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A VITAL LINK IN ENERGY TRADING

Energy Viewpoints

Developing Energy Markets

Issue 5 – Winter 2005/06

Developing Energy Markets

Contents

Dear Reader,

Major steps are being taken towards achieving the EU's vision of an internal integrated energy market by linking Europe's national power markets through the efficient matching of supply and demand for both electricity and transmission capacity.

Preparations for the trilateral coupling of the Dutch, Belgian and French markets by APX with the Belgian and French exchanges and TSOs are among the developments being watched with most interest by the European market, according to Moffatt Associates' latest survey. Plans are already being worked on to extend this initial "core" market of the Netherlands, Belgium and France with a link between the Netherlands and Norway via the NorNed Cable, and possibly also a coupling between France and Spain.

While market coupling or implicit auctioning of cross-border transmission capacity holds out the prospect of progressively integrating Europe's national markets, significant differences in the underlying physical operations remain, arising in part from the specific circumstances under which they were established. On the road to integration, not all markets adopt the same approach.

The foremost example of this is the UK's bilateral trading of wholesale power. In this issue of Energy Viewpoints, we outline proposals for a central day-ahead power auction. The establishment of a single focal benchmark price, set by a central power auction, would provide a foundation for the implicit auctioning of interconnector capacity

between the UK and continental Europe. A significant section of the power market also believes that a central power auction could also concentrate UK market liquidity, enhancing price transparency and facilitating wider participation.

Moffatt Associates' latest market survey focuses on this topic amongst others, finding a wide range of viewpoints on an auction for power. The findings suggest that the case for a UK power auction is yet to be won, however there is now an unrivalled opportunity to learn from current market conditions and apply the "best of both worlds" in terms of structural approach. Interest in the issue is strong among those with an active stake in the development of the UK market.

We hope you enjoy reading this issue of Energy Viewpoints and we would like to invite you to send your feedback to us at apx@apxgroup.com.

Bert den Ouden
CEO

Power Auctions – the European Experience

With many operators pointing to the success of well-established energy exchanges on the continent, auctions-based pricing is seen by some as the best way to ensure both viable domestic markets for the greatest number of participants, and efficient, market-based crossborder congestion management. Moffatt Associates' latest European Energy Trends survey highlights some strongly held but divided opinions on what is the optimal structure for Europe's power market.

Setting the scene

Just 18 months before the EU energy markets are fully opened to competition, low liquidity in some of these markets has intensified concern about slow progress in achieving an integrated, liberalised energy market. This lack of liquidity remains an obstacle to the development of the power markets in Europe, and there is a growing debate in energy circles about how to encourage greater volumes and a higher number of participants in the search for more credible and transparent electricity trading.

This quarter's Energy Viewpoints survey reveals that many of our respondents have concerns about this lack of liquidity in certain European markets, although a minority of those questioned believed that on the whole liquidity is sufficient. The degree of liquidity in the market is regarded as an essential indicator for the degree of market efficiency. An open market in which participants can trade without a significant risk of market shifts resulting from individual transactions is clearly necessary for the effective pricing of a traded product. Our panelists agreed that a strong underlying spot market is crucial for the development of a successful wholesale market, by helping to develop a credible price for power.

Achieving liquid power markets depends on several criteria, including the number of players involved, traded volume, adequacy of products and fees charged. A good clearing mechanism is seen as an important feature to attract volume, as is the ease of sourcing supply for new entrants. In addition, the growing trend towards the coupling of different EU power markets should allow a more dynamic allocation of cross-border capacity and lead to a higher level of trading.

The power trading situation in Europe varies greatly depending on the market concerned. Liquidity in spot markets has been improving since the liberalization process began, but forward markets still need to be reinforced. In general, though, the number of participants in the market continues to grow, with end users and ▶

producers increasingly attracted to trading in order to hedge their risks.

Market participation varies across Europe

Several members of our panel were generally agreed that, not surprisingly, liquidity is at its highest in the longest-established trading market, the Nord Pool, but many also expressed confidence that the situation is improving in Germany and in the Netherlands. In terms of the percentage of total annual consumption, the APX, Nordpool and the EEX already have relatively high shares of domestic market consumption.

In Italy, the IPEX is still at a relatively early stage of development but succeeded in gaining an astonishing 46% of physical volume in its first year of operation, despite the widespread view that the Italian market continues to be dominated by the main incumbents. Elsewhere, however, liquidity has been lower on the Powernext exchange in France and the EXAA in Austria.

Problems in attracting volume to the UK market have been particularly noticeable in recent months. Panel members cited a number of reasons for the fall in liquidity, with the reasons most frequently mentioned being consolidation in the power market, a lack of counterparties, and increasing concern about risk. Following its pioneering role in electricity market opening in the 1990s, the UK market is now seen by some as overly complex and opaque, while the return to vertical integration appears to be limiting participation in the market.

In France, after a relatively slow start, the Powernext exchange is now starting to attract volume, although the dominant position held by EDF in the power market remains an obstacle to liquidity. Many of our respondents cited France, along with the UK, as the European market where there is insufficient liquidity, but the French exchange experienced a 90% spot volume increase in 2004 compared to 2003, and an increase of 56% in winter 2004/2005 compared to winter 2003/2004.

In Germany, the price set by the European Energy Exchange (EEX) is increasingly being accepted as a reference price, and liquidity in the German spot market is growing. The APX has also been experiencing significant liquidity, and this is expected to continue. Because of its size and geographical location,

Germany is crucial for price setting and cross-border transmission access, as the market acts as a link between eastern and western Europe. In 2005, a total of 602 TWh was traded on the EEX spot and derivatives market for power, an increase of 52% compared to the previous year, with derivatives proving to be particularly popular. The EEX is the exchange with the highest turnover in Europe and currently has 132 participants from 17 countries.

Although volumes on the EEX are increasing at a higher rate than the APX, the Dutch market is also growing strongly, with Dutch power exchange APX reaching a record volume of 16.05 TWh in 2005, an increase of almost 20% compared to 2004 (13.4 TWh). The Dutch market also benefits from its geographical position at the heart of western Europe, and its strong physical interconnections with neighbouring countries.

Meanwhile since January 1 2006 the new Belgian exchange Belpex, together with Powernext, has been organizing Virtual Power Plant (VPP) auctions for the virtual sale of Electrabel generating capacity.

