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Impediments to Electricity Trading in Central and Eastern Europe (CEE)

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

Traders' Survey 2011

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Introduction

One main objective of the EU energy policy is to create a single EU electricity and gas market. As a stepping stone for the achievement of this target, the European Regulators Group for Electricity and Gas (ERGEG) launched the Electricity Regional Initiative (ERI) and Gas Regional Initiative (GRI) six years ago. The ERI and GRI are Europe-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 as an interim step towards EU-wide market integration. The ERI covers seven regions in Europe, which form the electricity Regional Energy Markets (REM).

In 2006 and 2008, PwC analysed existing impediments for electricity traders for the region of "Central Eastern Europe" (CEE), covering the markets of Austria, the Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia. The traders are the first contact persons in the market, being involved in the daily trading processes.

The current survey analyses the development in the regional market with a focus on the latest developments over the last two to three years. The main developments we have seen within this period include the establishment and putting into operation of the Central Allocation Office (CAO), the new scheduling system as well as implicit auction initiatives.

Christine Catasta
Partner, Advisory

PwC has a worldwide network of energy experts who cover the areas of energy, utility and mining. We analysed the national markets and power exchanges together with these experts. Based on the research carried out and the response of the trader community, which form the basis of the results within the survey, our intention is to make a strong contribution towards the future development of regional energy markets.

The future development of a common market through implicit auction initiatives is perceived to be very important by traders, who strive to achieve a "core coupling region" over the next few years. The trader community evaluated the implementation of the new CEE scheduling system at a lower level, whereas the daily operation is experienced to be on a more satisfying level. Another important topic was the establishment of the CAO and the switch to flow based allocation during the course of 2011. While traders do have a number of positive experiences and still hold some expectations with respect to the CAO, the FBA project is nonetheless seen with scepticism.

Looking backwards, many important developments took place within the markets over the past few years, leading to a more integrated and open market. This survey shows a number of experiences of the very core of the market – the traders themselves – and some of the next steps to be taken.

Erwin Smole
Director, Energy, Utilities and Mining

Survey highlights

Overall rating

With regard to power exchanges, the survey results show that the smaller exchanges in the region are successfully competing with the "big players" and are important for traders in order to ensure competition. EPEX Spot is seen as the most reliable and uncomplicated trading platform as well as the most customer driven and service oriented exchange. EXAA and EPEX Spot are seen as the most trader oriented exchanges in terms of access to trading. HUPX and PXE do have improvement potential in this field, according to the opinion of traders.

Bureaucratic and administrative barriers to trading are still on a high level in Hungary, Slovakia and Poland, which is also reflected in a relatively low number of traders who are active in those markets.

However, HUPX has experienced a strong development since its start of operations in July 2010. The market with the strongest development potential over the next couple of years is, according to traders' responses, the Polish one, which represents one of the biggest markets in the region.

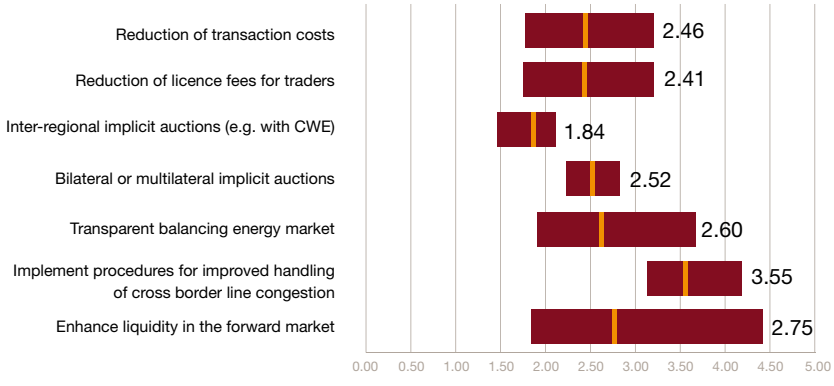
The balancing energy market was also investigated with respect to the overall satisfaction level in terms of its functioning. Austria represents the market with the best and most strongly market based conditions in this field.

The following figure shows that the handling of cross border congestion is still the most important issue for traders active in the regional market. Increasing liquidity is the second most important issue. However, compared with the Traders' Surveys of the last years, we can already see an improvement when it comes to increasing liquidity. Another hot topic is the balancing energy market. Traders want to have a transparent balancing energy market and the recent trend of balancing energy being organised by the TSOs keeps traders interested in this transparency issue.

Figure 1

Average and range of measures throughout the region, with 1 representing the most urgent and 5 the least urgent measure

Source: PwC, Traders' Survey 2011



Network access administration and bureaucratic formalities

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

The traders stated that the markets with the most significant administrative and regulatory impediments were Hungary and Slovakia. Austria and Germany were not mentioned with respect to obstacles to electricity trading and therefore represent the markets with the easiest access to trade. For all other countries, regulatory and language issues represent the barriers which have to be overcome.

Trading platforms

Currently, there are seven trading platforms in the CEE region. The eight is the Slovakian exchange ISOT started in 2009 but is not covered within this survey and will be included in the next survey.

According to the survey results, the power exchange with the highest development potential is EPEX Spot, followed by EXAA and HUPX. PolPX and BSP Southpool were not mentioned by the traders in this context.

EPEX Spot is also seen as the most reliable and uncomplicated trading platform as well as the most customer driven and service oriented exchange. EXAA and EPEX Spot are seen as the most trader oriented exchanges in terms of access to trading. According to traders, HUPX and PXE do have improvement potential in this field.

Figure 2 shows those measures which might help to increase the market attractiveness of the exchanges. The measures which ought to be implemented most urgently in the traders' opinion are an increase of the physical market and balancing energy trading for the regional market.

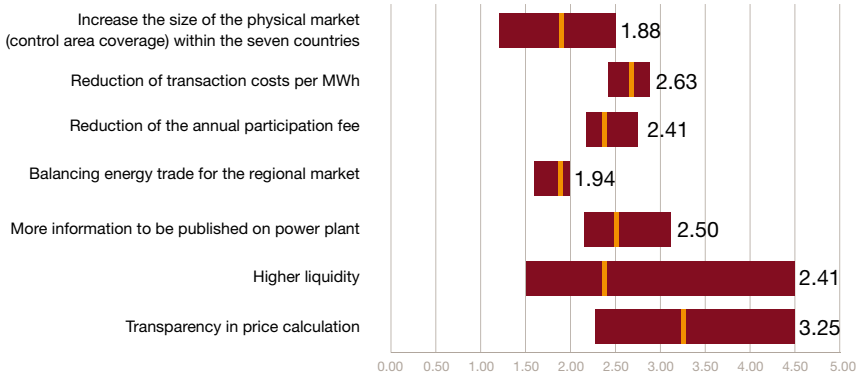
The balancing energy market differs from country to country throughout the region. In some countries, the tertiary reserve forms the imbalance price. In other markets, parts of the price from the secondary and tertiary reserve are included, as is the case in Germany. Other countries do not have a market based system, but fixed prices for imbalances. Participation in such tendering processes is in some countries limited to TSOs and some big consumers, while the market in other countries might be more exchange based. The survey did not investigate which system represented the best solution, but asked in general whether there was any need for improvement.

Other key issues which urgently require improvement according to the traders' opinion is the size of the physical market (control area coverage) within the seven countries. With respect to EXAA, traders stated that the size of the physical market should be enlarged to that of CEE countries.

Figure 2

Average and range of measures of all exchanges with 1 representing the most urgent and 5 the least urgent measure

Source: PwC, Traders' Survey 2011



IT systems and timing

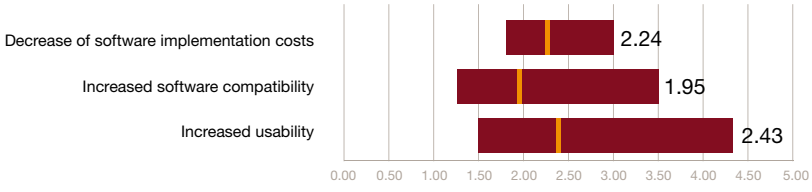
Extensive data and information exchange requires cost effective IT systems. The survey results show that different IT systems do create problems for traders concerning usability, software compatibility and software implementation costs.

PwC asked the traders where they saw considerable improvement potential on the status quo with respect to the above mentioned issues. The most urgent improvement required is an increase in software compatibility. Different IT systems can make the work of a trader inefficient and complicated. Therefore, interfaces need to be managed on a professional basis so as to avoid unnecessary waste of time and cost.

Figure 3

Average and range of improvement measures (IT) for all exchanges, with 1 representing the most urgent measure and 5 the least urgent measure

Source: PwC, Traders' Survey 2011



Market fragmentation and integration – International co-operation

Over the past few years, a number of implicit auction initiatives were launched throughout Europe. In the CEE region, Slovakia and the Czech Republic have been coupled since 2009 and other market coupling initiatives are under discussion. 47% of the traders asked rate the importance of implicit auction initiatives as highly important or important, whereas 7% do not think these initiatives are important at all. Most of the traders involved in the survey had already been bidding on an exchange and were part of a coupling. We asked the traders which measures were, on the whole, the most urgent ones to be implemented in the CEE market in order to make the market more attractive. According to the traders' response, the most urgent measure is the establishment of inter-regional implicit auctions (e.g. with CWE), followed by a reduction of licence fees and transaction costs.

