apx Group

A VITAL LINK IN ENERGY TRADING

Energy Viewpoints

Developing Energy Markets

Issue 12 – Autumn 2007

Developing Energy Markets

Contents

Political opposition to TSO unbundling should not get in the way of measures to improve market integration

Dear Reader,

The EU Commission's third attempt at liberalising the energy market was announced on 19 September. These proposals are ambitious. The 3rd legislative package has now passed to the European Parliament and Council (Member States) for full legislative scrutiny. This "co-decision" process is open-ended, but usually lasts 2-3 years.

Lars Kjolbeye from DG COMP makes the case for unbundling as probably the easiest way to achieve fair, non-discriminatory transmission access. Our latest survey amongst leading market participants reveals that a majority believe the package as a whole will improve market competition and that full ownership unbundling of TSO gas and power networks is the best way forward.

However, there appears to be significant resistance to the unbundling provisions – especially in France and Germany and other models have been put forward, notably the independent system operator, or ISO. This debate could rage for a long time, probably dragging in other issues such as new investment and security of supply – which have potent political ramifications. Even the Commission is suggesting a likely implementation date for the 3rd Package of 2010.

A key theme of the 3rd Package concerns the need to ensure that incentives are properly aligned. It also seeks to establish a European regulatory framework. As Robin Cohen of Deloitte argues in his article, regulation is indeed a major issue; this is the key to ensuring fair transmission access and incentives for investment under any transmission ownership arrangement. But he goes on to criticise the lack of clarity over the powers and role of the proposed Agency for the Co-operation of Energy Regulators. This issue too has a long way further to run.

Effective unbundling and more coherent European regulation may well be necessary conditions for market liberalisation but it should not obscure or hinder the progress that is being made to integrate markets. We are now seeing a growing consensus across all stakeholders about what practical market improvements are needed, and a rapidly advancing understanding amongst the involved parties on how to achieve this.

Our latest survey of market participants reveals that market coupling is now seen as the best solution for congestion management. Brieuc Raskin from Morgan Stanley also welcomes the benefits of market coupling, while calling for improvements to long term hedges and intra-day access.

APX has consistently promoted and initiated market coupling over the course of many years, leading of course to the trilateral market coupling between France, Belgium and the Netherlands. TLC has led to dramatic improvements in capacity usage and market quality, and it is good to see that many parties agree this to have been a success. More market coupling is likely in the future, including the Danish-German border, the Central West European region (linking together France, Germany and Benelux), NorNed and BritNed. One could also foresee linking between France and Spain, as well as the linking of west European markets with central European markets. The sequence and interaction between all these initiatives is complex, and full integration could take some time to achieve. Clearly, however, the momentum is currently working in favour of market coupling.

There remain significant challenges – how, for example, do all these localised initiatives come together to create a single electricity market? My current preference would be to implement an inter-regional "dome" solution that connects the regions on a flexible, volume-based manner, while allowing some diversity in how different regions operate internally.

