reduction of transaction costs where '5' represents the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



The comments made by the traders are in line with the general trend. At the OTE there is a need for a more user-friendly platform, and larger volumes would be appreciated. What was particularly interesting was the suggestion of some traders to merge the OTE with the POLPX in order to improve the liquidity and volume of the market.

Language and Timing

An open market needs an intensive data exchange between different market players. In general, the Transmission System Operator (TSO) plays a central role. In addition to the TSO, balancing and clearing/settlement companies as well as power exchanges are players for whom timing plays an essential role. A well designed schedule for data exchange between market participants is an integral part of any efficiently working market.

We asked the traders how easy it is to obtain information in English on time. Information in this context is understood as an internet platform, RSS feeds or an e-mail service. The majority of traders throughout all exchanges stated that they did receive adequate information. The leading example in this instance involved the EEX, where all respondents stated that they receive adequate information. Traders also receive information in English on time from the EXAA, whereas it is much more difficult in the cases of the POLPX, BORZEN and OTE.

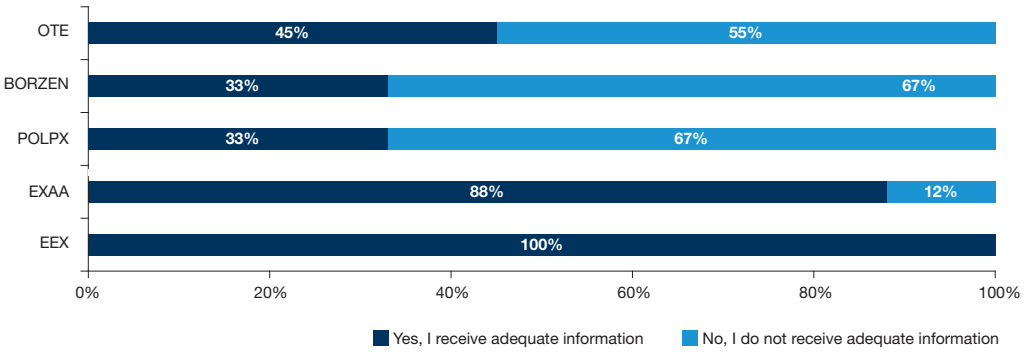


Figure 18: Traders' view: Ease of receiving information in English on time

Note: Total % of responses

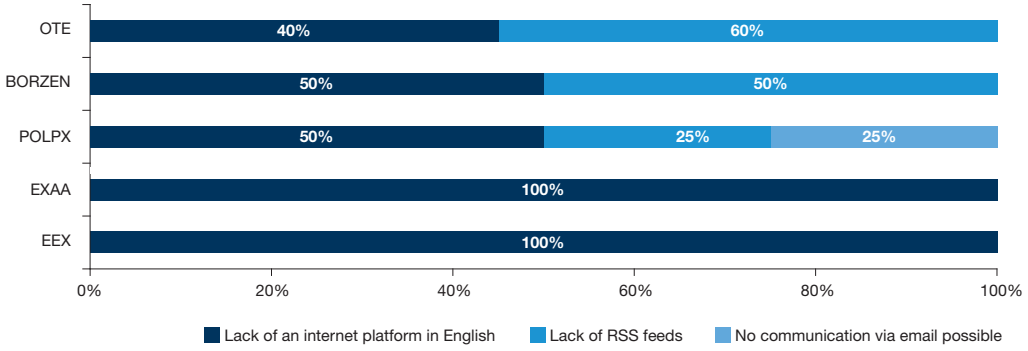
Source: PricewaterhouseCoopers, Traders' Survey 2008

Figure 19 below depicts traders' perceptions of the biggest problematic areas regarding the above mentioned sources of information. It is clear that the trader community is anticipating the introduction of RSS feeds at each exchange. Traders also mentioned the lack of an internet platform in English at the POLPX, BORZEN and OTE. The survey results show that contact via e-mail with the exchanges works well except in the case of the POLPX.

Figure 19:
Traders' view: The biggest individual problem regarding lack of information

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Balancing Energy Markets

Balancing energy is necessary in order to ensure a stable level of supply and demand. A transparent and market-based pricing mechanism is also a crucial element for ensuring an efficient market. The design of the balancing energy market should take into account different parameters such as the size of contracts, duration of supply, capacity elements, etc. The statements of the traders show that the licences pose major barriers within the Czech and Hungarian balancing energy markets. In Poland, Slovakia and Hungary, a major obstacle is the lack of a clear market-based mechanism to price balancing energy.

Best conditions for participation

The results below indicate that the Austrian and German markets offer the best conditions for participating in the balancing energy market. There is, however, potential for improvement in Hungary, Slovakia, Slovenia and Poland.

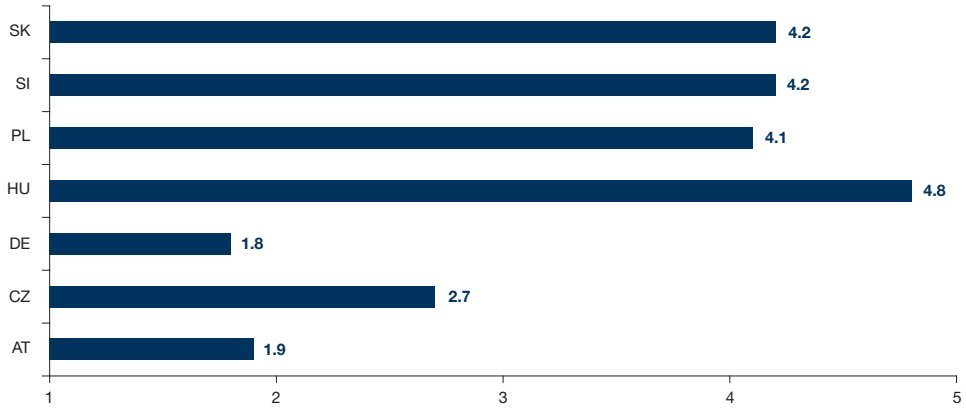


Figure 20:
Traders' view: Clear barriers to entering the national balancing market where '5' represents the country with the greatest number of legal barriers and '1' the fewest