Market coupling initiatives might create a higher market concentration in the trading platform area, since cross border day-ahead trading is only possible via exchanges. This may lead to the fact that local day-ahead trading exchanges not involved in coupling become less liquid. As there are also smaller exchanges in the CEE region, PwC asked the traders whether it would be beneficial to continue to have the opportunity to trade on a local power exchange, in addition to trading on major EU power exchanges such as EPEX Spot. The answers given by the traders on this topic were not uniform, with 41% of traders not finding it beneficial to still be able to trade on a local day-ahead trading platform and 42% preferring to retain the possibility of trading on a local exchange. One trader mentioned that day-ahead trading needed to be accessible, though not necessarily on exchanges, and that OTC trading would be sufficient. However, other traders stated that local exchanges were necessary for their portfolio management as they offered niche products. Furthermore, local exchanges offered traders better pricing options.

Another interesting point PwC asked the traders about was the new scheduling system in CEE implemented in 2010. 29% of the traders responded that they had already made satisfying experiences with this system, whereas 36% did not have a positive opinion on the new system. Here the main problems traders were faced with included the ongoing scheduling problems with MAVIR as well as the poor stakeholder management at the beginning of the implementation process.

The new central auction office in Freising (near Munich, Germany) started to perform the explicit auctions for the entire CEE region in December 2010. Therefore, PwC asked the traders whether they had already participated in the auction process and about their general level of satisfaction with the system. More than 75% of the traders had already participated in the auction process, 33% of those were satisfied, 14% were not satisfied and 53% had a neutral opinion. With respect to the EU target model for capacity allocation and congestion management, PwC asked the traders whether the FBA methods applied throughout the regions should be coherent. All participating traders stated that it was important / very important to ensure coherence between the methods of the various regions in order to support efficient cross border electricity trade.

Traders' Survey 2011 results

In a survey designed to find out about trading developments, PwC asked the trader community which obstacles existed and how future developments in the Central and Eastern European electricity markets and on the way to a common European electricity market were perceived by traders.

Four different fields were included in the questionnaire:

1. Network access administration and bureaucratic formalities
2. Trading platforms
3. IT systems and timing
4. Market fragmentation and integration – international cooperation

Traders who are active in the CEE market have to deal with existing market rules, which are not uniform and contain several major impediments, such as barriers to obtain a trading licence, language barriers or technical issues such as scheduling problems. The regional energy market envisaged as an interim step towards a single EU market should help to mitigate these impediments.

Trading with an EU dimension has become an important topic for the CEE region, as congestion management and capacity allocation auctions are now commonplace and are being conducted centrally by the Central Auction Office. However, electricity traders still constantly face regulatory challenges, language barriers and inefficient trading platforms (results from the survey), which reduces the liquidity of the market.

Implicit auction initiatives are becoming commonplace in the European energy market and also in the CEE region. Slovakia and the Czech Republic have been coupled for more than one year through a market splitting mechanism, which led to a price convergence of nearly 100% in the two countries.

The above issues were incorporated into and dealt with in the survey in order to cover the barriers of electricity trade in the CEE region.

PwC asked the traders to answer the questions only with respect to those countries which are foreign markets to them. For example, traders whose core business and head office are situated in Austria were to skip the Austrian market in the evaluation.

Network access administration and bureaucratic formalities

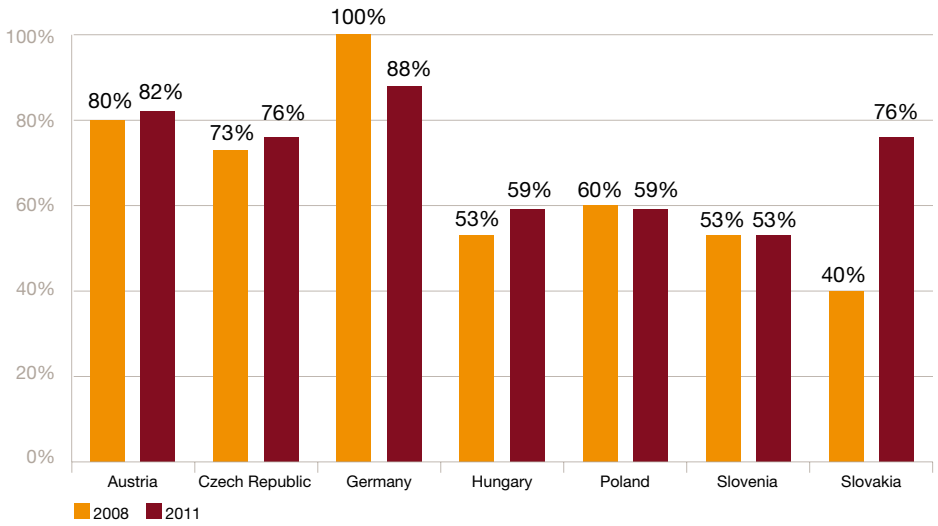
Open network access is a fundamental requirement for any liberalised and effective market development. In addition, network access administration and bureaucratic requirements should not be unnecessarily high so as not to impede traders in their becoming active on a market. Besides national laws, there are many additional rules which market participants need to fulfil before they can gain access to the network. In most cases, market rules define the set of additional requirements and are the main basis for further improvements. In the course of the past few years, legislation concerning the energy market increased (mainly through the Third Energy Package) and will continue to do so in the future.

In the survey, PwC asked traders about the markets in which they were active. Most of the traders surveyed were active in Germany (88%), followed by Austria (82%), the Czech Republic and Slovakia (76% each). As a comparison to the results of the Traders' Survey 2008 shows, the number of active traders in each market except Germany has increased. The relative reduction in Germany shows that there are now traders who are active within the region and have a clear focus on trading within the region without being restricted to Germany, even though the number of participants on the EEX has increased. The overall number of active traders has risen, with the strongest increase being observable in Slovakia, which went up from 40% to 76%.

Figure 4

Trading activities of traders who participated in the survey – Comparison of 2011 and 2008 survey results

Source: PwC, Traders' Survey 2011



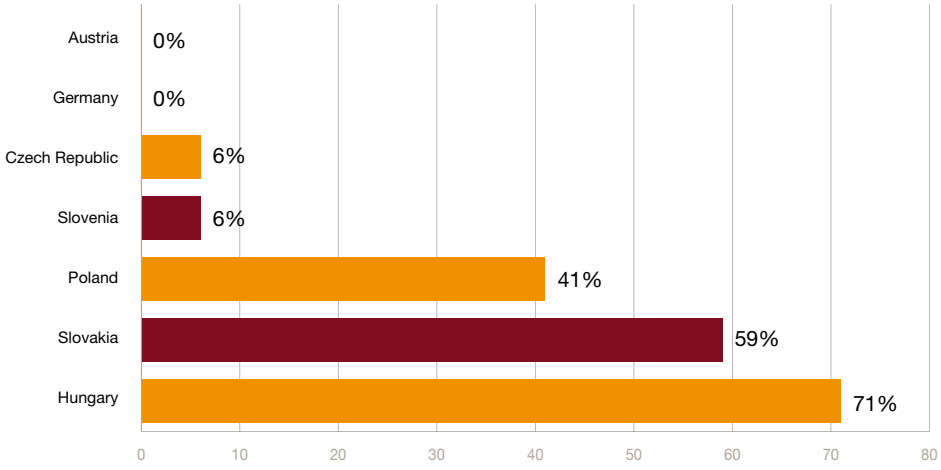
In addition, it was of interest for the survey to determine in which of the seven markets traders had obtained a trading licence for a market, but were not trading yet. 24% have already obtained a trading licence for Hungary, but have not yet conducted any trading. 18% of the traders are planning to become active on the Slovakian market, followed by 12% in Poland.

Impediments to electricity trade were perceived by traders in all countries except Germany and Austria. 71% of the traders participating in the survey perceived the most significant impediments in Hungary, followed by 59% in Slovakia. The scheduling IT system, the lack of support by the TSO and high imbalance prices as well as penalty procedures were listed as the main burdens to effective trade in Hungary by the traders responding. With respect to trading impediments on the Slovakian market, access to the exchange, in particular the certification in the form of an obligatory exam in Slovakian to be taken by holders of a local electricity trading licence were named as significant obstacles for entering the market. According to the responses given in the survey, the examinees need to have sufficient knowledge of the Slovak energy market in Slovakian in order to obtain and keep the licence. Furthermore, it was mentioned that the test took several days and therefore represented a time and cost consuming barrier to trade.