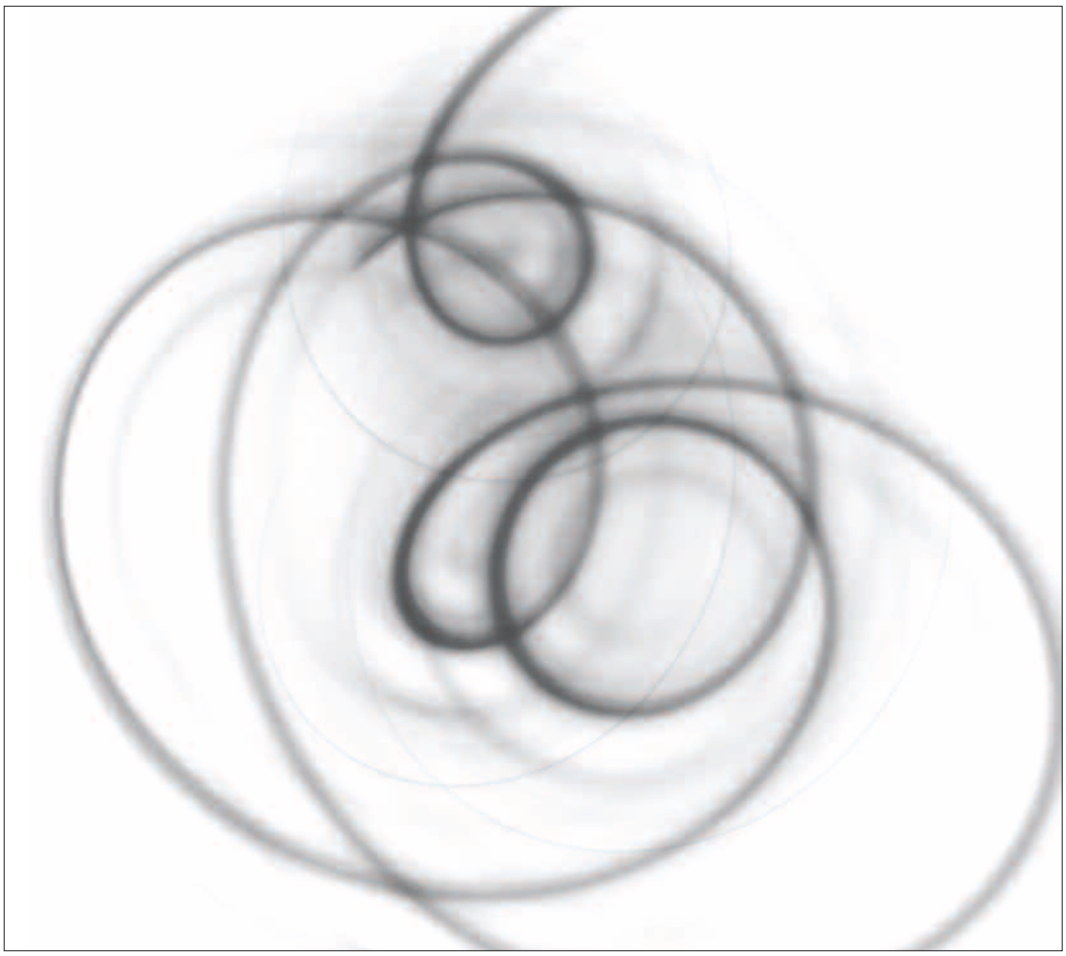
We also need to provide efficient forward markets to enable hedging of cross-border price risk. I favour "use it or get paid for it" mechanisms whereby market parties could choose to use their long-term capacity rights (obtained in explicit auctions) either physically or financially. This would also facilitate secondary markets. And there is intra-day markets. And flow-based transmission capacity determination that could enable more capacity to be made available.

So there is much further potential development, both geographically as well as in the quality of solutions. These are practical measures that will significantly improve the market. I am pleased to note that ETSO and EuroPEX are again working closely together to identify a manageable way forward.

Maybe the issues in the 3rd Package are a prerequisite that need to be solved before we can go much further. But for the moment, if we are to make progress, we must hope that the exchanges and TSOs can continue to push ahead, working within the framework we have – however imperfect.

We hope that you enjoy reading *Energy Viewpoints* – please continue to send your feedback to us at apx@apxgroup.com. ■

Best regards
Bert den Ouden
CEO, APX



Market Coupling: Key to EU Power Market Integration

Market coupling is a way of using existing cross capacity efficiently and of creating regional energy markets. Our Expert Panel believe that coupling is a necessary but not sufficient condition for reducing congestion. It works best where there is a day-ahead power exchange but it is no substitute for more fundamental reforms such as TSO network unbundling.

Setting the Scene

Market coupling is now a key element in the European Commission's approach to creating an integrated energy market. The current process focuses on establishing regional energy markets – 7 electricity regions and 3 gas regions – by bringing together what are essentially fragmented national markets. This is currently the focus of considerable activity at EU level, while the next challenge – creating a European market from these regional clusters – awaits.

In its 3rd energy package, the Commission has highlighted the need for greater co-ordination and co-operation amongst transmission system operators, particularly in the areas of the development of market and technical codes, the co-ordination of grid operation and investment planning. The EC's eventual aim appears to be regional, rather than national, transmission system operators fully independent of supply or generation interests.

The proposed Agency for the Co-operation of Energy Regulators to improve energy regulation across Europe is also aimed at developing common standards and approaches that would make regional energy markets and ultimately a European energy market a reality.

Process of market coupling

Market coupling is a congestion management method where allocation of cross-border transmission capacity is determined according to demand on the respective energy markets. It is an *implicit auction* approach typically used at the day-ahead stage whereby for every hour of operation either prices across the energy markets converge or all the available transmission capacity is utilised, with power flowing towards the high price area.