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

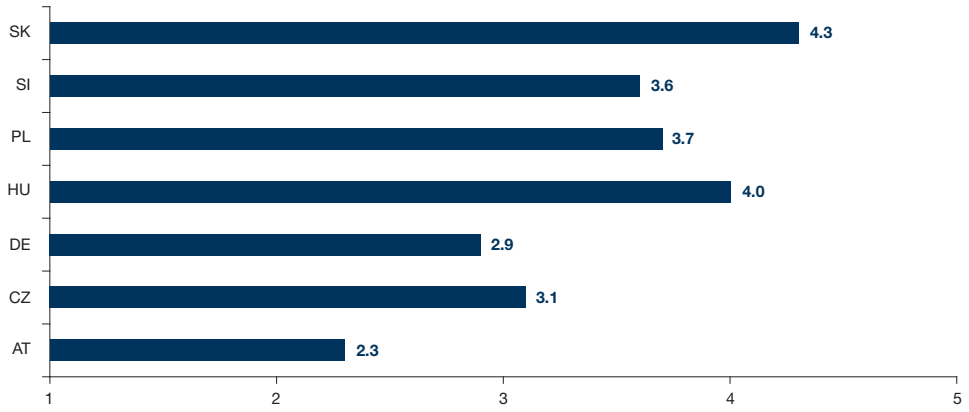
Market entry

For a market orientated balancing energy market, access for market participants is important. For this reason we asked the traders if they saw any clear barriers to entering the national balancing energy market. The chart below illustrates that Austria is the market with the fewest barriers, while Slovakia and Hungary are the countries with the greatest number of barriers which hinder their entrance to the national balancing market.

Figure 21:
Traders' view: Major barriers to entering the national balancing market where '5' shows the country with the greatest number and '1' the country with the fewest barriers

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



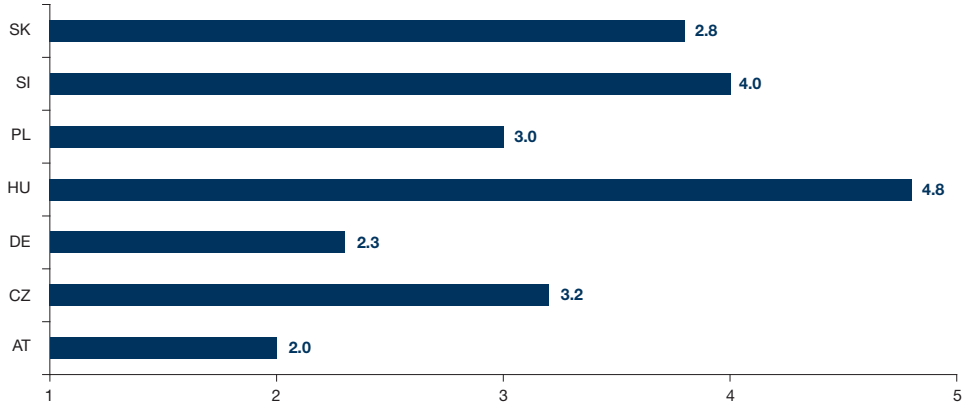
Market based conditions

PwC asked the traders for their opinion on how market oriented they assess the present national balancing energy market to be. On the one hand the figure below shows that Hungary is the market with the highest prices followed by Slovenia and Slovakia. On the other hand the figure depicts that Austria and Germany have the lowest prices.

Figure 22:
Traders' view: Ranking of market based conditions for traders in the national balancing market where '1' represents the lowest and '5' the highest price

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



International Coordination Office

PwC asked the trader community to assess the possibility an international/regional independent coordination office to organise a regional market for balancing matters. A majority of 57% said they would welcome the establishment of such a coordination office.

92% of respondents also stated that they were in favour of balancing energy being offered at power exchanges. This is a clear indication that the responsibilities related to the organisation of a clearing and settlement market should be separated from the TSOs – an example of which can only currently be seen in Austria.

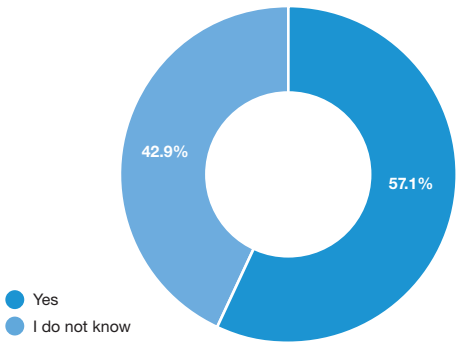


Figure 23:
Traders' view: Support for traders for establishment of an international independent coordination office

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

IT platforms and data delivery

Common IT systems for data exchange are basic requirements for the effective operation of a regional energy market. Different systems with no universal data do create certain barriers. Different IT platforms are in general used for cross border, balancing energy, power exchange and OTC nominations. The TSO and platform operators, among others, should therefore adjust their systems to facilitate an effective market operation.