Figure 5

Traders' view: Markets with the most significant administrative and regulatory impediments (multiple answers possible)

Source: PwC, Traders' Survey 2011



Trading licence

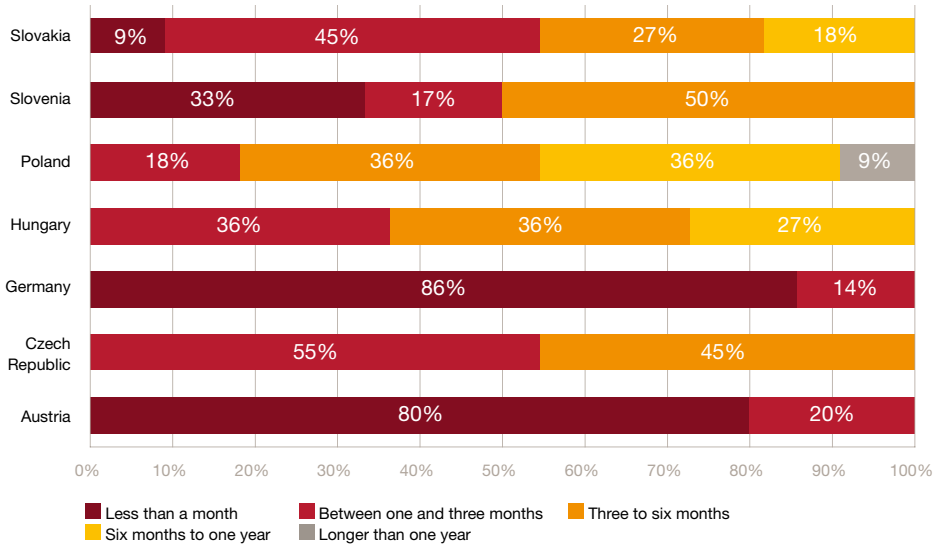
Traders are still required to obtain a local trading licence for certain countries. Hungary, Slovakia and Poland are those countries where the time period between the application and the receipt of the trading licence was longest. A high level of bureaucracy in their dealings with regulatory authorities and extensive documentation requirements as well as communication problems were named by traders as the major impediments to being admitted as electricity traders.

Please note that timing is not the only relevant factor when it comes to obtaining a trading licence. Other factors mentioned by traders are costs, language barriers as well as the high amount of documentation to be submitted.

According to over 80% of the respondents, Germany and Austria are those markets where the necessary formal prerequisites (e.g. at the TSO) for starting trading activities can be fulfilled within one month. This can also be the case in Slovakia and Slovenia; however, a period of one to three months is considered realistic for obtaining a trading licence there. Poland was the only country named by traders where it took longer than one year to obtain a trading licence.

Figure 6
Traders' view: Average time it took the respective share of applicants to obtain a trading licence

Source: PwC, Traders' Survey 2011



Language

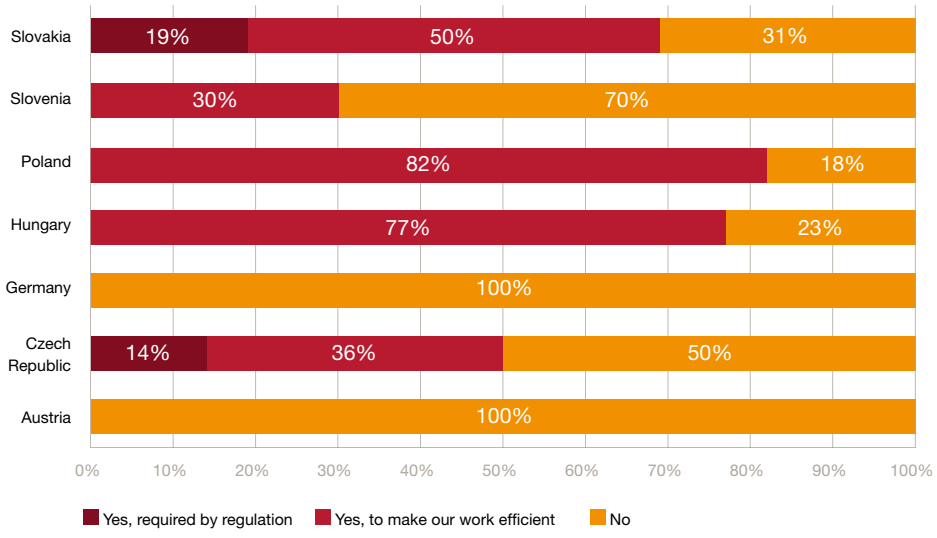
The development of a common market composed of different national markets can be supported by the use of one language – not only for the exchange of market data but also in order to facilitate effective market access. English is commonly used in many of the energy markets.

Austria and Germany are the only countries where it is not at all necessary, either by regulation or for work efficiency purposes, to have a local representative or native speaker.

Figure 7

Traders' view: Need for a local representative or native speaker to be able to work efficiently in the market in question

Source: PwC, Traders' Survey 2011



The regulatory requirement of having a local representative is decreasing; nevertheless traders stated that in most markets a local representative still makes their work easier and more efficient. Only Austria and Germany have an efficient and transparent market organisation where local representatives are not necessary.

As set out above, a common language is key to establishing a common market. Therefore, no or little information and documentation available in English depicts an impediment to electricity trade in the CEE region.

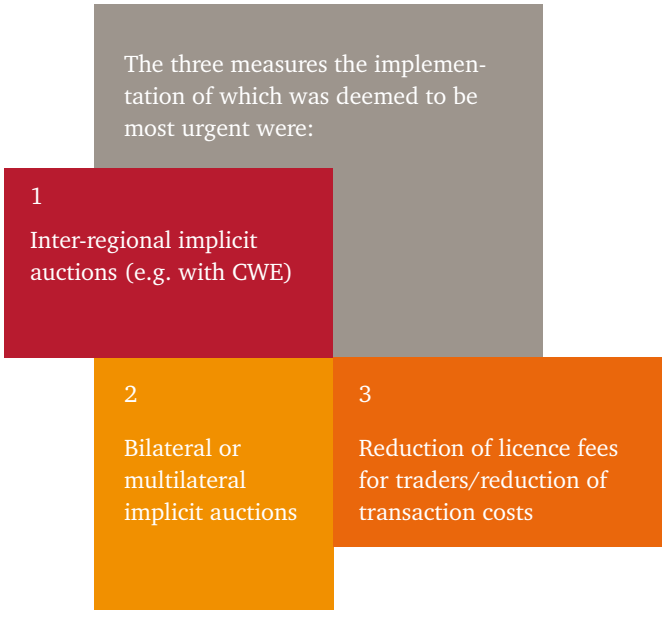
In some markets, traders are still experiencing obstacles when it comes to obtaining relevant information in English on various topics such as access rules, (explicit) cross boarder capacity auctioning, international cooperation, power generation or balancing.

The markets where it is most difficult to obtain the relevant information in English are, according to the participating traders, Slovakia, Poland and Hungary. Even though documentation is available in English on (explicit) cross border auctioning, this should also be the case for access rules, grid codes, licence requirements and forms. Furthermore, 24% of traders claimed that no information on power generation was available in Slovakia, Poland and Hungary, and over 20% were missing information on balancing in these markets. The German and Austrian markets do provide most of the relevant trader information in English. However, 3% of traders participating in the survey miss documentation and information on balancing energy markets. 20% of traders missed information on international cooperation in English in Germany.

Traders perceive the documentation in English on the balancing procedure by the TSOs to be incomplete; a clear summary on the rules in one document would be preferred to a number of documents including highly technical descriptions. The absence of IT documentation in English represents another impediment to companies when it comes to trading on foreign markets. Some traders are developing their own small apps and would like to ensure compatibility with IT requirements such as data format. One trader stated that the documentation on the Czech Republic -Slovakian coupling was very poor and targeted to national companies only.

Improving market attractiveness

PwC asked traders whether the following measures needed to be implemented in the respective markets in order to increase their attractiveness with respect to network access and bureaucratic procedures. It was also interesting to see how urgent the traders surveyed consider the implementation of the respective measures and whether they think that these have already been implemented.



Enhance liquidity in the forward market

PwC asked the traders whether they saw any improvement potential for the power exchanges with respect to the liquidity in the respective forward markets. Traders buy forward products in order to secure the long term electricity supply and to hedge against higher future spot prices.

According to the traders' responses, Hungary and Poland are the countries with the most urgent need for improvement with respect to enhancing liquidity in the forward market, followed by Slovakia and Slovenia. Improvements are required less urgently in Germany, the Czech Republic and Austria according to the traders surveyed. Traders also stated that liquidity already was at a satisfying level on EEX for Germany and Austria.

Implement procedures for improved handling of cross border line congestion

Cross border line congestion is not perceived as a major impediment to electricity trade within the region

Transparent balancing energy market

According to the Traders' Survey, the urgency to implement this measure is ranked highest in Hungary, followed by Slovenia, Slovakia and Poland. Over 60% of the traders responded that there was a transparent balancing energy market in Austria and Germany and therefore no particular need for action.

Bilateral or multilateral implicit auctions

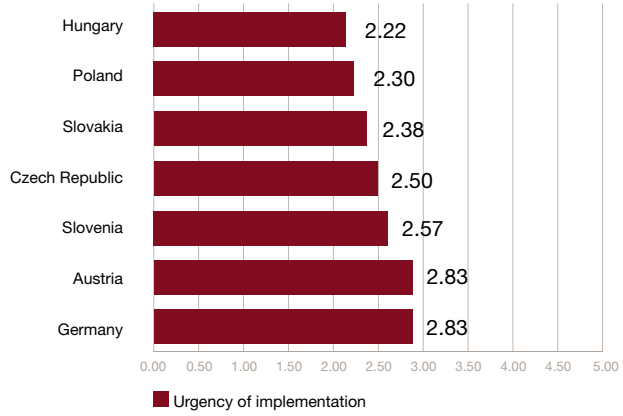
Implicit auction initiatives (market coupling or market splitting) are important measures to enhance cross border congestion management between two or more countries. PwC asked the traders for which of the seven markets in the CEE region they perceived the implementation of this measure to be important.