Prospects for market coupling

One of the key features of trading across Europe is the different approach taken in the various regions. There is a tendency towards market coupling in western European countries, while in central and eastern Europe the trend is towards coordinated explicit auctions. The success or otherwise of market coupling largely depends on having sufficient liquidity in the market, although the size of the OTC/bilateral market that is linked to exchange prices is also important. Some analysts believe that market coupling is better than explicit auctions in the day ahead market, since this provides transparency, open access, netting and avoids contradictory price signals. It generates horizontal liquidity and so can enable the emergence of efficient energy markets where these do not currently exist.

Multinational day ahead implicit auctions have existed for some time in the Nordic region through the use of market splitting. Establishing implicit auctions takes time and can be complicated, as they require the existence of sufficient power exchanges to handle imports and exports through the spot market.

The start of trading on the Belpex exchange this year will focus attention on Belgium and its neighbouring markets. Although there is a high degree of market correlation between prices on the EEX, APX and Powernext, this will be the first time that three European power exchanges have been explicitly linked with a day ahead market coupling mechanism. The market coupling of Belpex, APX and Powernext is considered necessary to reach a suitable threshold of liquidity on Belpex.

Differences across Europe

The way in which the various exchanges were established and the institutional framework within which they operate vary significantly. In Spain and Italy the

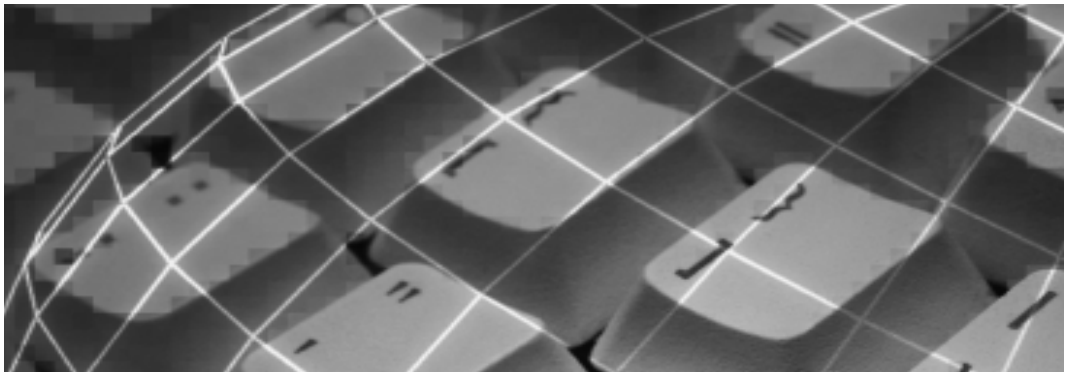
exchanges are part of the design of the electricity sector introduced by liberalisation and their role is explicitly recognised and to an extent regulated by the relevant legislation and implementing provisions.

In the Netherlands, Germany and France, the exchanges were launched as voluntary initiatives of coalitions involving market participants, TSOs and financial institutions. The rules governing these exchanges generally are of a contractual nature, even though they may be subject to the general provisions regulating the operation of exchanges.

There are also many different types of auctions, pricing rules and clearing mechanisms. In western Europe, the usual trading system is a double-sided (using bids from sellers and buyers) daily power auction. Day ahead power is traded hourly through auctions at the APX , the EEX, the EXAA, GME, Nord Pool, Omel and Powernext. Power for day ahead trading is available in blocks at the APX, the EEX, Nord Pool, Omel and Powernext. GME and Omel also hold auctions for the adjustment market. In the UK, in contrast, power is continuously traded, rather than through the use of auctions. Some of our panel members supported the introduction of a European-style single price day-ahead auction in the UK, but few believed that this was likely to happen, certainly not in the near future.

Growing liberalization has stimulated interest in trading in continental markets with, as mentioned, the German and Dutch markets in particular showing evidence of increasing liquidity. The complexity of the UK market, and local industry consolidation, have caused some traders to look to other markets, although this may yet turn out to be a temporary phenomenon with pending proposals – outlined in this issue of Energy Viewpoints – aiming to revitalise UK trading.

Looking ahead, mergers between some of the existing exchanges are likely in the medium-term, since the European power market is not large enough to be able to support so many different operations. If this happens, Nord Pool, the APX, EEX and Powernext are the most likely to survive, at the expense of some of the smaller exchanges. The concentration of trading on a few, larger, platforms should help to encourage liquidity in the market while, despite the slow progress in market opening, the introduction of full competition for all users in all EU power markets from July 2007 should also stimulate trading and encourage more participants into the market.



Reversing the Decline in UK Power Market Liquidity

The UK's bilaterally-traded wholesale market for power, which sets it apart from other major European markets, has recently experienced a decline in liquidity. By concentrating liquidity on a day-ahead auction, an actively traded and transparent spot pricing benchmark could be established, supporting the further development of wholesale power and derivatives trading. Paul Beynon, Chairman of the FOA's Power Trading Forum and Vice President of UK Power Trading at RWE Trading, outlines a proposal for the UK to establish a central, auctions-based market.

The proposed solution

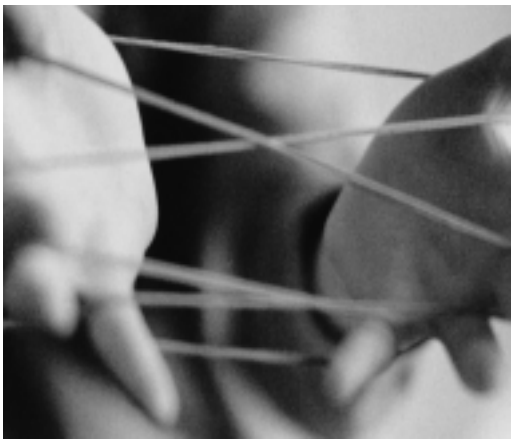
In initial discussions with a view to reversing the decline in liquidity in the UK power market, there seems to be a great deal of support for the development of a liquid and transparent energy exchange, which would help to attract financial players and foster credit risk-mitigating solutions. Progress in these two areas would help to counteract two of the primary reasons for the drop in liquidity being experienced in the UK wholesale market for power. The basis of such a new contract will not, however, happen overnight.

Current, physically delivered, solutions are regarded as cumbersome and difficult for new participants to enter the market so there is a need to develop a cash settled market that is based on a physically derived (and trusted) benchmark price. The Futures and Options Association (FOA)'s Power Trading Committee believes that an auction system will provide the trusted benchmark price on which such a cash settled futures contract could be based and is proposing this solution to the UK Power market.