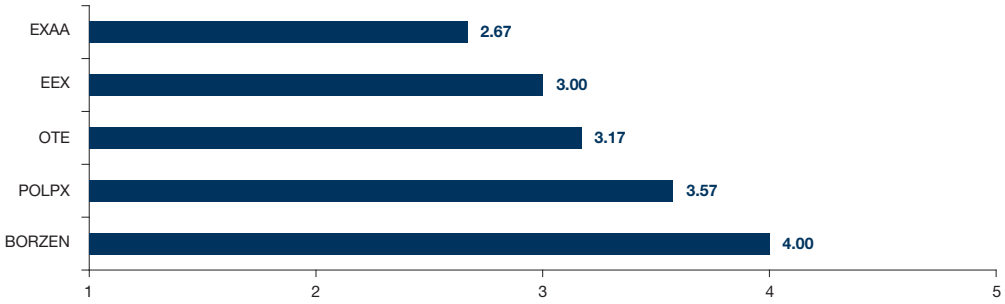
Increasing usability at the power exchanges

The usability of an IT system is an important factor for each trader. A complex and non-user friendly IT system makes the daily work of a trader much more difficult and produces unnecessary costs. The survey results show that the EXAA has the most user friendly software, while the BORZEN has the greatest improvement potential.

Figure 24:
Traders' view: Exchanges ranked based on perceived level of urgency to increase usability where '5' represents the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Increasing software compatibility

When working with different IT systems, interfaces need to be managed on an ongoing and professional basis. A high level of software compatibility interfaces is important for any trader wishing to work efficiently. As the chart below indicates, there seems to be some potential to improve the software compatibility at all exchanges, with the exception of the EXAA. With a value of 2.33, the EXAA already has appropriate software compatibility, whereas the BORZEN was identified as the exchange which most urgently needed to improve the management of interfaces.

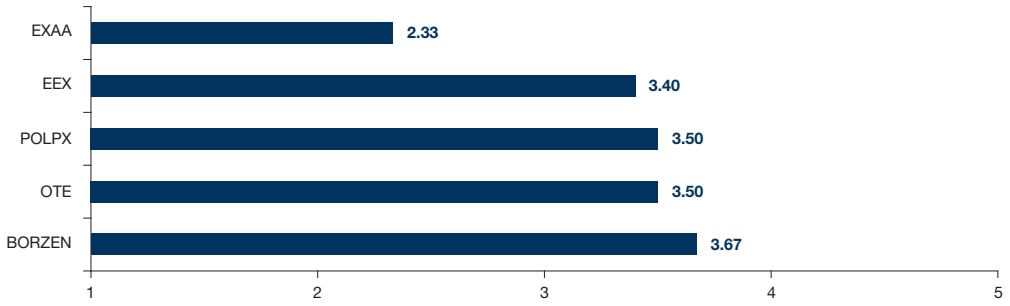


Figure 25:
Traders' view: Exchanges ranked according to urgency to increase software compatibility where '5' represents the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

Standardisation

All respondents would welcome a standardised billing system in the region. In addition, a big majority of 93% see the implementation of a standardised balancing energy system in the region as a positive development and marked "Yes". Only a few traders 7% think that this is not a burning issue. Moreover, all participating traders support the introduction of a standardised nomination system.

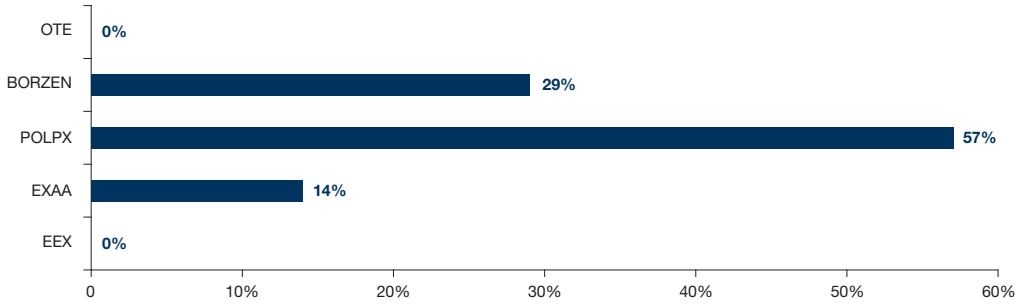
Timing

PwC asked the traders about the greatest problems with regard to timing between electricity trade and transportation capacity booking. As the survey results demonstrate, 57% of traders see the greatest timing related problems as being with the POLPX, followed by the BORZEN (29%) and the EXAA (14%). The trader community claimed it had not experienced any timing related issues arising between electricity trade and transportation capacity booking at the OTE and EEX.

Figure 26:
Traders' view: Exchanges with great problems with timing between electricity trade and transportation capacity booking where '5' represents the greatest level of urgency

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Regional market and international cooperation

In brief, the results demonstrate that the traders would welcome a regional market. For specific issues like cross border capacities or balancing energy, traders would welcome international coordination offices.

Moreover, the introduction of a use-it-or-get-paid for it option for holders of transmission rights is a concept which would be strongly welcomed. Almost all respondents were of the opinion that a secondary market in inter-connector capacity rights would be a good instrument for ensuring proper price information. With a secondary market for capacities, reserved but not used capacities could be used by other traders. This would decrease the congestions on the inter connection lines.

We asked the traders to state the name of the TSO that best manages access to interconnection lines. APG and RWE were named as the best interconnection lines manager by the respondents.

Introduction of an international coordination office

With regard to the introduction of an international/regional independent coordination office to organise a regional auction for the cross border capacities, 93% of traders are in favour and 0% do not want such an office. As the chart below shows, 7% do not know if they are in favour or not.

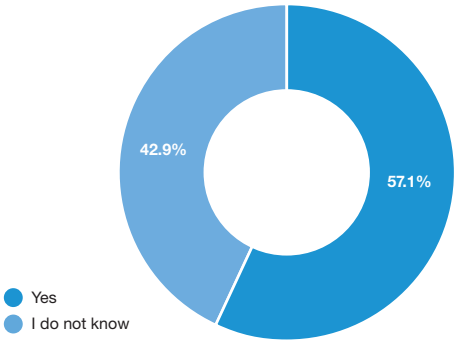


Figure 27:
Traders' view: International/ regional coordination office for organising auctions on cross border capacities

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

Secondary market for cross border transmission capacity

The survey results indicate that all the traders would welcome the concept of a secondary market for cross border transmission capacity which would facilitate "slicing and dicing" of acquired capacity blocks by traders.