According to the traders' response, the need for an implementation of implicit auctions is most urgent in Poland and Hungary, followed by Slovakia, the Czech Republic and Slovenia.

Figure 8

Traders' view: Urgency to implement bilateral and multilateral market coupling, with 1 representing most urgent and 5 least urgent

Source: PwC, Traders' Survey 2011



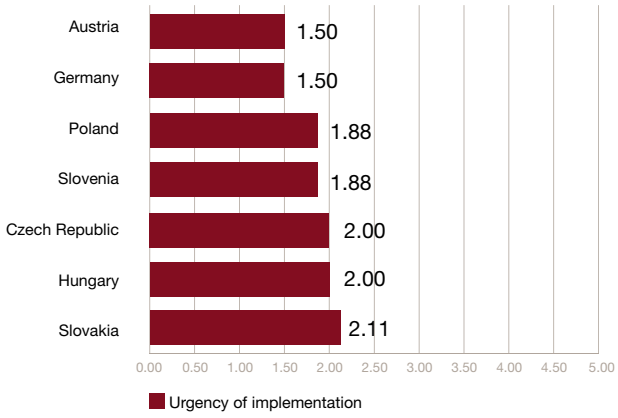
Inter-regional implicit auctions (e.g. with CWE)

As there are a number of implicit auction initiatives throughout Europe, PwC asked the traders whether they regarded participation in inter-regional implicit auctions as important within the region. The traders stated that the implementation of inter-regional implicit auctions was most important in Austria and Germany regarding the borders to other countries. The reason for this result lies probably in the geographical overlap of these two countries with respect to the CWE and the CEE region. The next countries mentioned by traders in this respect were Slovenia and Poland. Overall, it can be noted that traders considered inter-regional implicit auctions more urgent and preferable compared to bilateral or multilateral implicit auctions within the region.

Figure 9

Traders' view: Urgency to implement inter-regional implicit auctions (e.g. with CWE), with 1 representing most urgent and 5 least urgent

Source: PwC, Traders' Survey 2011



Reduction of licence fee for traders

According to the traders responding to the survey, a reduction of the licence fee for traders is most urgently necessary in Hungary and Slovakia. Over 50% of traders are of the opinion that the licence fees for traders in Austria and Germany are already at a reasonable level and no improvement potential is seen.

Furthermore, one trader mentioned that the licence fee in Hungary and Poland should not be based on turnover or should be entirely removed. It was also mentioned that the fixed OKTE fee of EUR 18,700 on the wholesale level should be cancelled in Slovakia.

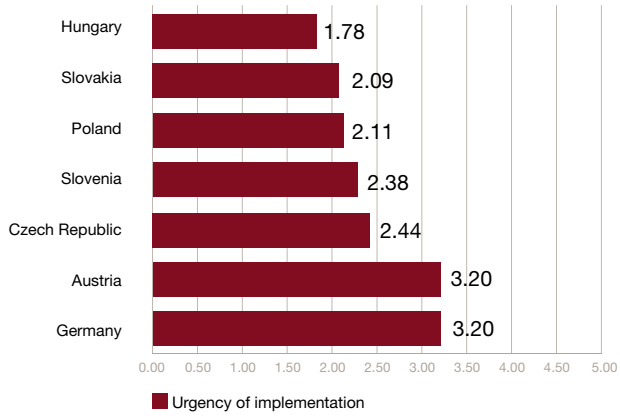
Reduction of transaction costs

An important factor for a well functioning exchange is the level of transaction costs, as low costs per transaction help to increase the number of transactions and therefore the liquidity of a market. Transaction costs should be improved most urgently in Hungary and Slovakia, followed by Poland. Lower improvement potential is seen by those traders active in Austria and Germany.

Figure 10

Traders' view: Urgency to reduce transaction costs, with 1 representing most urgent and 5 least urgent

Source: PwC, Traders' Survey 2011



Balancing energy

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.

It is to be noted that the questions regarding balancing energy are phrased to fit a wider context and do not target the specific balancing energy methods per country in detail.

The statements of the traders show that Austria offers the best and most strongly market based conditions when it comes to participating in the tendering of balancing energy. Hungary is perceived as a market where the traders surveyed do not consider market conditions to be satisfying.

Access to the balancing energy market is important for market participants. For this reason, PwC asked the traders on which markets they saw clear barriers to entering the national balancing energy markets. According to the Traders' Survey results, the market with the highest entry barrier to the national energy market is Hungary, followed by Poland, Slovenia and Slovakia. Low level entry barriers were experienced by the trader community in Germany and Austria.

With regard to Hungary, the trader community criticised the risk of losing the licence in case of three imbalances as well as the low level of transparency.

Figure 11

Traders' view: Country ranking for the best conditions with respect to the tendering of balancing energy, with 1 representing the best case and 5 the worst case

Source: PwC, Traders' Survey 2011

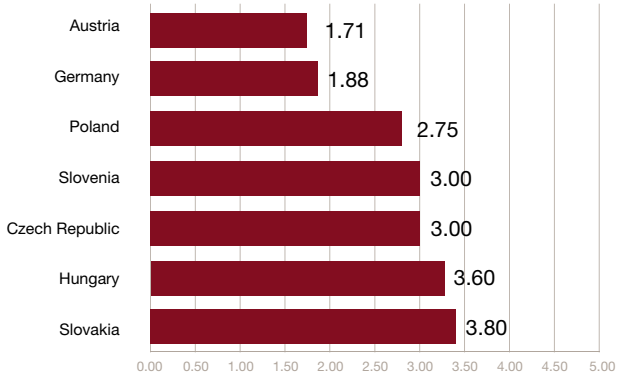
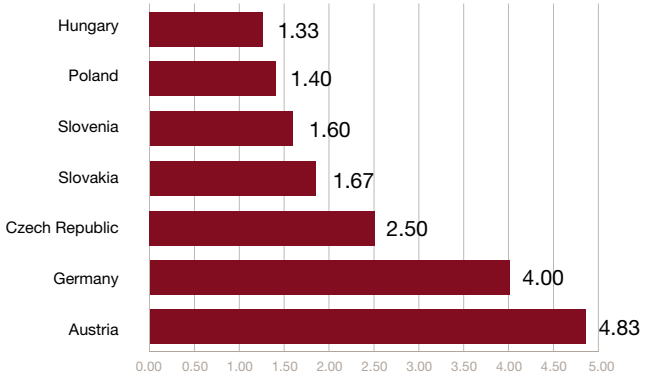


Figure 12

Traders' view: Barriers to entry into the national balancing energy market, with 1 representing the highest and 5 the lowest barriers

Source: PwC, Traders' Survey 2011



International coordination office

PwC asked the traders whether an international/regional independent coordination office to organise the regional market with respect to balancing matters might be beneficial for market development.
54 % of traders would welcome the establishment of such an office, while 8% would not welcome it, with 38% having a neutral opinion. PwC asked the traders, who should operate the coordination office and who should not be involved under any circumstances. One trader answered that unbundled grid operators should be involved in the coordination of the office and be monitored by international regulators. Generators should not play a role in the coordination office. Another statement demanded that a new agency be founded without any TSO involvement. One trader stated that an independent exchange might operate the coordination office. ACER should be the body supervising the coordination office.

Trading platforms

The following chapter describes the experience of traders regarding power exchanges and balancing energy.

The following chapter describes the experience of traders regarding power exchanges and balancing energy. The trading volume on the power exchanges picked up over the past few years and new power exchanges were established and started operations. Furthermore, some power exchanges introduced new price indices, covering not only one country but a wider region. An example for this is the recently introduced ELIX (European Electricity Index) by EEX.

The focus in this chapter is on power exchanges, as these have seen a number of developments in recent years and since a growing volume is being traded on power exchanges.

Currently there are seven power exchanges in the Central European market:

1. BSP Southpool (Slovenia)
2. EPEX Spot (based in France – subsidiary of EEX in Germany and Powernext in France)
3. EXAA (Austria)
4. HUPX (Hungary)
5. OTE (Czech Republic)
6. PolPX (Poland)
7. PXE Power Exchange Central Europe (Czech Republic)

In Slovakia, SEPS (Slovenská elektrizačná prenosová sústava, Slovakian TSO) currently organises the short term electricity market. However, the introduction of a Slovakian power exchange (entitled ISOT) is planned for 2011. PwC did not include the Slovakian market place in the survey, as it is obvious that traders do not yet have any experience with this exchange.

A number of developments characterised the European power exchanges within the past two years. One of the major changes is the cooperation of the EEX (Germany) and Powernext (France), which resulted in the incorporation of the EPEX Spot in France in 2009 (50/50 ownership by EEX and Powernext). EPEX trades the standard day-ahead contracts for physical delivery of power in Austria/Germany, France and Switzerland.