This solution should address the current situation where there is no agreement on a single benchmark, with wholesale traders using a variety of indices and cash market terms to trade forward. This has had the effect of fragmenting the liquidity that does exist in the market even further with traders, as a consequence, being unable to equate the numerous different basis prices that are available.

By employing an auction, market attention and market activity can be drawn to a single marketplace and product at a specific point in time. This creates a focal point for the concentration of liquidity. The auction also facilitates the anonymous execution of large orders at a price that accurately reflects market conditions at the time of execution.

In contrast to standard products, hourly auctions significantly facilitate



pre-balancing and optimisation activities by physical players dealing in load shape, thus fostering their actual participation in the market.

Pricing transparency

The efficient price discovery mechanism of the auction-based model enables market participants to refer to the price level established in the auction as a reference spot price for the value of physical contracts. Since this resulting market 'index price' is effectively transactable without basis risk against the physical market, it lends itself particularly well to becoming the underlying instrument for cash settled products such as futures contracts.

Such an auction will, however, require market participants to commit to supporting it in order for liquidity to be concentrated and for it to become the focus for pricing. The likely format for an auction will be as follows:

- At a specific time day-ahead, all participants submit their bid and offer volumes with prices for hours or groups of hours.
- The volumes can either be fixed by the participants (i.e. 25 MW) or capped (i.e. up to 25 MW). The prices can either be capped (i.e. I buy at no more that £15/MWh for hour 5) or be a market order (i.e. I buy hour 5 at the clearing price).
- The number of bids and offers must be high enough to allow for flexible bidding by participants. The exchange then creates aggregated bid and offer curves for each hour through linear interpolation. The intersection of the bid and offer curves is the clearing price for each hour.

In order to achieve greater participation, the design must reflect the preferences of the suppliers and/or bidders. It must therefore aim to offer the following:

- Low participation costs.
- Clear rules
- No distortion of pricing by eliminating TSO participation in the auction

Developing derivatives trade

A properly supported, liquid, transparent and trusted spot price provides a benchmark for launching a platform for new derivative products and, therefore, ever increasing degrees of liquidity.

A futures contract with financial settlement (cash settlement through central clearing) can be developed from the resulting prices – as well as contracts that are physically delivered through the spot exchange. Buyers and sellers who agree to cash settle the difference between the price agreed and the future market price upon the conclusion of the transaction would have no basis risk against the new index.

While the physical futures market could follow the Electricity Forward Agreement (EFA) association contract, using 4,4,5 ▶

week cycles, the new financial contract could be based upon a calendar month – thus matching load to the National Balancing Point (NBP) 1997 contract for gas. If a similar market design was followed on gas, a spark spread swap contract could then be developed. Given recent moves in the US and in the UK it seems likely that spark swaps and swaptions should attract liquidity from asset owners, funds and from gas and power traders.

With this approach, a direct link also opens to other European exchanges, and the UK exchange could even list other exchanges as a delivery point. This will become more interesting as physical interconnection and market coupling increases.

For this market model to be successful clearing must be a key ingredient. The market-supporting clearing structure thus consists of a central contracting party or clearing house and of several banks, which are active as licensed clearing members of the clearing house in question.

Within this structure the trading participants are able to settle their transactions with a Clearing Member of their choice, whereas the Clearing Members themselves settle these transactions direct with the energy exchange (in the case of exchange-based trades). With regard to the commitments they have entered into, the trading participants have to deposit margins with their Clearing Member and the Clearing Members in turn have to deposit the same at the clearing house/exchange serving as the central contracting party. As a result of this structure the settlement of all transactions is ensured and problems with the credit-worthiness of individual counterparts are eliminated.

Once these market mechanisms are in place, OTC cleared markets can be developed that offer margin offsets against the cash settled futures contract. This centralisation of the credit pool is essential if all companies with commercial interests in the UK power market are to access the market on an equal footing.

FOA's Power Trading Committee is initiating discussions on the solution to falling liquidity in the UK and will be engaging market participants in order to assess the interest in developing the market model outlined in this paper. Any readers interested in participating in this development should contact Paul Beynon (paul.beynon@rwe.com) or Clive Furness (furnessc@foa.co.uk)

This article is an edited version of a paper presented to the Power Trading Forum round table on 24 November 2005 and is reproduced with the kind permission of RWE Trading and the FOA. ■

Market-Based Congestion Management on Belgium's Borders

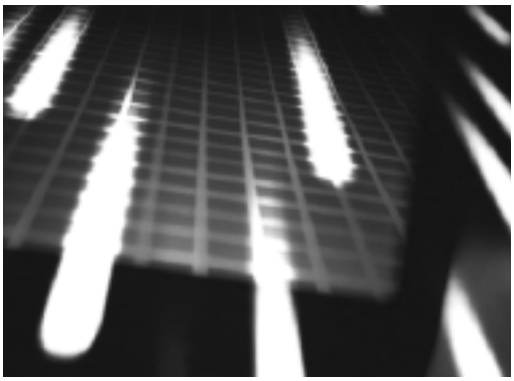
With the new year, explicit auctions of interconnector capacity have begun on the border between Belgium and France, replacing the pre-existing 'first-come-first-served' method of allocating capacity with a market-based system. However, the extension of explicit auctions on Belgium's southern border is only a first step, as the introduction of Trilateral Market Coupling is planned for the day-ahead market later this year. In this article Cécile Pellegrin, responsible for these Market Mechanisms at Belgian TSO Elia outlines progress in the development of auctions-based congestion management.

Explicit auctions launched for trade with France

In accordance with European legislation calling for the establishment of market-based cross-border congestion management, Belgian and French TSOs, Elia and RTE have established a new capacity allocation mechanism for power trade across the Franco-Belgian border. As of 1 January 2006, capacity in both directions is awarded via explicit closed auctions, comprising a single round in which capacity is paid at the lowest bid price that is accepted.

This is an extension of market-based congestion management for Belgium, since on the northern border with the Netherlands, auctions have been in place since 2001. The mechanism allows available capacity to be allocated in both directions over three timeframes (yearly, monthly and daily), in in place of the priority lists principle (the so-called 'first-come-first-served') applied in the past. Unlike the old mechanism, the explicit auctions will make it possible to:

- allocate capacity in an effective manner, to those market operators for whom this capacity is of greatest use
- provide market participants in both countries with immediate access to cross-border capacity
- provide satisfactory economic signals to the market, encouraging appropriate investment both in terms of the network and generation
- make all capacity in both directions available to market operators using a mechanism jointly coordinated by both transmission system operators.