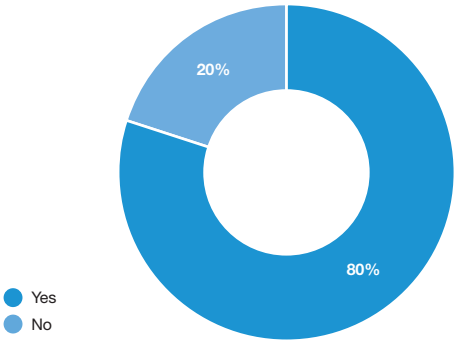
Use-it-or-get-paid

The opportunity of a use-it-or-get-paid for it option for holders of transmission rights would be welcomed by a majority (80%) of traders. Only a minority of 20% stated otherwise. All traders questioned would welcome a secondary market in inter-connector capacity rights, the purpose of which would be to provide proper price information.

Figure 28: Traders' view: Opportunity of a use-it-or-get-paid for it option for holder of transmission rights

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



Overall ranking and comparison to the PwC Traders' Survey 2006

Despite all the above mentioned obstacles and impediments, a majority of the interviewees consider the German market to be the best functioning market. The Czech Republic's strength as the second best functioning market is due to its future market expectations as well as the fact that it is the main market where non-active traders intend to be more active in the future.

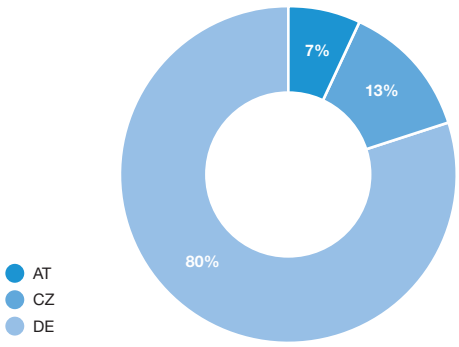


Figure 29:
Traders' view: Best functioning market for traders

Note: Total % of responses

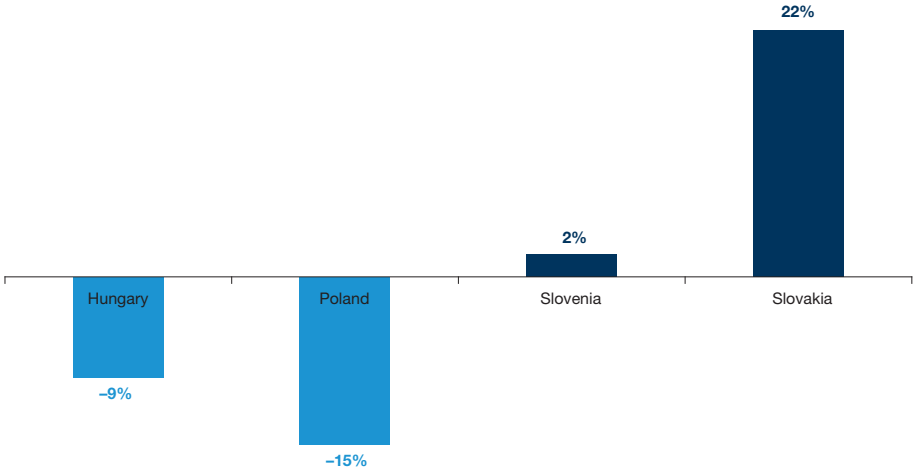
Source: PricewaterhouseCoopers, Traders' Survey 2008

In the comparison of the overall rating with the PwC Traders' Survey 2006, Poland and Hungary showed the best levels of improvement, with Slovakia worsening. Slovenia saw no big change.

Figure 30:
Markets with the biggest change in administrative/ regulatory obstacles (values in absolute %)

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008



In the direct comparison of the each single answer, we can see that Slovenia was the market with the strongest improvement. As an example we can give the case of obtaining information in English. While the number of obstacles fell in Slovenia and Slovakia, they considerably increased in Hungary. No progress was made in the Czech Republic or Poland with regard to the publication of information in English.

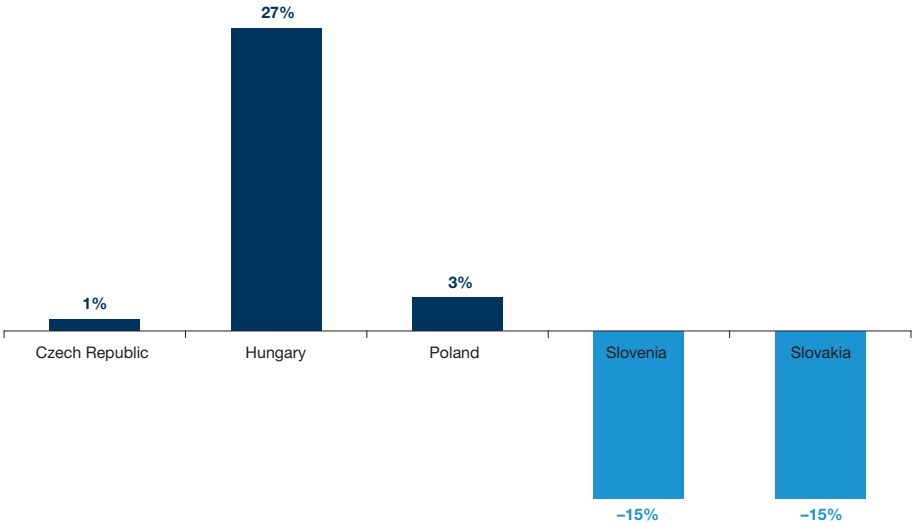


Figure 31:
Change for obtaining information in English (values in absolute %)

Note: Total % of responses

Source: PricewaterhouseCoopers, Traders' Survey 2008

Not only the markets itself shows improvement but also certain market players. We want to name here for the power exchanges the Austrian EXAA. EXAA got better response from the traders without any big changes in the system or products. What we can clearly see is that EXAA increased their customer services for the traders.