In contrast, in *explicit auctions* the transmission capacity is auctioned to the market separately and independently from the trading of electricity. Explicit auctions are a relatively simple method ▶

of handling cross-border capacity, and are widely used across Europe. The capacity is normally allocated in portions, through annual, monthly and daily auctions.

In implicit auctions, the capacity between bidding areas is made available to the spot price mechanism operated by the power exchanges. If there is sufficient capacity, bids in the high price market can, in effect, be matched against offers in the low price market. If there is sufficient capacity the markets become one; if not, prices converge but remain different, and the gap represents the cost of congestion.

Market coupling is only slightly different from market splitting, another form of implicit auctions pioneered by Nord Pool. Under market splitting one power exchange operates across several price zones, whereas market coupling links together separate markets in a region. The effect is, however, the same.

According to EuroPEX (the Association of European Power Exchanges), market coupling can help to remove the unnecessary risks of trading short-term capacity and energy separately, encourage liquid, robust spot markets and allow all spot market participants to benefit from cross-border access. Introducing market coupling can help to minimise price differences and achieve market convergence if there is sufficient capacity. It also means an efficient use of interconnector capacity, a key concern of the European Commission, which wants to maximise efficiency of the existing European electricity infrastructure, as well as constructing new interconnectors.

Market coupling can involve explicit capacity auctions or implicit capacity auctions. An explicit auction is when the transmission capacity on an interconnector is auctioned to the market separately and independently from the marketplace where electricity is auctioned. An explicit auction is considered to be a simple method of handling the capacity on international interconnections in Europe. The capacity is normally auctioned in portions, through annual, monthly and daily auctions.

An implicit auction is when the flow on an interconnector is taken into account based on market data from the market-place in the connected markets. In implicit auctions, the capacity between bid areas is made available to the spot price mechanism in addition to bid/offers per area, thus the resulting prices per area reflect both the cost of energy in each internal bid area (price area) and the cost of congestion.

A study by Frontier Economics, Consentec and IAEW for the German Federal Network Agency, published in November 2006,[1] showed that the explicit auctions are an efficient mechanism the further away one is from real time, for example when considering transactions for several months or a year ahead. Conversely, the report concluded that implicit auctions are more efficient for short-term capacity rights, for example day-ahead.

Market coupling in practice

So far the Nordic, the TLC (France, Belgium and the Netherlands) and Iberia, have created regional implicit auctioning arrangements.

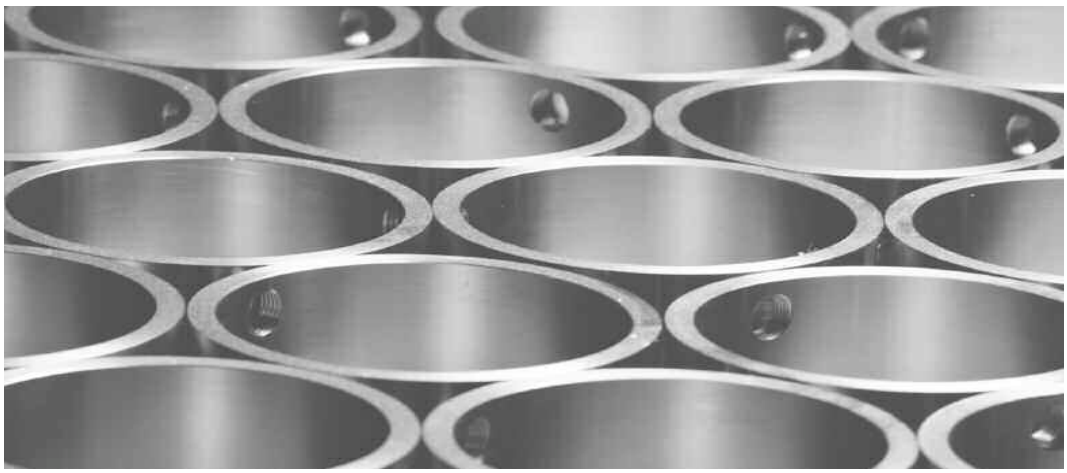
The Nordic market splitting was the first, beginning in 1996 with the start-up of the joint Norwegian-Swedish power exchange, renamed Nord Pool. In 1998, Finland joined, and trade with western Denmark began in 1999. The Nordic power market became fully integrated with the addition of eastern Denmark in October 2000. In 2005, Nord Pool Spot opened a bidding area in Germany, linked via the Kontek cable.