The marginal price principle also ensures that if there is no congestion on the network (i.e. when capacity required is lower than the capacity made available by the transmission system operators), no costs are charged. In this case, the two adjacent national market zones become a single market.

The experience to date

Overall, the results of the auctions held to date are encouraging both as regards the number of participants and as regards the marginal price with which each auction settles.

At the yearly auction held on 16 December 2005, a total of 1,298 MW of interconnection capacity in the France to Belgium direction was awarded to 17 bidders, whilst a total of 799 MW of capacity in the opposite direction of flow went to 9 bidders. Monthly auctions saw 1,450 MW allocated to 15 bidders in a northward direction (France to Belgium), and 520 MW awarded to 6 bidders in a southward direction. In the auction for February, participants rose to 16 and 7 for northbound and southbound flows respectively.

Meanwhile, the price for northbound flows is equal to or even lower than the congestion management fee previously paid to Elia under the old 'first-come-first-served' mechanism. Moreover, in contrast to the old fixed congestion fee, this new mechanism provides an actual overview of the congestion situation on the France-Belgium interconnection.

This congestion has been fairly low during these winter months. This has partly been the result of the expansion to France-Belgium interconnection capacity at the end of 2005. Another contributing factor is the decision taken by Belgian regulator CREG that, with the new auction mechanism becoming operational, priority in assigning capacity will no longer be given to parties with long-term contracts pre-dating electricity market liberalisation.

However, it is also noticeable that day-ahead auctions have seen relatively low marginal prices for cross-border capacity, in comparison with the rest of the market. At the yearly auction, France to Belgium capacity was awarded at €0.76/MWh, with southbound capacity priced at €0.11/MWh. In monthly auctions for January and February, northbound capacity went for €0.22/MWh while southbound capacity raised €0.35/MWh and €0.41/MWh respectively. The much lower price in the daily market stands in contrast to the above, averaging just € 0.0086/MWh in both directions of flow between 6 and 26 January 2006 .

The low price emerging from the daily auctions market segment is worth noting, because it is believed to reflect the abundance of capacity in the day-ahead market segment. This, in turn, is thought to partly result from the 'use-it-or-lose-it' principle, whereby unused yearly and monthly capacity is put back into the daily auctions market segment.

Implicit auctions are the next target

The emergence of under-utilised capacity appears to be at least in part because of precautionary buying on the part of operators seeking to ensure the availability of interconnector capacity. The present explicit auctioning mechanism requires companies trading electricity across the border to purchase the capacity transmission rights separately, inevitably

leading at times to unnecessary buying of capacity on a 'just-in-case' basis, and thus to its inefficient allocation, especially on short-term timescales. A symptom of this is to be found in the presence of power price differentials between Belgium and France even at times when demand for cross-border power flows falls short of available interconnector capacity. In such cases, if all capacity were used, cross-border trade should be able to eliminate any price differential between the two adjacent markets.

Implicit auctions

By directly linking the booking of interconnection capacity to the trade of electricity, implicit auctions remove the scope for 'just-in-case' booking of capacity, ensuring that it is not taken up unnecessarily. Thus whilst daily capacity is seldom fully used under current arrangements, implicit auctions will allow the optimal allocation of daily capacity.

This is why the introduction of explicit auctions is only the first stage of the plan to which Elia, RTE and TenneT are working together with their national power exchanges and regulators (respectively Belpex, Powernext and APX and CREG, CRE and Dte). In the third quarter of 2006, the plan is to launch trilateral market coupling whereby the daily capacity on the Belgium-France and Belgium-Netherlands interconnectors is implicitly allocated via the coupling of the relevant power exchanges.

With implicit auctions taking over in the daily market, explicit auctions will continue in the montly and yearly segments. These two interconnections would therefore have a hybrid combination of short-term implicit auctions and long-term explicit auctions, as recommended in the study undertaken by Consentec and Frontier Economics for the European Commission.

The new arrangements from this coming autumn will offer TSOs and the market an effective means to allocate available capacity on the Belgium-France and Belgium-Netherlands interconnections on a day-ahead basis. This will also allow the implicit netting of import and export flows.

Meanwhile, Elia and RTE are also working towards the following targets:

- extending to the Franco-Belgian border a bilateral secondary market for capacity up to 2-3 days before transmission, such as already operates on Belgium's northern border with the Netherlands.

- allowing reselling of all or part of a capacity allocation to the auction operator up to 2-3 days before transmission, at a price to be set by the auctioning of capacity back onto the market

- allowing the participation of brokers separately from the final party who uses the capacity.

Looking ahead, Elia and its counterparts in France and the Netherlands are studying the possibility of an intra-day capacity allocation market for power, a major new project which may follow the successful start-up of day-ahead trading.

Trends in European Energy Quarterly Survey (Winter 2005/06)

This edition of ***Energy Viewpoints*** includes the results of our latest quarterly survey researching trends in the European energy markets.

This regular survey is run in association with **EFET** (the European Federation of Energy Traders) and is conducted by ***Moffatt Associates***, an independent market research and business strategy consultancy based in London.

The objectives of this research programme are to canvass views on trends in market prices and energy market developments such as liberalisation, and to monitor changes in market perceptions over time.

Results are based on the views of an established Panel of leading market participants and policy influencers. The survey itself consists of an online questionnaire and a follow-up in-depth telephone interview, and is conducted on a strictly confidential and non-attributable basis. Respondents were interviewed in January 2006.