Below is a selection of comments made by traders in the course of the overall evaluation:

"In the Eastern European markets there should be an easier access to prices and in general there should be more financial traded instruments available. Further the licence system and the mandatory presence at the local office was seen as an obstacle."

"A key obstacle for traders in the CEE market is the lack of liquidity and the low level of standardization."

"A single trader also observed unjustified interventions from regulators and governments."

Methodology

Impediments to Electricity Trading in CEE is a survey prepared by PricewaterhouseCoopers (PwC).

The information and data presented in the survey are based on the results of two task forces:

- Research undertaken by energy experts from PwC between March and May 2008
- The survey was based on a standardised questionnaire and conducted among 22 electricity traders. The electricity traders had to be active as non-residents in at least one of the markets of the CEE. 68% of the traders responded in the survey.
- The methodology employed for the purpose of weighting questions concerning the attractiveness of certain measures involved each country being weighted according to the number of valid marked entries.
- PwC asked the traders to answer the questions only in respect to countries which are foreign markets to them. For example, where the core business and head office was situated in Austria then the traders would to skip the Austrian market in the evaluation.

The survey covered the following topics:

- Network access administration and bureaucratic formalities
- Power exchanges and trade mechanism
- Balancing Energy
- Congestion Management
- Market structure and timetable
- IT systems
- Market fragmentation and international cooperation
- Overall valuation

Acknowledgements

PricewaterhouseCoopers would like to thank all participants who took time to complete the survey.

Austria

Sources:

Production:
E-Control (2008): Energiestatistik 2006 & 2007

Installed Capacity:
E-Control: Engpassleistungs-klassen 2006

Power Exchange:
Energy Exchange Austria EXAA (2008): Statistik
http://www.exaa.at/cms/3/115/858

Production

In 2006 the Austrian power plants produced a total of 63.92 TWh. As the main energy source hydro power contributed 37.28 TWh or 58.3% of the total, followed by thermal energy, which accounted for 38.3%. The Austrian energy mix does not contain any nuclear power; other, mostly renewable energy sources account for almost 3.4% of the total.

Installed Capacity

The installed capacity of power generating plants in Austria amounted to 19.18 GW in 2006. The capacity of hydro power plants accounted for 11,85 GW (62%), thermal power plants for 6,34 GW (33%) and renewable sources for 0,99 GW or 5% of the total.

Power Exchange

EXAA Energy Exchange Austria
www.exaa.at

EXAA offers a spot market for electricity (delivery in Austria and Germany) and CO2 certificates. Total volume of electricity trading in 2007 amounted to 2.66 TWh which has been an increase of 38% as compared to the traded volume in 2006. In 2007 EXAA traded 3.4% of the country's electricity consumption, as compared to 2.3% in 2006.

Net transfer capacities (NTC) at cross borders winter 2007/08

DE	→	AT:	2000 MW, no congestion
AT	→	DE:	1800 MW, no congestion
AT	→	CZ:	600 MW, congestion
CZ	→	AT:	250 MW, congestion
AT	→	SI:	350 MW, congestion
SI	→	AT:	650 MW, congestion
AT	→	HU:	500 MW, congestion
HU	→	AT:	100 MW, congestion

Congestion management method: independent auction office

Congestion management

Bilateral explicit auctions

Balancing energy

Market orientated

Balancing energy prices

EUR/MWh 53.31 (average 2006)

Wholesale prices

EUR/MWh 50.97 (base); EUR/MWh 63.86 (peak)

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: 6.4%
Medium sized industrial: 1.5%
Small industry and households: 0.9%

Sources:

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Congestion Management:
Austrian Auction Office (2008): Auction results for 2006/07

Balancing energy and prices:
APCS (2008): Statistik Ausgleichs-energiepreise/Clearingpreise 2006 http://www.apcs.at/service/downloadcenter/clearing_price.html

Wholesale prices:
EXAA Spotmarkt Download Information (2008): http://www.exaa.at/market/historical/austria_germany/index.html

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008) http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

Czech Republic

Sources:

Production and Installed Capacity:
EURELECTRIC Online Statistics (2007): Latest industry statistics as per 31 December 2006: http://www2.eurelectric.org/Content/Default.asp?PageID=618

Power Exchange:
Operátor trhu s elektřinou. OTE (2008): The electricity consumption trend scenario comparison 2006: www.ote-cr.cz, OTE (2007): Annual report 2006

Production

In 2006 the Czech power plants produced a total of 77.7 TWh, which have been contributed by the following energy sources:

nuclear : 24.5 TWh (31.53%)
thermal: 49.9 TWh (64.22%)
hydro power: 3.2 TWh (4.1%)
renewable: 0.1 TWh (< 1%)

Installed Capacity

The installed capacity on the Czech power plants amounted to 17,51 GW in 2006, out of which:

thermal 11.50 GW (65.67 %)
nuclear 3.76 GW (21.47%)
hydro power 2.17 GW (12.39%)
renewable energy 0.08 GW (<1%).

In connection with the new law on renewable sources the development of a larger number of plants using renewable sources and having smaller unit capacities is expected.