In addition, EPEX Spot and ECC have entered into a cooperation with HUPX. The Hungarian Energy Exchange was successfully launched on 20 July 2010. The total trading volume for the 2010 trading period amounted to 418,293 MWh, which covered approximately 2.5% of the total Hungarian gross electricity usage for the period from 20 July to 31 December 2010.

PwC asked the traders on which of the following markets they are currently trading or have been trading in the past.

The survey results show that 82% of traders are trading on EPEX Spot, followed by 76% trading on EXAA and 65% trading on OTE. In contrast, the fewest responding companies are trading on BSP Southpool at only 29%. 41% of the respondents are active at PolPX and PXE and 47% are trading on HUPX.

Considering the latest developments in the region, the power exchange with the best development potential in the future is, according to 48% of the traders, EPEX Spot followed by HUPX and EXAA (20% each).

The reasons given for the highly rated development potential of EPEX Spot included the IT system, the CWE market coupling project and its natural liquidity. HUPX profits from the collaboration with EPEX, as the used system is the same. Furthermore, the exchange was considered to still have a high growth potential in the future.

According to 67% of the traders responding, the power exchange offering the most reliable and uncomplicated trading is EPEX Spot, followed by EXAA (27%) and OTE (6%). As already mentioned above, the traders perceive the IT system of EPEX Spot to be very satisfying. EPEX Spot (followed by EXAA (36%), PXE (14%) and BSP Southpool (7%)) was also considered to be the most customer driven and service oriented power exchange by 43% of the traders asked. In contrast to this overall perception, one trader mentioned that OTE has a transparent and liquid market with the best market access.

Figure 13

Traders' view: Highest development potential of power exchanges within the next five years in CEE

Source: PwC, Traders' Survey 2011

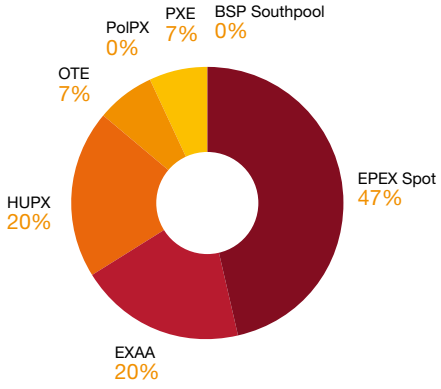
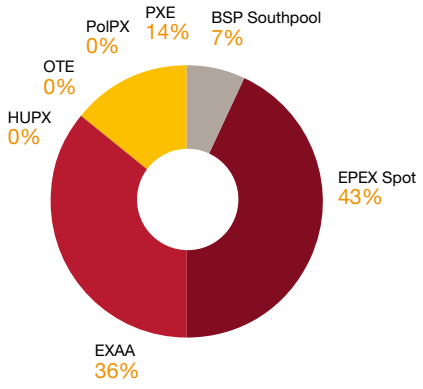


Figure 14

Traders' view: Most customer driven and service oriented power exchange

Source: PwC, Traders' Survey 2011



Access rules

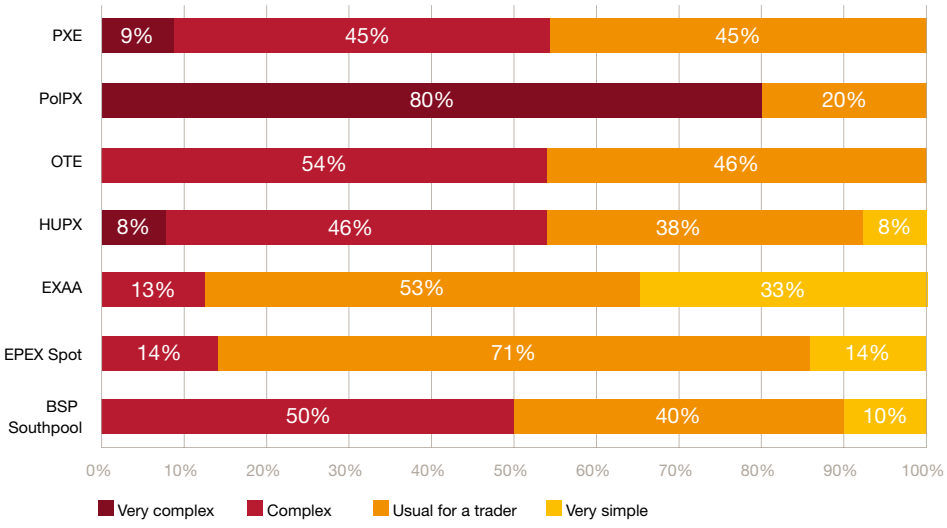
One reason for low trading volumes at a power exchange may be complicated access rules of power exchanges for traders, which might result in an increase of market access costs and reduce the number of potential market participants. The access rules of PolPX were perceived to be very complex by 80% of the traders participating in the survey. The traders claimed that a complicated administrative process is necessary in order to get access to the Polish trading system. Furthermore, the time period to become a member as well as language barriers were listed by the traders as impediments to trading on PolPX.

EXAA and EPEX Spot are identified as the power exchanges with the most appropriate requirements regarding access to trading. OTE and BSP Southpool partly have complex access rules, whereas over 50% of the surveyed traders stated that they had encountered complex or very complex access rules at PXE and HUPX.

Figure 15

Traders' view: Complexity of access rules at each exchange

Source: PwC, Traders' Survey 2011



Market conditions

This section shows the fields in which traders see any improvement potential for the various power exchanges. Clear market rules and high liquidity improve the attractiveness of a power exchange for traders. According to the survey results, 34% of all traders asked were satisfied with the market conditions of EPEX Spot and 32% of all responding traders were satisfied with the conditions on EXAA, while the market conditions at BSP Southpool are perceived to be unsatisfying by 24% of the traders surveyed, followed by HUPX (22%), PolPX and PXE (20% each).

PwC asked the traders whether they saw any improvement potential with respect to certain aspects at the various power exchanges. According to the traders' response, the most urgent measures to be implemented at the exchanges are an increase in the size of the physical market, a balancing energy trade for the regional market and an enhancement of the liquidity in the market.

Transparency in price publication

Transparency is becoming a more and more relevant topic as legislation enhances the supervision of power exchanges in order to avoid market abuse. It is therefore important to traders that the calculations of prices as well as the results are available on time and in a transparent manner.

HUPX and OTE were mentioned by traders as those exchanges with the most urgent need for improvement with respect to this topic. EXAA and EPEX Spot have the least urgent need for improvement, as 50% of the traders see no further improvement potential at EPEX Spot and 64% at EXAA.

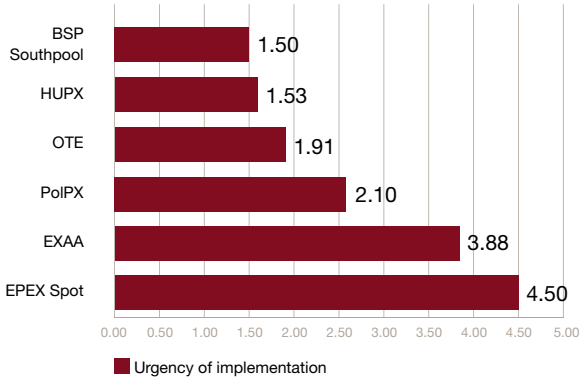
Higher liquidity

The more liquid a market, the more attractive it is for traders. According to the survey results, the power exchange with the highest improvement potential is PXE, followed by BSP Southpool and HUPX. Please note that the traders perceive a need for improvement with respect to liquidity for all exchanges except EXAA and EPEX Spot.

Figure 16

Traders' view: Exchange ranking according to urgency of need for higher liquidity, with 1 representing most urgent and 5 least urgent

Source: PwC, Traders' Survey 2011



More information to be published on power plant production

Traders perceived an urgent need for the information on power generation to be improved at OTE and BSP Southpool, followed by HUPX, PXE, EXAA and PolPX. EPEX was the only trading place of which at least 11% of traders thought that sufficient data were being published. Nevertheless, 89% of the traders wanted to see more power plant production data even on EPEX.

Reduction of annual participation fee

Traders are to submit an annual fee to an exchange in order to be allowed to trade, independent of the annual trading volume or the number of transactions conducted. EXAA is ranked as the exchange with the lowest urgency for the annual participation fee to be reduced, followed by PXE and PolPX. The responding traders see a need for action concerning a reduction of the annual participant fee at BSP Southpool, HUPX and EPEX Spot.

Reduction of transaction costs per MWh

Transaction costs are an important factor when it comes to the smooth running of an exchange as they may help to increase the liquidity of a market. Therefore, PwC asked the traders how urgent they perceived a reduction of the transaction costs per MWh to be. BSP Southpool was ranked first with respect to the urgency for improvement, followed by PolPX and OTE; EPEX Spot, EXAA and HUPX are seen as the exchanges with the least urgent need for improvement. Considering the overall number of points awarded to the urgency of the implementation of other measures, however, a reduction of transaction costs might well be a topic of considerable interest for all exchanges.