More recently, the trilateral market coupling was launched in November 2006. This links France's Powernext, APX of the Netherlands and the newly created Belgian spot market, Belpex, in a day-ahead market coupling mechanism. This brings together three major electricity markets that account for 25% of the EU's electricity production. Other parties are the TSOs TenneT, Elia and RTE. The aim is to maximise electricity trade and drive up the cross-border capacity utilization, and many observers believe that there has been substantial success in achieving both these objectives.

The trilateral coupling establishes a single price for power across the region, which only differs if there is insufficient capacity available on the Belgian-French or the Belgian-Dutch borders. Since the start of market coupling operations last November there has been a single market price across the region 61% of the time, and the incidence of large price differences as reduced considerably. In addition, the use of interconnectors has become very much more efficient.

The new joint market also enabled the creation of a power exchange in Belgium, Belpex, which from its start has had good liquidity and prices close to those of ▶

(1) Economic Assessment of Different Congestion Management Methods (translated from the German). Report for the Federal Network Agency. November 2006.



France and the Netherlands. Members of our expert panel believed that on the whole the project has been a success. It has helped to boost liquidity on the exchanges and to increase market convergence.

A plan to extend market coupling to Denmark and Germany by using implicit auctions for the daily cross-border capacity allocation for both interconnectors between the two countries was agreed in 2006. Thise intention is to connect the Nord Pool market, where implicit auctions are already implemented, and the German market. Originally, it was planned that the link should be operative by the 4th quarter of 2007, but now the project is planned for launch on 3 June. Participants in the project are Nord Pool Spot, EEX, E.ON Netz and Vattenfall Europe Transmission.

Another market coupling project concerns the NorNed cable, a 700MW link between Norway and Netherlands. The licence for this project was given on condition that the capacity be allocated by market coupling between Norway and Netherlands. In the short term, however, the cable will be operated through explicit auctions, while it is planned to introduce implicit auctions as soon as possible.

There are also plans for the British and Dutch markets to be coupled by 2010, when the BritNed cable linking the two countries should be completed. Access to the capacity will be through daily implicit auctions facilitated by APX, together with the option of explicit auctions

In a further development, a Memorandum of Understanding on market integration and security in the Central West European region was signed in June this year by France, Germany, Belgium, the Netherlands and Luxembourg – the widest agreement on co-operation in electricity markets so far in Europe. The coupling of these different markets is targeted for January 2009 according to the MoU. The European Commission has hailed the agreement as "the foundation stone for the EU's largest integrated regional energy market to date."

The power sector is also calling for market coupling to be extended to the Iberian market, and also to Eastern Europe. The Balkan states are in the early stages of planning a regional power network, and the Italian energy regulator is chairing a south European initiative to integrate the region up to the Black Sea. Physical links in the area are also improving, with Greece hoping to be connected to Turkey's power market through a new transmission line by the end of this year.

Next steps

The members of our expert panel were in broad agreement on the subject of market coupling. Contributors generally agreed that market coupling was one way, if not always necessarily the best way, to solve congestion management, although they also believed that some markets, for example the UK and France, are not currently amenable to coupling. There was also a consensus that market coupling works best when there is a day-ahead power exchange, while market coupling is not a substitute for more fundamental reforms, for example ownership unbundling of TSOs and cooperation between regulators.

However, there was more disagreement about whether market coupling could create capacity that is not there, and whether spot market coupling does or does not allow market participants to hedge transmission price cost.

Most members of our panel agreed that there would be more market coupling in the future, although this could take some time to achieve. Markets that are likely to be coupled in the next few years include France and Germany, France and Spain, as well as the linking of west European markets with central European markets, for example Germany with Poland. However, the time-scale for these initiatives is difficult to predict and depends partly on the success of the current initiatives. Clearly, however, the momentum is currently working in favour of greater market integration, and market coupling is seen as an efficient way to achieve this objective. ■

MOFFATT ASSOCIATES
November 2007

Market Coupling: A Preferred Solution for Cross-Border Power Capacity Utilisation

The degree to which cross-border power flows contribute to market improvement depends on system design: how cross-border capacity is allocated and the obligations of market participants on each side of the border. Analysis of cross-border flows shows that there is still a considerable potential for market improvement and Brieuc Raskin of Morgan Stanley believes market coupling is the best way forward.