Power Exchange

Operátor trhu s elektřinou. OTE
www.ote-cr.cz

Electricity Market Operator (OTE), the government-owned company that is not only operating a spot power market. It monitors electricity and emissions trading in the Czech Republic since 2002.
OTE runs and administers a registry for trading with GHG emission allowances.

PXE is the new energy futures exchange in Prague. PXE will initially offer 16 trading products, all futures contracts in monthly, quarterly and annual increments. No spot market is planned yet, although the PXE wants to develop the country's existing spot market run by which has been operated by.

Trade volume on energy exchanges

With 2.51 TWh settled electricity deliveries in 2006, OTE traded 4.3% of the country's electricity consumption.

Net transfer capacities (NTC) at cross borders winter 2007/08

CZ	→	SK:	1300 MW, congestion
SK	→	CZ:	900 MW, congestion
CZ	→	DE:	2300 MW, congestion
DE	→	CZ:	700 MW, congestion
CZ	→	PL:	800 MW, congestion
PL	→	CZ:	1660 MW, congestion
CZ	→	AT:	250 MW, congestion
AT	→	CZ:	600 MW, congestion

Congestion mechanism

Between Czech Republic, Germany, Poland and Slovakia: coordinated multi-lateral explicit auction.

Between Czech Republic and Austria: bilateral explicit auction via the Auction Office

Balancing energy

Market, mainly based on bilateral contracts

Balancing energy prices

Data should be accessible via OTE platform; however the data boxes are empty (as per 26/04/08)

Wholesale prices

EUR/MWh 52.28 (day time average);
EUR/MWh 27.88 (night time average)

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: 4.0%
Medium sized industrial: 2.0%
Small industry and households: 0.2%

Sources:

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Congestion Management:
Coordinated Auction Office (2008) acting as the cross border auction office: for DE, CZ, PL and SR http://www.e-trace.biz/2006/index_new.htm, Austrian Auction Office (2008): Auction results for 2006/07

Balancing energy and prices:
In 2006, the Energy Regulatory Office (ERO) worked out a new methodology for fixing of balancing energy settlement prices

Wholesale prices:
OTE Annual Report 2007 (2008): Data o trhu s elektřinou v roce 2007 http://www.cnb.cz/en/financial_markets/foreign_exchange_market/exchange_rate_fixing/daily.jsp

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008) http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

Germany

Sources:

Production and Installed Capacity:
Arbeitsgemeinschaft Energiebilanzen (2007): Auswertungstabellen zu den Energiebilanzen, Stand 11/2007 sowie EURELECTRIC Online Statistics (2007): Latest industry statistics as per 31 December 2006: http://www2.eurelectric.org/Content/Default.asp?PageID=618

Power Exchange:
European Energy Exchange AG (2006): Aktuelle Marktdaten auf der Website www.eex.de

Production

In 2006 the German power plants produced a total of round 637 TWh. Electricity generation is based on three key pillars, the nuclear energy producing 167.4 TWh (26.3%), brown coal 151.1 TWh (23.7%) and black coal 137.9 TWh or 21.7% of the total. Natural gas as a source for electricity generation accounted for 11,5% in the reference year, experiencing constant growth rates in the last five years due to the high balance energy demand and the fluctuant supply of green energy. The renewable energy sources accounted for 9% of the power generation in the same year, among these hydro power accounted for 4,2% and wind power for 4.8%. Other energy sources helped to generate 39 TWh or 6% of the total.

Installed Capacity

Total installed net generating capacity as per end 2006 amounted to 139.53 GW and can be attributed to the following sources:

thermal: 81.34 GW (58.3%)
nuclear: 20.43 GW (14.6%)
hydro power 10.39 GW (7.4%)
renewables: 27.37 GW (16.7%)
other 4.18 GW (3%)

Power Exchange

European Energy Exchange AG (EEX)
www.eex.de

The power spot market, futures and options market for electricity, CO2 allowances and carbon futures are the main products. The yearly trading volume at EEX in 2006 amounted to 1133 TWh, out of which 89 TWh stem from the spot market and 1044 TWh, or 92% from the futures and options market. Between 2006 and 2005 the futures market more than doubled its volume. The yearly electricity consumption in Germany amounted to 523 TWh in 2006, which means that in the year of reference EEX traded over 216% of the country's electricity consumed.

Net transfer capacities (NTC) at cross borders winter 2007/08

DE → PL: 1200 MW, congestion
PL → DE: 1100 MW, congestion
DE → CZ: 700 MW, congestion
CZ → DE: 2300 MW congestion
DE → AT: 2000 MW, no congestion
AT → DE: 1800 MW, congestion

Congestion management

Coordinated explicit auction between Czech Republic, Germany, Hungary, Poland and Slovakia

Balancing energy

Market based with an obligation to run auctions

Balancing energy prices

For positive control area balances: between EUR/MWh 78.1 (E.ON Netz GmbH) and EUR/MWh 103.9 (Vattenfall Europe Transmission GmbH)

For negative control area balances: between EUR/MWh 1.6 (E.ON Netz GmbH) and EUR/MWh 7.1 (EnWB Transportnetz AG)

Wholesale prices

EUR/MWh 50.87 (base);
EUR/MWh 73.59 (peak)

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: 14.15%
Medium sized industrial: 9.33%
Small industry and households: 2.55%

Sources:

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Congestion Management:
Coordinated Auction Office (2008) acting as the cross border auction office: for DE, CZ, PL and SR http://www.e-trace.biz/2006/index_new.htm

Balancing energy and prices:
Federal Network Agency (2007) Annual report to the European Commission: http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2007

Footnote: The system is market, however: transparency requirements under the Energy Industry Act and the relevant ordinances are still not being fully met by all distribution system operators. The same applies to the area of network connection terms

Wholesale prices:
EEX (2006) Daily prices reports http://www.eex.com/de/Downloads/Marktdaten

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008) http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