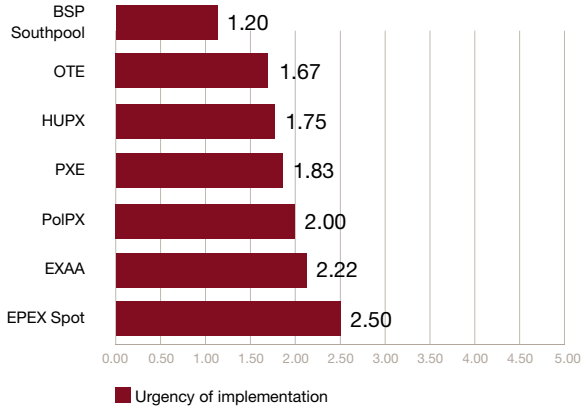
Increase in the size of the physical market (control area coverage)

In the traders' view, it is important for BSP Southpool to increase the size of its physical markets. EPEX Spot is ranked as the exchange with the lowest urgency to increase its physical market, 14% of the traders do not see any need to take measures in this field at EXAA, EPEX Spot, PXE and OTE. Some of the traders surveyed mentioned that it would be helpful if EXAA increased the size of its physical market to CEE markets.

Figure 17

Traders' view: Exchange ranking according to the urgency of the need to increase the size of the physical market, with 1 representing most urgent and 5 least urgent

Source: PwC, Traders' Survey 2011



Language

As English is the common language shared across Europe, it might be assumed that the relevant market documents and market information would be provided in English as well as the national language on all exchanges.

For this reasons, PwC asked the traders whether it was, in their experience, possible to receive the relevant information from the exchange (for example via the internet platform, RSS feeds, e-mail services, etc.) in English and on time. We also asked about the issues arising in case no information was available. The traders stated that information in English can be received from all exchanges; however, the level of detail and the time it takes to receive information differ from one exchange to another.

In the event of insufficient information being provided in English, the most important issue was, according to the Traders' Survey, the lack of RSS feeds and of a sufficient number of internet platforms in English at HUPX and OTE. Traders at PXE and PolPX also missed proper English internet platforms. No further issues were stated with respect to the remaining exchanges in the region. One trader stated that the back office staff at OTE is not able to speak English sufficiently to be able to communicate with the traders.

IT systems and timing

Common IT systems for data exchange are a key requirement for the effective and efficient operation of a regional energy market. A number of systems containing different data create certain barriers and lead to higher costs. In general, different IT platforms are used for cross border capacity allocation and nomination, balancing energy, power exchange and OTC trade. The TSO and other platform operators, among others, are therefore required to adjust their systems to facilitate an effective market operation.

PwC asked the traders, at which of the six power exchanges in the region they encounter or have previously encountered problems with the IT system. In the traders' view, most problems with IT systems are encountered at OTE (44% of traders) followed by PXE, HUPX and PolPX (17% each) and EPEX Spot (5%). EXAA and BSP Southpool were not mentioned in this context by the traders.

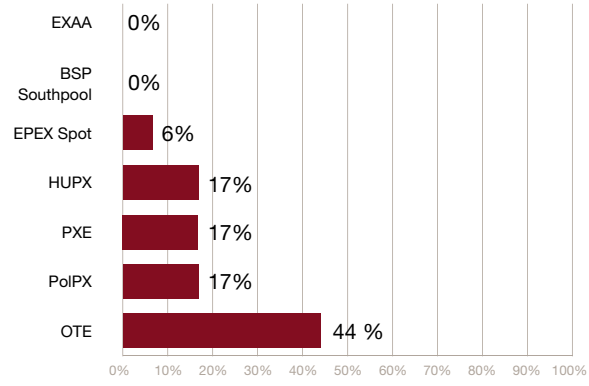
Increase in usability

The usability of the IT system is an important factor for traders, as a user-friendly system can make the daily work of traders simpler as well as more time efficient and cost effective. The answers of traders show that PolPX and BSP Southpool are ranked as the power exchanges with the highest urgency when it comes to increasing the usability of the IT system. In comparison, the responding traders rank EXAA as the exchange with the least urgent need to improve the usability of its IT system.

Figure 18

Traders' view: Problems encountered with respect to IT systems

Source: PwC, Traders' Survey 2011



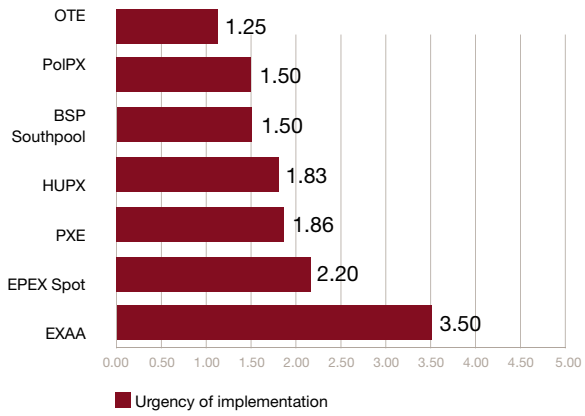
Increase in software compatibility

As there are different IT systems, interfaces need to be managed on a professional basis in order to avoid unnecessary costs and waste of time. As traders use standardised software packages it would be useful for them if the TSOs were to adapt their tools to enhance IT compatibility. The exchange which has, according to the traders surveyed, the most urgent need for an improvement of software compatibility is OTE, whereas there is much less need for improvement with respect to increasing software compatibility at EXAA. According to the traders surveyed, the exchange which has the most urgent need for improvement of software compatibility is OTE.

Figure 19

Traders' view: Exchange ranking according to the urgency of the need to increase software compatibility, with 1 representing the country with the highest urgency

Source: PwC, Traders' Survey 2011



Decrease in software implementation costs

Due to the fact that the software is a key element for a trader to be active in a market, it is important for traders to have easy and inexpensive access to the respective software. Easy access to the software enhances the number of trading participants and, as a result, the liquidity of markets.

According to 40% of the traders, EXAA has no need for improvement concerning a decrease in software implementation costs, followed by BSP Southpool (33%) and PXE and OTE (29% each). According to the traders' ranking, the exchange with the most urgent need to decrease software implementation costs is PXE, although 29% of the traders did not see any need for action in this field at this exchange. Furthermore, HUPX, BSP Southpool and EPEX Spot were mentioned as exchanges with an urgent need to decrease software implementation costs.

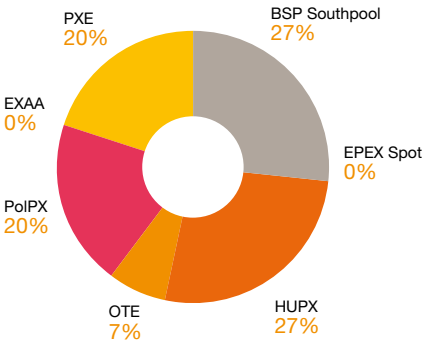
Timing

PwC asked the traders whether they had experienced any timing problems with respect to electricity trade at power exchanges and transportation capacity allocation at TSOs or the CAO. Even though cross border capacity is auctioned in the morning, the TSO confirmation for deals on the exchange is only available in the late afternoon, which is in certain cases too late. 27% of the respondents experienced such problems at BSP Southpool and HUPX, 20% of the traders asked had problems at PolPX and PXE and 7% at OTE.

Figure 20

Traders' view: Timing problems with respect to electricity trade and transportation capacity booking

Source: PwC, Traders' Survey 2011



Market fragmentation and integration – International co-operation

In summary, the results demonstrate that 47% of traders are of the opinion that implicit auction initiatives are important or very important for a common market in the region. Currently, there are a number of implicit auction initiatives which have been launched throughout Europe, which include the Nordic market (market splitting), CWE (Central Western Europe – France, Benelux, Germany), ITVC (Interim Tight Volume Coupling: CWE + Nordic), the Iberian Peninsula (MIBEL), the Czech Republic-Slovakia coupling (market splitting), the Swedish-Polish (SwePol) coupling as well as the coupling between Italy and Slovenia.

We asked the traders to state the name of the TSO that best manages the access to interconnection lines. Amprion, RTE, CEPS and Tennet were named as the best interconnection line managers by the respondents. One trader stated that there are no big differences between the TSOs in the CEE countries; however, some problems are currently experienced with respect to scheduling in MAVIR.

Implicit auction initiatives

Implicit auction initiatives are an important element towards an integrated European Power Market and this is also reflected in the forthcoming Framework Guidelines on Capacity Allocation and Congestion Management. The day-ahead transmission capacity is used in the implicit auction system to integrate the spot markets within different market (bidding) areas. The bidding data from the market places involved (usually exchanges) form the input for the flow on the interconnection lines. Therefore, the auctioning of capacity is included in the auctions on the electricity markets. Thus the prices calculated per area are the result of the cost of energy in each bidding market area and of the cost of congestion.

Implicit auction is the common concept for the two different methods – market coupling and market splitting. The difference between these two types of implicit auctions lies in how the algorithm is operated and owned.

The market splitting concept is characterised by the fact that one single power exchange operates the implicit auction of the transmission capacity for two or more bidding areas. Examples for this concept are the Nordic Region (Nord Pool Spot) and the Czech-Slovak coupling (OTE).