Short term cross-border markets

Quite regularly, we see high volatility on the short term market. This in part is caused by explicitly nominated flows that go against the logic of the market: it flows from a high price region to a low priced region. The reasons behind such loss-making transactions are differences in timing between buying the commodity and nominating the flow, different closing times of exchanges, lack of transparency and specific legislation like requirements to bid into a specific exchange.

As long as the market behaves as expected, most market parties can cope quite well with all the different rules. However, as soon as unexpected events occur, it becomes obvious that the time delay and risks of acting in breach of regulations can cause the opposite of what the regulation is aiming for: market failure instead of market improvement.

A good example of this mechanism are the cross-border flows caused by the German electricity spot exchange that recently cleared at unpredictable levels, either very high, either very low. On days where the German spot price is low, one can observe explicit imports from higher-priced Netherlands and France into Germany, while the opposite can occur when the German spot price clears high. Every spike on the short term leads market participants to increase their risk margin, which can inflate forward prices.

Most of the explicit transport decisions need to be taken before day-ahead market trading becomes liquid and hours before the closing time of the exchanges. Under such circumstances, it is impossible to prevent decisions that on hindsight should not have been taken. Only with a simultaneous optimisation of the supply-demand balance as well as the available cross-border capacity, can one ensure a well functioning cross-border optimisation. Market-coupling is the right instrument to achieve this goal. Including Germany in the Central West European market-coupling is therefore key to a stable well-functioning European short term market.

Not yet perfect

The experiences with power market coupling between France, Belgium and the Netherlands are positive. Morgan Stanley therefore strongly supports expanding this system. Not only to include Germany, but also to broaden the commodity scope to natural gas as well. Especially in the Netherlands, natural gas is the dominant fuel for electricity

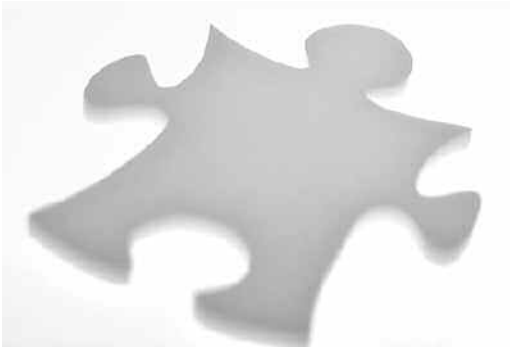
generation. Optimisation of the output without possibility to optimise the input of the production process is a sin from the viewpoint of optimal allocation of scarce resources. We therefore urge the authorities to step up the efforts to improve the functioning of gas markets.

Developments in the markets do not stop after day-ahead trading is done. Power plant failures can occur, weather forecasts in general and wind forecasts specifically improve as time of delivery comes closer, and plenty of influences on energy demand and production force intra-day adjustments of energy flows.

Market – coupling on a day-ahead basis contributes to the improvement of the allocation of resources, but it should not stop at the day-ahead. Market coupling should expand into intra-day as well, whereby a continuous market similar to Elbas, rather than a clearing market is recommended.

Long term cross-border markets

The markets have a much longer time horizon than day-ahead. Therefore, cross-border capacity needs to be allocated in line with this reality. In the gas market, 10 year capacity allocation is normal business practice (if a party managed to get hold of capacity). In electricity, the standard seems to be maximum allocation of 1 year, which is a striking contrast with for instance, the planning periods for power plants and



even with the common time horizon of the national wholesale term markets. Enabling longer term allocation of cross-border capacity for electricity will boost competition.

Long term cross-border capacity can be considered as an asset similar to generation capacity. It allows producers and consumers to hedge their exposures on the longer term using the wider European market as reference, instead of the limited national markets. Especially in markets that are less liquid, access to long term cross-border capacity can be expected to reduce the bid-offer spread significantly. In its turn, a reduced bid-offer spread makes long term hedging cheaper and thus stimulates trade amongst others, to the benefit of those parties who have a high need for long term price hedging. We are convinced that long term capacity allocation leads to competition enhancement, correct price signals and visibility, liquidity for hedging risks, correct long term investment signals and security of supply. Grid operators therefore should be encouraged to allocate capacity on the long term, e.g. up to 2012-2020.