Hungary

Sources:

Production and Installed capacity:
EURELECTRIC Online Statistics (2007): Latest industry statistics as per 31 December 2006: http://www2.eurelectric.org/Content/Default.asp?PageID=618l

Power Exchange:
Platts (2008): Hungary to launch power exchange July 1: http://www.platts.com//Electric%20Power/News/8557454.xml and Czech Business Weekly (04/2008): Hungary sets up its own power exchange, by Katalin Tóth

Production

The Hungarian power plants produced 33.4 TWh in 2006 which have been contributed by the following energy sources:

nuclear : 12.7 TWh (38.02%)
thermal: 19.3 TWh (57.78%)
hydro power: 0.2 TWh (< 1%)
renewable: 1.2 TWh (3.59%)

Installed Capacity

Total installed net generating capacity as per end 2006 amounted to 8.17 GW and can be attributed to the following sources:

nuclear: 1.80 GW (22.03%)
thermal: 5.93 GW (72.58%)
hydro power: 0.05 GW (< 1%)
renewables: 0,44 GW (5.39%)

Power Exchange

No specialized energy exchange asper April 2008. Launch of the Hungarian Power Exchange (HXE) is being planned for July 2008. It is planned that 8–10% of the annual country's consumption will be traded there.

Starting 2009 futures trading is planned to start on the Budapest exchange, with the participation of a clearing house, most likely Keler. National Energy Office supervises the trading for technical reasons, while trading of derivatives should be supervised by financial watchdog PSZÁF.

Net transfer capacities (NTC) at cross borders winter 2007/08

HU → AT: 100 MW, congestion
AT → HU: 500 MW, congestion
SK → HU: 1300 MW, congestion
HU → SK: 800 MW, congestion

Congestion management

Bilateral auctions via auction offices

Balancing energy

Price fixed by the system operator

Balancing energy prices

Peak: EUR/MWh 22.65 (June 2006)
Base: EUR/MWh 11.32 (June 2006)

Average July–Aug 2006:
EUR/MWh 14.34

Average Sept–Dec 2006:
EUR/MWh 19.81

Wholesale prices

53.60 (off-peak); 79.00 (peak); – average of high/medium/low voltage as specified by the Regulator

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: n.a.
Medium sized industrial: n.a.
Small industry and households: n.a.

Sources:

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Congestion Management:
MAVIR (2008): Capacity auctions of cross border trade, Austrian Auction Office (2008): Auction results for 2006/07

Balancing energy:
Magyar Energia Helvital (2007): Annual report to the European Commission
http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2007

Footnote: As of January 1, 2008 it has been planned to base the fees to be paid on the real balancing costs of the system operator, also taking into account the capacity fees paid for availability

Wholesale prices:
Magyar Energia Helvital (2008) Regulated Wholesale and End-user Tariffs for Electricity in Hungary as of 1 February 2007
http://www.eh.gov.hu/home/html/index.asp?msid=1&sid=0&lng=2&hkl=217

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008)
http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

Poland

Sources:

Production and Installed capacity:
EURELECTRIC Online Statistics (2007): Latest industry statistics as per 31 December 2006: http://www2.eurelectric.org/Content/Default.asp?PageID=618, Miesiecznik Gospodarczy Nowy Przemysl (2008): Raport specjalny 2007

Power Exchange volumes and products:
Towarowa Giełda Energii SA (2006): Raporty publiczne TGA

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Production

In 2006 the Polish power plants produced a total of 148.8 TWh, 3.5% more than the year before. Utility coal power plants accounted for 95% of the total capacity. Less than 1% has been generated by independent power plants from biomass and wind power.

Installed Capacity

Total installed net generating capacity as per end 2006 amounted to 32.30 GW and can be attributed to the following sources:

thermal 29.81 GW (92.30%)
hydro 2.32 GW (7.70%)
renewable 0.16 GW (<1%)

Among the thermal sources coal based power generation capacities amount to 28.6 GW.

Power Exchange

Towarowa Giełda Energii SA
www.polpx.pl

Spot market for electricity as well as CO2 certificate trading (since September 2006) are the key markets. Total volume of trading in 2006 at the power exchange amounted to 1.66 TWh corresponds to 2% of the total national consumption.

Net transfer capacities (NTC) at cross borders winter 2007/08

DE	→	PL:	1200 MW, congestion
PL	→	DE:	1100 MW, congestion
PL	→	CZ:	1660 MW, congestion
CZ	→	PL:	800 MW, congestion
PL	↔	SK:	550 MW, congestion

Congestion management

Coordinated explicit auction between Czech Republic, Germany, Poland and Slovakia

Balancing energy

Balancing is undertaken by the TSO on the energy exchange POLPX

Balancing energy prices

disclosed

Wholesale prices

31.04 (base); 33.76 (peak)(peak)

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: 15.84%
Medium sized industrial: 0.01%
Small industry and households: 0%

Sources:

Congestion Management:
PSE Operator S.A (2008): Annual report 2006 and Coordinated Auction Office (2008) acting as the cross border auction office: for DE, CZ, PL and SR
http://www.e-trace.biz/2006/index_new.htm

Balancing energy:
Activity Report 2005 of the President of the ERO:
http://www.ure.gov.pl/portal.php?serwis=en&dzial=1&id=6&search=76149
and URE (2007): Annual report to the European Commission
http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2007

Wholesale prices:
Towarowa Gielda SA POLPX (2008): Archiwum, raporty publiczne
http://www.polpx.pl/main.php?index=223&show=38&lang=pl

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008)
http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

Slovakia

Sources:

Production and Installed Capacity:
EURELECTRIC Online Statistics (2007): Latest industry statistics as per 31 December 2006: http://www2.eurelectric.org/Content/Default.asp?PageID=618

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Congestion Management:
Auction results for 2006/07 (2008) http://www.e-trace.biz/2006/index_new.htm, Coordinated Auction Office (2008) acting as the cross border auction office for DE, CZ, PL and SR http://www.e-trace.biz/2006/index_new.htm

Production

In 2006 the generated electricity output amounted to 29.0 TWh which remained unchanged since 2005. Nuclear power sources accounted for 59% or 17.00 TWh, thermo power for 31% or 9.00 TW hydro power for 10% or 3.00 TWh.