If two or more power exchanges jointly handle the implicit auction, such a system is referred to as market coupling. The relevant market information is submitted by each power exchange to a centralised coupling algorithm; the TSOs provide the available transmission capacity. Then the central algorithm calculates the flows between the areas as well as the prices for all market areas. Market coupling is commonly subdivided into price market coupling and tight and loose volume coupling.

As mentioned above and outlined in the figure below, 47% of traders are of the opinion that implicit auction initiatives are highly important for a common European market, 40% stated that they were not / not at all important and 13% had a neutral opinion. Thus there is a slight preference for the implementation of implicit auctions, although market participants seem to have a mixed view.

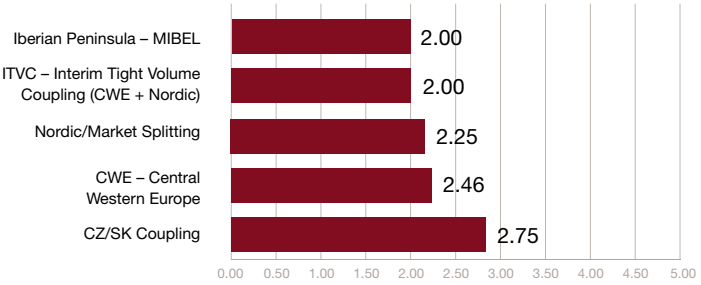
The common CEE and remaining EU market depicts one of the major topics of the next few years, as the markets should all be linked via implicit auctions. Therefore, PwC asked the traders, which markets were the most important ones to be coupled in the near future. The traders responded that all markets in the CEE should – step by step – be coupled to a "core coupling region". However, coupling should be a market design which makes sense to traders and creates value to all parties involved. Price coupling like in the CWE region was mentioned as the only way forward to a common market. Furthermore, the traders specified that Slovakia, the Czech Republic and Hungary should be coupled in the near future in order to increase liquidity in this region.

Traders rated the different implicit auction initiatives in Europe between 2.00 and 2.75 with respect to overall performance, with 1 representing very positive and 5 very negative. The trader community commented that no coupling solution is as yet perfect as they are all unstable and require a large amount of computational time. Furthermore, the fall back systems were described as inadequate. Another reason for complaints was the non-transparent calculation of available capacities, although this is not directly linked to implicit auctions as such. The coupling between Slovakia and the Czech Republic was described as unnecessary by one trader, as no physical congestion existed between the two countries. The exchange platform was described as inadequate and should be operated only by one exchange.

Figure 21

Traders' view: Rating of implicit auction initiatives concerning overall performance, with 1 representing very positive and 5 very negative

Source: PwC, Traders' Survey 2011



The recently started ITVC (Interim Tight Volume Coupling: CWE and Nordic Coupling) is rated as very good / good by 33% of the responding traders. 16% of the traders rate the performance of the ITVC as not good / not good at all. 50% of the traders had a neutral opinion.

The traders stated that ITVC has failed several times and creates negative price spreads against the flow. However, the whole project was awarded a good stakeholder management by the trading community, who was regularly invited to bigger workshops and smaller meetings. According to one trader, this transparent way of communication is missing in CEE projects, with the CAO's introduction of participant groups being an exception.

Considering the point that implicit auction initiatives lead to a concentration of cross border trade at the power exchanges involved, PwC asked the traders whether they would still consider it beneficial to have a local day-ahead trading opportunity at exchanges. 41% of traders were of the opinion that a day-ahead trading opportunity at local power exchanges was not beneficial, while 50% stated that it was (highly) beneficial. Thus market participants do not seem to have a clear preference with respect to this issue.

One trader commented that day-ahead trading needed to be accessible, but not necessarily on exchanges, and that OTC trading would be sufficient. Regulation and a lack of transparency still pose risks, which influences the liquidity on OTC markets. Power exchanges are commercial firms and companies should have the (voluntary) opportunity to trade on these exchanges. If there are more power exchanges in one country, the most liquid one should, according to the traders' responses, be involved in market coupling or all of them should operate a kind of a shared order book, based on the national merit order.

The SwePol cable, connecting Sweden and Poland, was also launched in December 2010. Therefore PwC asked the traders about their opinion and experiences concerning the performance of this connecting cable. 43% of the responding traders stated that the performance of SwePol is not good / not good at all, while 14% are of the opinion that it performs very well. 43% had a neutral opinion of the SwePol cable.

One trader specifically stated that not enough information was provided before coupling, especially by PolPX. Furthermore, it was claimed that on the Polish side only one part of the market was reflected and that therefore a link of Towarowa Gielda Energii and PolPX should be implemented in a next step.

CEE – Scheduling

PwC asked traders also about their opinion on the recently harmonised scheduling of CEE TSOs, as this represents another point of interest.

The evaluation of the transition from the previous system to the current new scheduling system was evaluated by 43% of the traders as not so satisfying or not satisfying at all, while 57% had a neutral opinion.

PwC asked the traders about their experience with the new scheduling system. 29% of traders were satisfied with the new system, 36% had a neutral opinion and 36% were not so satisfied with it. Traders claimed that the MAVIR scheduling system still required further improvement. The implementation process took some time; the starting point was postponed several times by the TSOs. Traders claimed that therefore resource planning was not possible, which led to higher costs. However, the system now works well, except for the above mentioned problems with MAVIR.

Central Allocation Office (CAO)

The Central Allocation Office in Freising (near Munich, Germany) was established with the goal to develop and implement coordinated congestion management solutions in the CEE region. In December 2010, the yearly and monthly auction started; at the beginning of 2011, the daily auction was launched. Therefore, PwC asked the traders whether they had already participated in the auction process, which was the case for over 75% of traders.

The future expectations placed in the CAO – considering the short time it has been responsible for auctions in the entire region – include the reduction of congestion to a minimum level / best use of capacities for 53% of traders and the coordination of TSO business related to congestion management (e.g. intraday, implicit auctions, etc.) for 71% of traders.

Another main expectation of the trader community is a better coordination between TSOs and exchange involvement, as the pricing of energy products still takes place at the exchanges and is not carried out by the coordination office. Furthermore, the traders mentioned that the bidding platform stability as well as its speed and functionality might be improved. One trader claimed that the CAO should improve the auction rules with respect to the “use it or sell it” condition. According to the trader community, the CAO should in a next step become a common intraday capacity allocation platform.

As the CAO started auctions for the CEE region at the end of 2010, PwC asked the traders whether they were satisfied with the CAO system. 34% of traders are satisfied, whereas 13% are not satisfied. 53% of traders had a neutral opinion. The traders responded that the system itself was alright, but that automated auction might be improved. Furthermore, it was claimed that due to technical issues and difficulties the system was too slow, and one trader stated that it was not possible for two or more traders to upload bids at the same time.

According to traders' expectations regarding a future change to a flow based allocation, an independent review of the first phase should be conducted before the next implementation takes place. A more "customer oriented" version is requested by the traders, as the flow based model is perceived to be very complicated and to keep away trading companies from the banking and finance sectors, thus leading to lower liquidity. One trader mentioned that the review should be done by an independent party with an economic background and experience in the market.

Considering the EU target model for capacity allocation and congestion management, it might be important for the FBA methods applied in different regions to be coherent in order to facilitate procedures and systems. 46% of traders responded that it was very important and 54% that it was important for FBA methods applied in different regions to be coherent. According to the traders, one coordinated system is needed when implementing a cross regional implicit allocation mechanism, which needs to have the correct market design.

Furthermore, it should be taken into account that the different regions do not implement the flow based allocation at the same time. Therefore, PwC asked the traders whether it was important to them that the lessons learned and experiences gathered in the CEE region during the implementation of the FBA project and those gathered in the CWE region via elaborated studies be applied and combined.
67% of traders responded that this was very important and 33% said that this was important.

Overall valuation

From the traders' point of view, the German market has experienced the strongest development within the last three years, followed by the Czech Republic and Hungary.

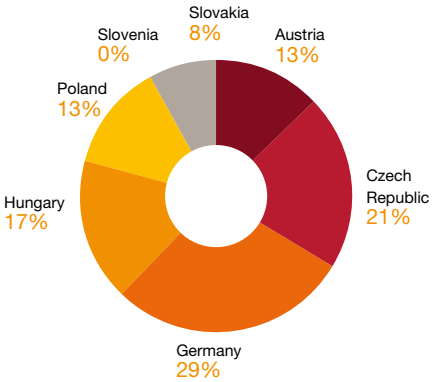


Figure 22:
Traders' view: Strongest market development within the last three years

Source: PwC, Traders' Survey 2011

According to 50% of the traders, the market offering the strongest development potential for the next three to five years is Poland, followed by Slovenia and Slovakia (14% each) and Hungary and the Czech Republic (9% each).