Prevent hoarding

Although long term capacity allocation is beneficial for the market, there is a risk involved: hoarding of capacity. A mechanism has to be put in place to prevent this from happening. This means that the capacity should be available to the market at regular times, even if it has already been purchased. A liquid secondary capacity transfer market is key to ensure that capacity that has been allocated years ago would still become available to market participants at later times. Since currently the voluntary secondary capacity transfer market is not very active, an automatic resell from one auction stage to another seems the solution to boost liquidity in capacity in an organized way.

Reselling means that the capacity is automatically resold in other auctions, for instance quarters of the year. Revenues derived from such auctions are for the benefit of the original holder of the long term capacity. The market participant who had acquired capacity from a previous auction, thus has the choice to either buy back his own capacity or let go of it. Buying back is financially neutral. The big advantage of this system is that capacity holders have to value their capacity rights actively and have to react on price signals: sell, hold or buy. This mechanism can be applied to boost liquidity in the forward market.

Reconciling the short and the long term view

Even for long term cross-border capacity, the moment of final settlement arrives. Instead of a physical settlement, reimbursement for the final holder of the cross-border capacity rights could be derived from the results of the day-ahead market coupling mechanism. The reimbursement is the price difference, if positive, between the reference indices of the two markets which this cross-border capacity connects (in one direction). This positive price difference corresponds exactly to the congestion revenue of the coupled exchanges. Grid operators thus take no risk, since this is a pure back-to-back operation. With this mechanism, all physical capacity can then be used for market-coupling, leading to the most optimal flows.

A by-effect of this mechanism is that it results in substantial additional volumes and thus additional revenues for power exchanges. This gives the exchanges space for a substantial reduction of the clearing fees. In the design of this system, attention has to be paid to the fact that market-coupling creates a de facto monopoly. Therefore it should ensure low exchange transaction costs and low barriers to entry for newcomers. Monopoly power and excessive direct or indirect transaction costs can cause market failure.

Conclusion

Morgan Stanley strongly supports market-coupling. It has proven to be an efficient method to ensure a correct market-driven flow of power across borders. This leads to an international supply-demand balancing, with the aim of ensuring that power demand is met by the most efficient and cheapest generation across Europe. ■

Market Liberalisation: Conditions for Effective Unbundling

The separation of ownership and control of gas and power transmission networks is at the heart of the EU Commission's third attempt to liberalise energy markets. Here Lars Kjølbye,[1] Head of Energy Unit in the Competition Directorate of the EU Commission, sets out the conditions for successful unbundling and indicates that the third package could be in place by 2010.

Setting the scene

The European Union has, over the past decade, worked intensively to create integrated and competitive gas and electricity markets in Europe. This process has involved two main rounds of liberalisation measures aiming at opening up supply market to competition while ensuring that networks, which are normally considered natural monopolies, are operated in a non-discriminatory and efficient manner. While the liberalisation process has been partly successful, obstacles to creating integrated and competitive gas and electricity markets persist. In the final report on its Energy Sector Inquiry published on 10 January 2007 the Commission identified a number of shortcomings.[2] It is with a view to addressing a number of these obstacles that on 19 September 2007 the Commission adopted its proposals for a third liberalisation package. The package has two main parts, namely (i) measures to ensure effective unbundling of production/supply activities on the one hand and network activities on the other hand, and (ii) measures to enhance the powers and independence of national regulators and enhance cross-border co-operation between respectively regulators and TSOs. In the following I will focus on unbundling.

Effective ownership unbundling

Unbundling is at the heart of the current debate on how to achieve integrated and competitive energy markets. It is clear from the Commission's Sector Inquiry that the current requirement of legal and functional unbundling has not been effective. The Commission found that vertical integration creates substantial ▶

(1) All views expressed are personal
(2) The final report on the sector inquiry is available on the DG Competition website: http://ec.europa.eu/comm/competition/sectors/energy/inquiry/index.htmlt

problems of discriminatory treatment of competitors and withholding of investments in new capacity except where such capacity is needed by the vertically integrated firm's own supply affiliate. This is a particular problem at a time when the EU needs large scale investments in networks in order to ensure security of supply. To address these problems the Commission has proposed ownership unbundling of transmission networks as the main and preferred option and the creation of independent system operators (ISO) as an exception that may be offered in Member States which have not already implemented ownership unbundling.