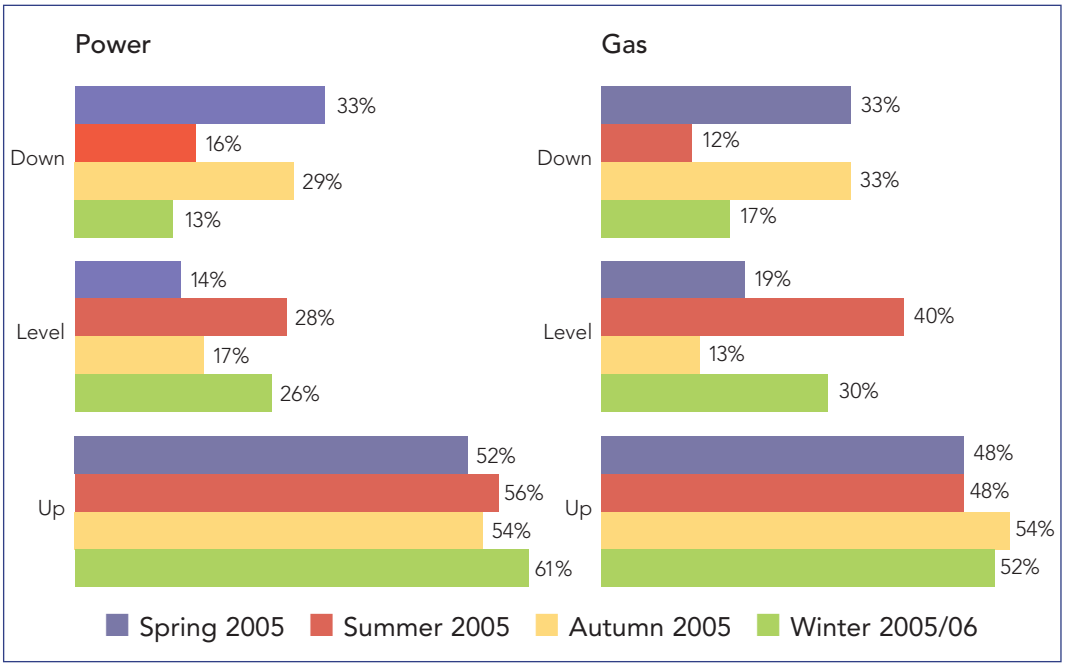
This quarter we received contributions from 25 senior market participants from 9 European countries (Austria, Belgium, Germany, Italy, the Netherlands, Norway, Spain, Switzerland and the UK).

The key findings are as follows:

Price Trends

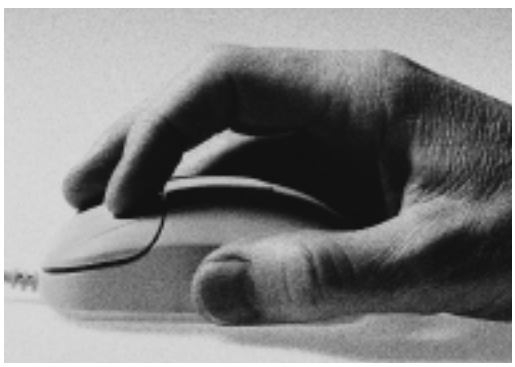
- Far fewer respondents than previously now expect energy prices to decline in the near term. For **power**, just 13% of respondents now expect spot prices to fall in the next 6 months, compared with 29% last quarter, while an increased

What will be the underlying trend for spot energy prices across Europe over the coming 12 months?



share (61%, from 54% previously) expect a rise. Increased expectations of rising prices are even more in evidence with regard to the forward market for power: 65% expect an increase, and just 4% a decrease, compared with 46% and 25% respectively last quarter. For **gas**, the share of respondents expecting prices to fall has also declined, particularly for spot prices – from 33% last quarter to just 17% now. A little over half of our panel continues to expect rising gas prices, while in spite of recent volatility, a rising share of respondents expects prices to hold steady over the next six months.

- Looking at **power prices** in the four regional markets covered in-depth by the survey, the **German** market is expected to firm sharply both over the next 6 months and over the next 3 years. Opinions regarding the **Scandinavian** market are becoming more polarised with a rising share of respondents expecting sharp increases in both the short and the long term, while a still small but growing minority predicts a sharp fall. An increase in those expecting power prices to fall – especially long-term – is even more evident in the UK, although the majority of our panel still expects this market to firm. In the **Netherlands**, most respondents expect prices to rise



although the share of those envisaging a long-term rise, whilst still accounting for one-third of our Panel, is well down from recent quarters.

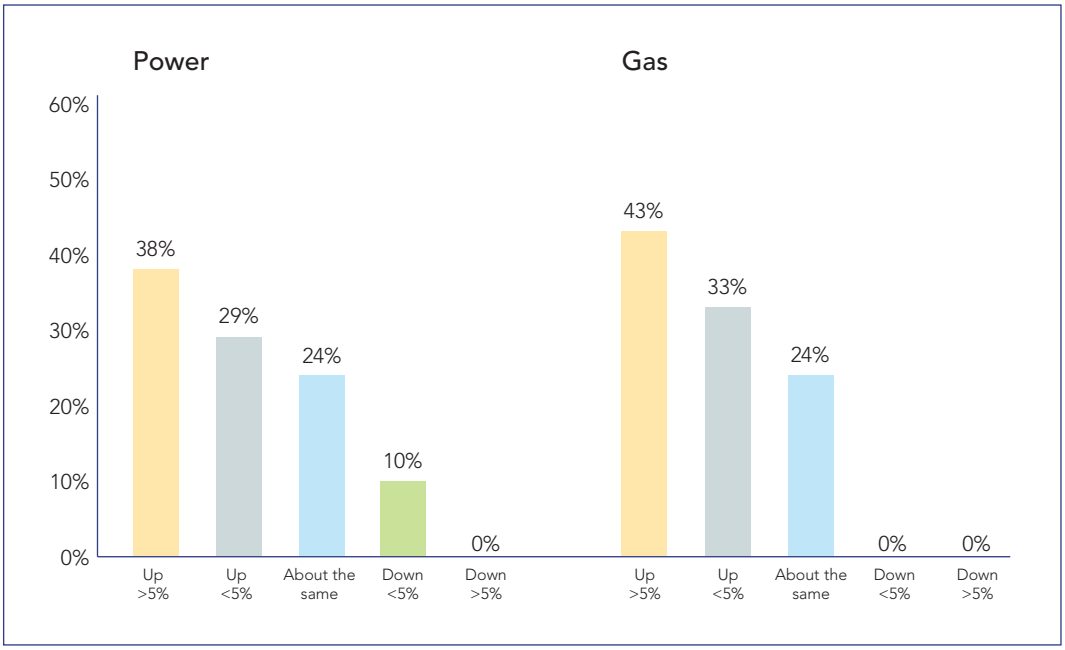
- For **gas prices**, most respondents expect **German** prices to firm in the short term; opinion is much more evenly divided about trends over the next 3 years. In **Scandinavia** expectations of rising gas prices prevail, while for the UK a sharply increased number of respondents (29%, compared with 10% last quarter) predict that prices will be significantly lower in 3 years' time. In the **Netherlands**, most of the Panel anticipate stable to rising prices over both the short and long term.