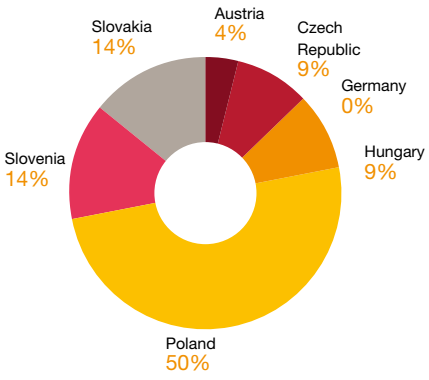


Figure 23
Traders' view: Market with the strongest development potential for the next three to five years

Source: PwC, Traders' Survey 2011

In the traders' view, Poland is the most attractive market because of the following points:

- Big market, so far not very open to foreign trading companies
- Standardised market rules that are comparable with those of Germany might lead to a rapid development into a robust and liquid market

One trader stated that the Czech Republic would be the most attractive future market in the next three to five years due to its central location and already well established interconnections.
The development of the coordination of exchanges (e.g. CEEPEX) is seen as a positive direction, however, small exchanges are perceived to be important with respect to special niche products and timing.
Another point which has been mentioned is that the existence of only one big exchange decreases the security of supply and that smaller and efficient exchanges should therefore continue to exist.

36% of traders are of the opinion that the latest and upcoming future developments are leading the right way towards a common CEE market, whereas 14% do not perceived those developments to be leading towards a common CEE market. 50% of the responding traders had a neutral opinion on this topic.

One of the traders, who thought that developments did not go in the right direction towards a common CEE market at all, stated that FBA did not manage or even mitigate congestion and therefore was not the right solution for the common market. According to this trader, price coupling was the only way forward. Although the flow based allocation is an inherent element of the electricity target model (see ACER CACM Framework Guidelines), a number of the responding traders mentioned that it was an obstacle for market development.

Further local impediments to a common CEE market were mentioned by the traders, such as for example the examination requirements in Slovakia, the tax in Hungary or the requirements for licensed traders in Poland.

It was also mentioned by the traders that for the time being there was no clarification as to what the next steps were going to be in order to create a common market. The establishment of the CAO is seen as satisfying to traders, whereas traders have reservations regarding the FBA methodology. Traders consider the implementation of intraday trading, transparency rules and market coupling to be the next steps that need to be taken.

Selection of comments made by traders in the course of the overall evaluation:

"There is still a lot of work to be done in order to achieve a reasonable level of harmonisation of market rules of individual countries."

"All exchange platforms still have room for improvement with respect to stability, flexibility, responsiveness to market users. Furthermore, they all have unexplained delays."

"The most important initiative in CEE has been to centralise capacity auction in one office: the CAO. Currently, the major concern is the operational risk of trading in Hungary given the bad scheduling IT system of the TSO combined with the low level of support as well as inflexible handling. The Slovak market operator also often experiences delays and technical issues with its IT system."

"Licensing is a general concern and should be abolished or coordinated, for example in the form of a 'European passport'."

Methodology

"Impediments to Electricity Trading in CEE" is a survey prepared by PwC Vienna in 2011.

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

- Research undertaken by energy experts from PwC in December 2010 and January 2011
- The survey was based on a standardised questionnaire and conducted among 34 electricity traders in the CEE region; 17 (50%) sent back the questionnaire. The electricity traders had to be active as non-residents in at least one of the markets of the CEE region.
- The methodology employed for the purpose of weighting questions concerning the attractiveness of certain measures involved each country and power exchange being weighted according to the number of valid market entries.
- PwC asked the traders to answer the questions only with respect to countries which are foreign markets to them. If, for example, the core business and head office are situated in Austria, then the traders were 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
- IT systems and timing
- Implicit auction initiatives in a common European market and in the CEE region
- Interconnection lines
- Scheduling system in CEE
- Congestion management – Central Allocation Office
- Overall evaluation of power exchanges and markets

Power exchanges facts

Comparison of daily average spot prices of selected European power exchanges in 2011

A comparison of daily average spot prices (baseload) of selected European power exchanges shows that the price range varies in the selected time period between 13 EUR/MWh and 61 EUR/MWh.

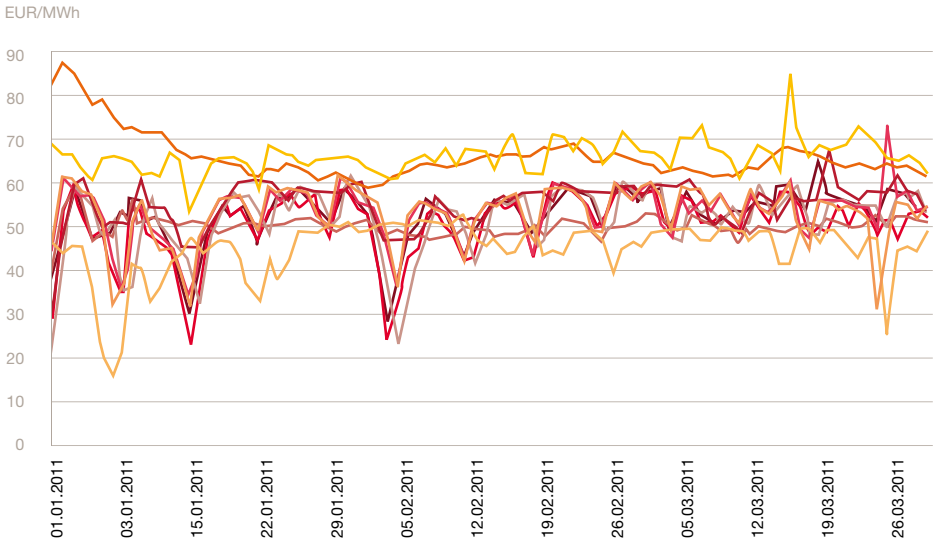
As the figure below shows, prices in special markets which experience connection issues are higher. This is evidenced by the price level of Nord Pool Spot and GME in Italy. On the other hand, the prices in the Iberian market are generally below the European level.

Please note that the price indices of the selected power exchanges in the CEE region (EPEX Spot – Austria/Germany, EXAA, PolPX, OTE and BSP Southpool) all move within the same range and in the same direction. This indicates that regional market integration is on the right track and already rather well developed.

Figure 24

Comparison of daily average spot prices in 2011

Source: Bloomberg



Comparison of power exchanges in Central Eastern Europe – Key facts

Figure 25

Comparison of power exchanges in CEE – Key facts

Source: PwC Analysis

Exchange	Location	Implemented in	Products	Trading Volume in GWh	Trading Value EURm	Trading Participants
				End of 2010		
BSP Southpool	Ljubljana, Slovenia	2008	– Exchange market Slovenia: continuous and auction trading (hourly products), base and peak load	195	Not available	39
EPEX Spot*	Paris, France	2009	– Day-ahead auction trading for France, Switzerland, Austria/Germany; single hours and blockhours (standardized or user-defined – Intraday trading for France and Germany; base and peak load	196,300 in total, 135,600 (Austria and Germany)*	Not available	190*
EXAA Austrian Energy Exchange	Vienna, Austria	2002	– Spot electricity market – CO_2 certificates	6,410	292.15	90
HUPX Hungarian Energy Exchange	Budapest, Hungary	2007, launch of exchange trading in 2010	– Day-ahead auction trading with delivery on the Hungarian TSO zone: individual hours, base and peak load	418.3 (frome 20 July to 31 December 2010)	22.34	14 founder members, 8 members
OTE, a.s. (former Operator trhu s elektrinou, a.s.	Prague, Czech Republic	2001	– Day-ahead market, intraday market, block market bilateral contracts – Emission allowances	5,786	261,18	Market Operator; 870 Participants in 2009*
PolPX S.A.	Warsaw, Poland	1999	– Day-ahead market – Commodity derivatives market (CDM) – Intraday market (IDM) – Property rights market for renewable energy sources and co-generation, (PRM) – CO_2 emission allowance market (EAM)	Not available	Not available	47 (June 2011)
PXE Power Exchange Central Europe, a.s.	Prague, Czech Republic	2007	– Spot market: daily base load, daily peak load, hour – Derivates market: annual base load, annual peak load, quarterly base load, quarterly peak load, monthly base load, monthly peak load,	24.31	1,171.00	44

*no data für 2010 available

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List of Abbreviations

Abbreviation	Definition
ACER	Agency for the Cooperation of Energy Regulators
CAO	Central Allocation Office
CEE	Central Eastern Europe
CEEPEX	Central East European Energy Exchange
CWE	Central Western Europe
ECC	European Commodity Clearing
EEX	European Energy Exchange
EFET	European Federation of Energy Traders
ELIX	European Electricity Index
EPEX	European Power Exchange
ERGEG	European Energy Regulators' Group for Electricity and Gas
ERI	Electricity Regional Initiative
ETS	European Trading System
EU	European Union
EXAA	Energy Exchange Austria
FBA	Flow Based Allocation
GME	Gestore Mercati Energetici

Abbreviation	Definition
GRI	Gas Regional Initiative
HUPX	Hungarian Power Exchange
ISOT	Informacny System Organizatora Thru
IT	Information Technology
ITVC	Interim tight volume coupling
MAVIR	MAVIR Hungarian Transmission System Operator Company Ltd.
MIBEL	Mercado Iberico de Electricidade
MWh	Megawatt Hour
OKTE	Organizátor krátkodobého trhu s elektrinou
OTE	Operátor trhu s elektrinou
PolPX	Polish Power Exchange
PwC	PricewaterhouseCoopers
PXE	Power Exchange Central Europe
REM	Regional Energy Market
RTE	Réseau de Transport d'Electricité
SEPS	Slovenská elektrizačná prenosová sústava
TSO	Transmission System Operator

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