Installed Capacity

The installed capacity of the Slovak Republic amounted to 7.78 GWh in 2004, out of which:

nuclear: 2.46 GW (31.49%)
thermal 2.85 GW (36.63%)
hydro 2.45 GW (31.49%)
renewable 0.02 GW (<1%)

Power Exchange

none

Net transfer capacities (NTC) at cross borders winter 2007/08

CZ	→	SK:	1300 MW, congestion
SK	→	CZ:	900 MW, congestion
SK	→	HU:	1300 MW, congestion
HU	→	SK:	800 MW, congestion
SK	→	PL:	550 MW, congestion
SK	↔	AT:	no connection

Congestion management

Coordinated explicit auction between Czech Republic, Germany, Poland and Slovakia

Balancing energy

Fixed

Balancing energy prices

The data on prices is available for the entities of the clearing and settlement of deviations on the internet page www.damas.sepsas.sk

Wholesale prices

According to the Federal Network Agency (2007) Annual report to the European Commission majority of wholesale trade is effected via the Czech OTE, the average wholesale prices for 2006 are:

EUR/MWh 52.28 (day time average);
EUR/MWh 27.88 (night time average

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: n.a.
Medium sized industrial: n.a.
Small industry and households: 0%

Sources:

Balancing energy and balancing prices:
Federal Network Agency (2007) Annual report to the European Commission:
http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2007

Wholesale prices:
OTE Annual Report 2007 (2008): Data o trhu s elektřinou v roce 2007
http://www.cnb.cz/en/financial_markets/foreign_exchange_market/exchange_rate_fixing/daily.jsp

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008)
http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

Slovenia

Sources:

Production:
Javna Agencija RS za Energijo (2008): Report on the energy sector in Slovenia for 2006

Installed Capacity:
EURELECTRIC Online Statistics (2007): Latest industry statistics as per 31 December 2006: http://www2.eurelectric.org/Content/Default.asp?PageID=618

Power Exchange volumes and products:
Borzen (2008) Annual Report for 2006: http://www.borzen.si/eng/press/annualreports

Production

In 2006 the Slovenian electric power plants produced a total of 11.00 TWh. Nuclear power, generated at Nuclear Power Station Krško, d.o.o (NPSK) and attributable to the Slovenian production accounted for 24.00%, thermoelectric power for 43.00%, hydro power for 28.40% and other sources for 4.70%of the total output.

According to bilateral agreements 50% of the other 50% of the NPSK production are owned by Croatia.

Installed Capacity

The installed capacity of the electricity generating power plants in Slovenia amounted to 2.89 GW in 2006 and is attributable to the following sources.

nuclear power 0.70 GW (24%)
thermal power 1.26 GW (45%)
hydro power 0.87 GW (30%)
renewables 0.03 GW (1%)

In 2006 two companies, the Sava Power Stations, Ljubljana, and the Thermoelectric Power Station, Brestanica separated from the HSE, and joined the company known as GEN energija, forming, together with the NESK the second energy pillar in Slovenia. In spite of this change, the companies operated in the framework of their previous ties at the end of 2006, as the actual switches of balance groups were only carried out on 1 January 2007.

Power Exchange

Borzen, organizator trga
z električno energijo, d.o.o.
www.borzen.si

Spot market for electricity and biomass trading market.

Total volume of trading in 2005 stagnated at 39 GWh, i.e. 0,3% of the total national consumption. In 2006 the traded volume dramatically dropped to 1.15 GWh, which corresponds to 0.003% of the national consumptions. 14 companies were trading and the average price of traded electricity in 2006 increased by 28%.

In December 2007 Borzen entered a strategic cooperation with EUREX with the purpose to establish a power exchange for South-Eastern Europe.

Net transfer capacities (NTC) at cross borders winter 2007/08

SI → AT: 650 MW, congestion
AT → SI: 350 MW, congestion

Congestion management

Bilateral auctions effected at BORZEN

Auction based 50:50 capacity split with Austria

Balancing energy

Market orientated

Balancing energy prices

Maximum balancing energy price reached in 2006: EUR/MWh 333

Otherwise the price for balancing energy has been below EUR/MWh 83.46 with exception to four outliers

Wholesale prices

Average 2006: EUR/MWh 62.09

Market opening (in %)

100%

Annual switching rate 2006 (in %)

Large industrial: 0%
Medium sized industrial: 1.18%
Small industry and households: 1.46%

Sources:

Net transfer capacities at cross borders:
etso (2008): NTC Matrix and BCE Maps (Winter 2007/08) at: http://www.etso-net.org/NTC_Info/prototype/ntc_matrix/e_default.asp

Congestion Management:
Austrian Auction Office Information and Borzen (2008): List and hourly dynamics of products traded on the auctions for allocation of cross border transmission capacities

Balancing energy and balancing energy prices:
Javna Agencija RS za Energijo (2008): Report on the energy sector in Slovenia for 2006 http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/NR_2007

Wholesale prices:
Borzen (2008) Annual Report for 2006: http://www.borzen.si/eng/press/annualreports

Market opening and annual switching rate:
EU Commission Benchmarking 2007 Report and Technical Annex (2008) http://ec.europa.eu/energy/electricity/benchmarking/doc/tech_annex_com_2008_192.pdf

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