Market Developments

- When respondents were asked to identify key issues or hot topics for the energy market over the next 6-12 months, **emissions trading** was once again a popular choice, although to a slightly lesser extent than last quarter. Unsurprisingly in view of recent developments, **gas supplies and price volatility** are emerging concerns. Preparations for trilateral **market coupling** and the operation of **Belpex** are being closely watched. Another key issue being tracked by many members of our Panel is the ongoing **European Commission probe** into the competitive workings of the EU energy market.

- Of five factors exerting pressure on energy prices submitted to our Panel for consideration, movements in **fossil fuel prices** and **environmental pressures** remain those perceived as most important, with most respondents believing they will exert an upward push on prices over the next five years.

How much do you see market trading activity across Europe changing over the coming 6 months?



Of the other factors, industry consolidation is prevailingly seen as tending to push prices upwards, whereas a majority of respondents believes **market liberalisation** and **infrastructural developments** will lower prices.

- On average, respondents said that 17% of their company's traded volumes were cleared in the previous quarter of trade, down from 33% at the time of our last survey.

- The share of respondents expecting an increase in **market trading activity** has edged down for power at 67% (compared with 70% last quarter), but has increased significantly for gas (76%, up from 65%).

- Regarding pan-European **consolidation**, the perception of the majority of respondents is now that it is proceeding at a steady pace for both power (57% of views expressed) and gas (62%). Previously, most of our Panel believed that consolidation was accelerating for power.

- Resistance by key incumbents and political factors remain the foremost **constraints** on energy market liberalisation, in the view of our Panel. Since last quarter, however, less importance is accorded to legal constraints as an obstacle to free markets.

- National **network access regimes** are now seen as a significant constraint on power trading by 48% of respondents, compared with 35% previously. For gas, 90% of respondents now see them as a significant constraint, up from 80% last quarter.

Special topic: Power Auctions

Each quarter a different special topic is examined, with additional questions put to the Panel. Last quarter emissions ▶

trading was looked at in-depth, and this time our focus is on **auctions for power**.

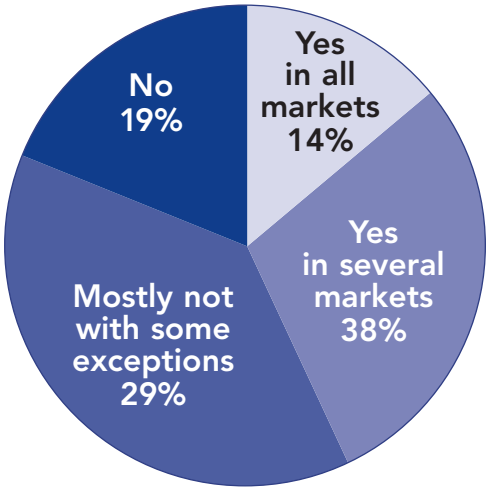
- Respondents offered widely ranging views when asked whether a **lack of liquidity** is affecting European power trading. A clear majority of our Panel sees liquidity as insufficient in at least some markets, although close to one-fifth of respondents have not experienced any significant shortfalls. Germany, Scandinavia and – by some accounts – the UK are seen by several respondents as having relatively high liquidity, although in the case of the UK, liquidity is falling and seen by some as already insufficient in the forward segment of the market. The problem "has been on my radar for the last year, and is a growing concern," remarked one Panel member.

- An almost unanimously held view is that a strongly developed underlying **spot market** is a necessary foundation for any thriving wholesale market for power. Asked to identify the likely **key features** of a robust and liquid spot market, our Panel's most widely shared concerns were with ensuring "a multiplicity of players, transparency of information, confidence in credit and an effective clearing mechanism". Of these factors, transparency is seen by many as the foremost requirement although "clearing is important for smaller participants and also attracts new entrants".

- Our last two questions centred on the situation in the UK. Some mainland European panel members were unable to express a view because of their relative unfamiliarity with the UK market. However, many of the respondents who did take a view on the **causes of low liquidity** in the UK blame consolidation, and in particular vertical integration of the power industry. "Industrials are looking to buy, but there are few sellers; vertical integration is a reason for this," said one player. Another Panel member argued however that while "there is a distrust of consolidated industry […] it is not true that vertical utilities like a lack of liquidity". Recent price volatility, combined with a waning appetite for risk in the market have further contributed to falling liquidity.

Is there a shortage of liquidity in EU power markets?

(Shares estimated from survey responses)



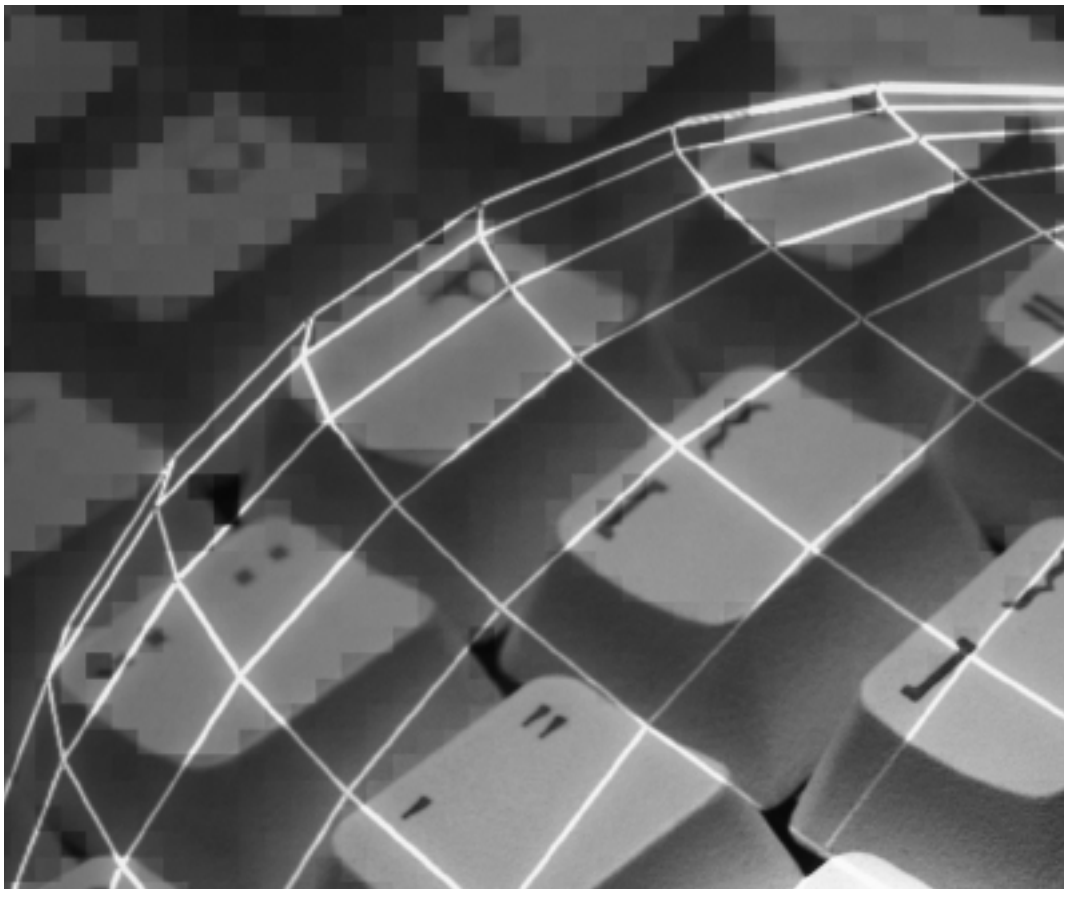
- Asked whether they would support the ▶