The benefits of ownership unbundling

Experience in Member States where ownership unbundling has been implemented is positive. In particular, data available suggests that ownership unbundling is positively correlated to investment in networks. Ownership unbundled TSOs for which data is available show a significant and constant increase in investment levels after ownership unbundling took place.[3] In contrast, the investment figures relating to networks of the vertically integrated German and French electricity TSOs are comparatively lower. Moreover, as mentioned in the Sector Inquiry, the share of reinvested congestion revenue was about twice as high for ownership unbundled TSOs as for integrated TSOs. Ownership unbundled TSOs in the EU-15 reinvested 33.3% of the received congestion revenue, whereas vertically integrated TSOs in the EU-15 reinvested merely 16.8%. Ownership unbundling also avoids both actual and perceived discrimination regarding third party access to networks, facilitating entry by third parties.

Conditions for the ISO model to be effective

The ISO model implies that the TSO is split into two separate functions: a transmission owner (TO) which owns the assets and which can remain part of a vertically integrated company and an independent system operator (ISO) which is independent from the vertically integrated company.[5] The ISO model is more complex than the ownership unbundling model. It is necessary to regulate in great detail the interface between the TO and the ISO and compliance must be monitored continuously. However, the ISO model can achieve effective separation of network and supply activities provided that it is very deep in terms of transferring powers and functions from the TO to the ISO. The ISO must have full independence from the network owner and must manage the network in ▶

(3) Examples include TSOs like Spanish REE, the Czech CEPS and the Portuguese REN, where the increase in the investment amount was significant.
(4) The ISO may operate several systems in a region in which case it is referred to as a regional system operator (RSO).

all its aspects. This means that it must be in charge of the day-to-day operation and maintenance of the network and must have the power to decide on and implement investments. If the TO does not wish to finance a given investment, the ISO must be able to seek alternative financing. When these far reaching conditions are satisfied, the asset owner cannot influence network decisions and can therefore not use the assets to distort competition in its favour. However, if the ISO is weakened vis-à-vis the asset owner, the latter will once again be able to do so. In that case unbundling will no longer be effective and the objective of creating integrated and competitive energy markets in the EU will not be achieved.

Regional cooperation between TSOs

In principle, the creation of regional system operators could result in important improvements compared to the current state of network unbundling. Indeed, the third package contains proposals that aim at enhancing cross-border cooperation between TSOs on important matters such as investment planning. However, such regional cooperation is not a substitute for effective unbundling of each participating TSO. If the TSOs are not properly unbundled at the base, regional cooperation may give rise to serious competition concerns. It would not be appropriate for TSOs to coordinate on investment plans and other important market parameters as long as they belong to undertakings that are at least potential competitors on supply markets since the decisions concerned have a direct impact on competition in these markets. In this regard, it would be immaterial whether the TSOs would commit to certain investment levels or to improving third party access. Our experience from cases shows that even when vertically integrated firms commit to invest, there are a host of ways in which to delay implementation. Infrastructure projects have to navigate through a mine field of obstacles inter alia in the shape of permit requirements. It takes a wholehearted effort by the TSO to overcome such obstacles. A vertically integrated TSO has no incentive to wholeheartedly push a project that benefits competitors. This is the reason why, under the ISO model, it is crucial that the ISO takes decisions on and implements investments.

Who are the likely buyers?

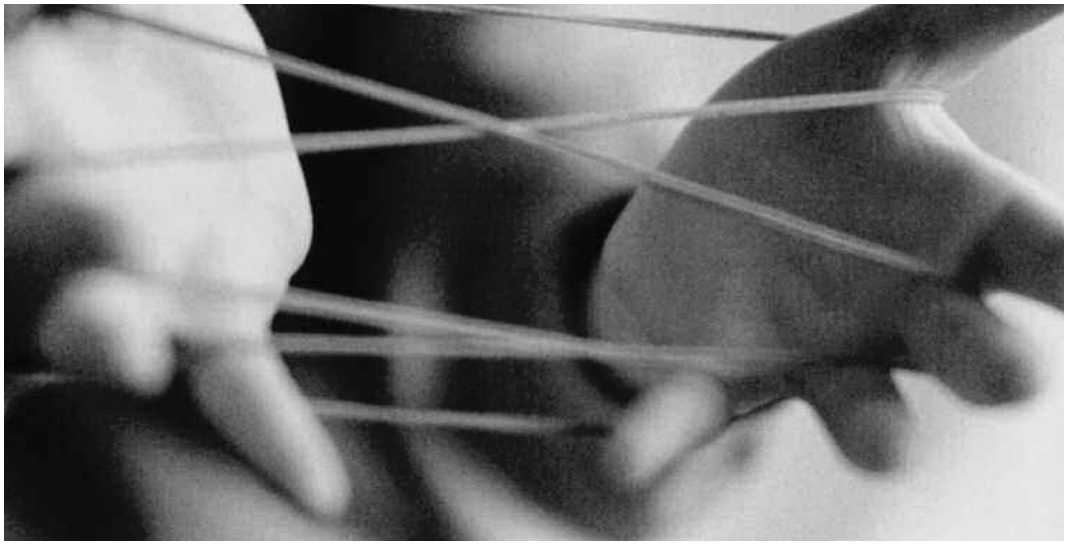
Important synergies could be achieved through mergers between independent network companies. Ownership unbundled TSOs may therefore have an incentive to merge. However, one can also imagine other buyers, such as equity funds. Networks which generate stable and long-term revenues are attractive to certain types of investors. Indeed, the Commission is aware of very substantial interest in such an investment profile. However, for such ▶