Would you support a day-ahead power auction in the UK?

(Shares estimated from survey responses)

establishment of a **day-ahead power auction** in the UK slightly over half of respondents expressed either full or qualified support for the idea. Several respondents indicated that they would personally welcome such a change, provided that it could win widespread support and thus have the potential to reverse a recent decline in interest on the part of some prospective UK market participants. Turning to those sceptical over UK power auctions, one respondent believes that "the day-ahead market works very effectively in the UK, the problems are in continental Europe".

Conversely, one strong supporter argues that in the absence of a single and transparent spot market reference price, the UK lacks an optimal market mechanism for pricing marginal generation or interconnector capacity, whilst the development of the UK forward market for power also suffers, "as it is difficult to create swaps". ■



APX News

TenneT sells 25.5% shareholding in APX to Gasunie

N.V. Nederlandse Gasunie has acquired from Dutch Transmission System Operator TenneT B.V. a 25.5% stake in APX B.V., effective 1 January 2006. The deal involves the power and gas exchange's operating markets in the Benelux countries and the United Kingdom, as well as third party services. APX B.V. – including its UK subsidiaries – represents a company value of approximately €50 million. It is the intention of TenneT to sell further shares of APX in the future, but the Dutch TSO will keep a 51% share together with Gasunie.

APX Group welcomes the broader base of shareholders, as it is already active with gas related activities in the UK and the Benelux region. The Supervisory Board of APX will be extended with a representative of Gasunie, Mr Henk Chin-Sue, Chief Financial Officer and member of the Board of Directors at Gasunie.

Belpex due to launch in Q3 subject to regulators' approval.

Belpex, Belgium's planned power exchange is expected to begin trading in the third quarter of 2006. On 12 January 2006, Belpex was granted the necessary operating licence, and the Belgian Federal Ministry of Energy approved the Belpex market rules.

The launch date of Belpex and market coupling between Belpex and its two neighbouring power exchanges, APX in the Netherlands and Powernext in France is planned two months after the regulators' approval of the trilateral coupling allocation mechanism and outstanding issues regarding the 'Road Map' which the three regulators published on 7 December 2005.

Belpex has appointed APX B.V. as central counter party for the Belpex day-ahead market. Leading Dutch bank, ABN Amro Bank Holding will process the payments and collateral deposits.

An important feature of the establishment of the Belpex day-ahead electricity exchange in Belgium is the introduction of a market coupling mechanism between Belpex and APX and Powernext. A joint APX and Powernext team has designed and tested a decentralised market coupling mechanism. With the proposed mechanism, the daily cross border capacity between various areas is not explicitly auctioned among market parties, but is implicitly made available via energy transactions on either side.

It is expected that prices will equalise across adjacent countries where there is sufficient transmission capacity. Coupling the three exchanges also leads to a more efficient use of the daily capacity of the interconnections between the networks of Elia, RTE and TenneT.

The regulators CRE, CREG and DTE fully support the integration of energy and transmission markets and agree that the instrument of trilateral market coupling could bring benefits to day-ahead explicit auctions. However, they have requested some further details on the mechanisms that will match orders across the three national markets and ensure that contracts are executed.

The regulators are also interested in the framework's potential for extension to other markets. Indeed, the Nordic exchange Nord Pool Spot has committed to implement market coupling when the NordNed cable between The Netherlands and Norway is completed in 2007. Plans involving a link between France and Spain are also underway.

Belpex S.A. was set up on 7 July 2005 with an initial capital of €3 million. Elia, the Belgian TSO is the main shareholder and holds a 60 % stake, whereas the Dutch and French energy exchanges APX and Powernext, the Dutch TSO TenneT and the French TSO RTE each hold 10%.

APX Group sees 18% volume growth in 2005

In the year 2005, APX Group saw 18% growth on its gas and power exchanges. The volumes totalled 149 TWh, whereas in 2004 a total volume of 126 TWh was traded.

The Dutch power exchange APX reached a record volume of 16.05 TWh, an increase of almost 20% compared to 2004 (13.4 TWh). In London, UKPX's Spot and Prompt power markets grew by 23% from total volumes of 7.10 TWh in 2004 to 8.76 TWh in 2005.

APX Gas UK recorded total volumes in 2005 of 123.8 TWh (4.2 billion therms), an increase of 16.8% compared to its 2004 volumes of 106 TWh (3.6 billion therms). The new gas exchanges APX Gas NL and APX Gas ZEE have seen steady development with 196 trades totaling 271,799 MWh (9.3 million therms) on the Title Transfer Facility (TTF) and 18 transactions representing a volume of 50,614 MWh (1.7 million therms) on the gas exchange for the Zeebrugge hub in Belgium. Since its inception in February last year, APX Gas NL has welcomed 16 members, with 9 members joining APX Gas ZEE.

APX Group awarded Energy Exchange of the Year 2005

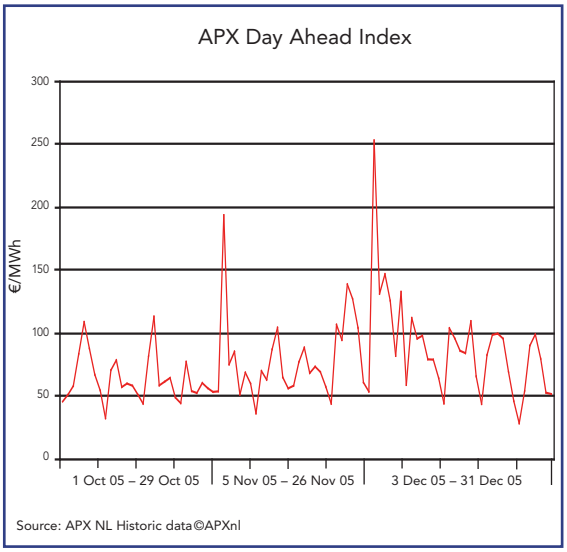
The award for Energy Exchange of the Year, 2005 has been awarded to APX Group by Commodities Now magazine, in conjunction with Jeremy Wilcox, as announced on 14 December 2005. The prize is part of the Energy Business Awards. The granting of the awards is based on nominations received and votes cast from the industry, together with the adjudication process of the Awards Panel. The panel wrote that "APX has grown from a niche entity into a major integrated European energy player with a dominant position in the Benelux – UK triangle".

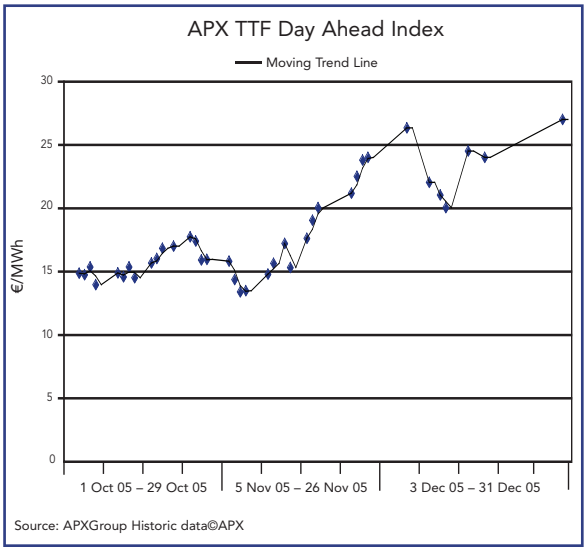
The report also states that "APX Group has shown a commitment and ability to mature as an exchange in 2005 – integrating divisions, promoting new products and consolidating the way it communicates with its members and the market place in general". The Energy Business Awards are intended to reward those who are making a positive impact on energy business development.

For more information:

The full results are available at the Commodities Now and Energy Business websites: www.commodities-now.com and www.energy-business.com

APX Indices





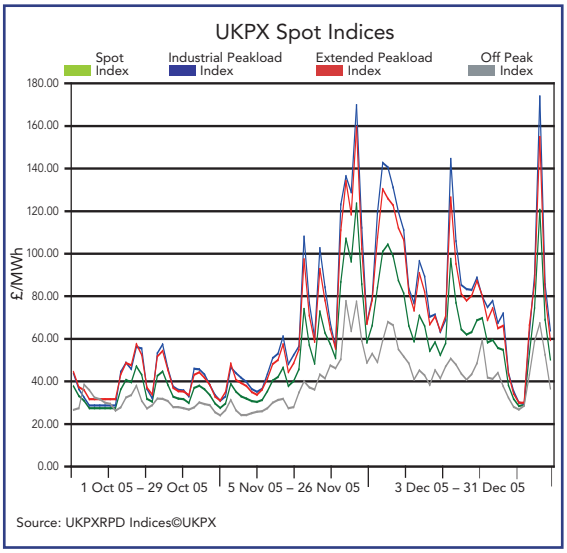
APX Day Ahead Average Prices

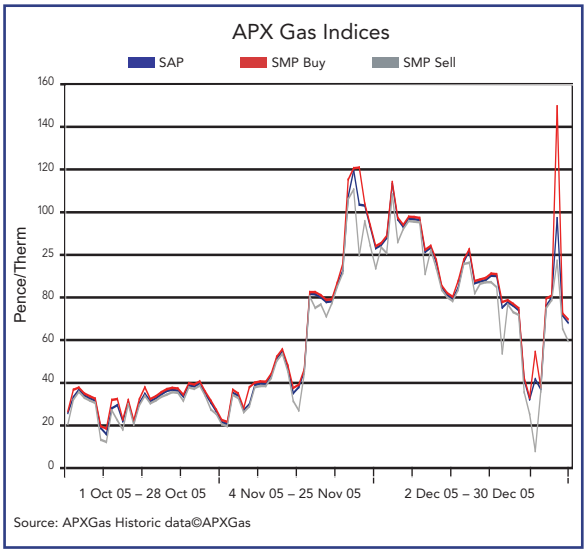
The APX published average prices are comprised of base load, off peak and peak load (07.00 - 23.00) prices based on the average price (in Euro/MWh) of Dutch power traded every day on APX for delivery the next day. Weekend prices are only comprised of base load prices and volumes.

APX TTF Day Ahead Index

The Index is a volume weighted average price (VWAP) of all day-ahead trades executed and matched on APX at the TTF gas hub between 06.00 and 18.00 CET (05.00 and 17.00 UK time) for delivery the next day.

APX Indices





UKPX Spot Indices

The UKPX Spot Indices are based on UKPX Reference Price Data (RPD) which is a half hourly price derived from the volume weighted average price of all Half Hour, Two Hour and Four Hour Block contracts traded within seven calendar days of market closure on UKPX.

Spot Price Index (base load) – The average of the RPD prices for all 48 half hour settlement periods.

Peak Load Index – The average of the RPD prices for half hour settlement periods between 07.00 – 19.00.

Extended Peak Load Index – The average of the RPD prices for half hour settlement periods between 07.00 - 23.00.

Off Peak Index – The average of the RPD prices for the Off Peak half hour settlement periods, between 23.00 - 07.00 and 19.00 - 23.00 in the same EFA day.

APX Gas UK Indices

SMPbuy is the highest price that gas was traded (buy or sell) by Transco in its Network Code balancing role for delivery that gas day. In the event of no Transco action, the SMPbuy is calculated by a default setting of 0.0287p/kWh (0.8411p/therm) from the prevailing SAP. SAP is the volume weighted average price of all trades on the OCM platform.

SMPsell is the lowest price that gas was traded (buy or sell) by Transco in its Network Code balancing role for delivery that gas day. In the event of no Transco action, the SMPsell is calculated by a default setting of –0.0324p/kWh (–0.9496p/therm) from the prevailing SAP.

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