investments to be really attractive, the investor also needs to be confident that the there is a strong and predictable regulatory framework in place which is administered by independent regulators. The third package proposals are of considerable importance in this respect since they seek to achieve this objective. At the same time the Commission is sending a strong signal to Member States in on-going merger cases that it will not tolerate attempts by Member States to frustrate mergers that are compatible with European merger control rules.

The third package contains certain proposals concerning investments by third country entities. Third country entities are treated in a broadly similar way to EU companies. The unbundling requirements will apply to both EU companies and companies from third countries. However, as regards the latter it was considered necessary to go a bit further in order to ensure that the unbundling requirements cannot be easily circumvented. Otherwise the creation of open and competitive energy markets would be at risk. What the Commission is looking for is not reciprocity but rather assurance that the unbundling proposals remain effective.

The way ahead

The Commission's proposals are now being discussed in the Council and the European Parliament which have to agree on a text before it can enter into force. The aim is to achieve adoption before the end of 2008. Under the proposals the new rules would become applicable 18 months after adoption. This means that the third package could be in place by 2010. ■



The Third Package: A Structural Diversion?

The European Commission argues that unbundling will remove incentives for vertically integrated transporters to protect or favour related businesses. However Robin Cohen of Deloitte concludes that while a single and effective European electricity market requires enhanced physical integration and the associated investments, regulatory risk is the main impediment. The proposed Agency for the Co-operation of Energy Regulators may prove to be the institution for tackling this problem but as yet no solutions are proposed.

A Setting the scene

The EU Commission's approach to effective unbundling carries with it numerous risks.

- Ownership unbundling reduces incentives for discrimination, but also risks compromising economies of scale and substituting unclear investment incentives.
- ISOs – the permitted alternative to ownership unbundling – are complex and so may result in worse investment incentives and more regulation than before.
- More regulation is envisaged by the Commission, but, regulatory risk is already the main impediment to investment into electricity networks in the EU.

Some incumbents in response to the Commission's proposals are already preparing to sell their networks, but regulatory risk acts as a deterrent to some buyers and the 'Gazprom' clause may further depress the value to be realised from sales.

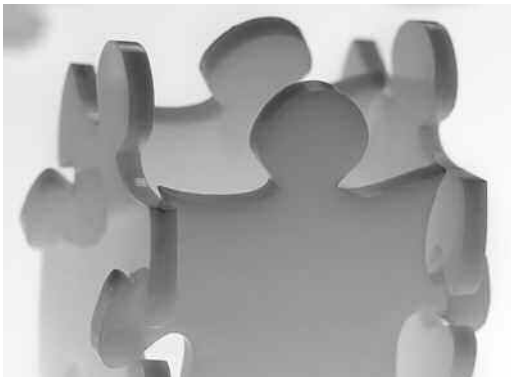
Ownership unbundling

Ownership unbundling directly removes any potential conflicts of interest which might arise from the same company owning and operating networks on the one hand and having upstream or downstream interests on the other. As a consequence it reduces the need to "police" a company's behaviour through regulatory oversight.

However, there is evidence[1] of significant cost savings from vertical integration, which must be weighed against the potential detriments arising from discrimination against independent suppliers.

Furthermore, the practical effect that ownership unbundling will have on investment is unclear. Investment in any sector primarily depends on the likely rate of return to be earned from the asset, albeit that this may include external – or vertically related – benefits. The main risk faced by network assets in Europe – and accordingly the main investment driver – is regulatory and political risk, something regulators rarely admit.

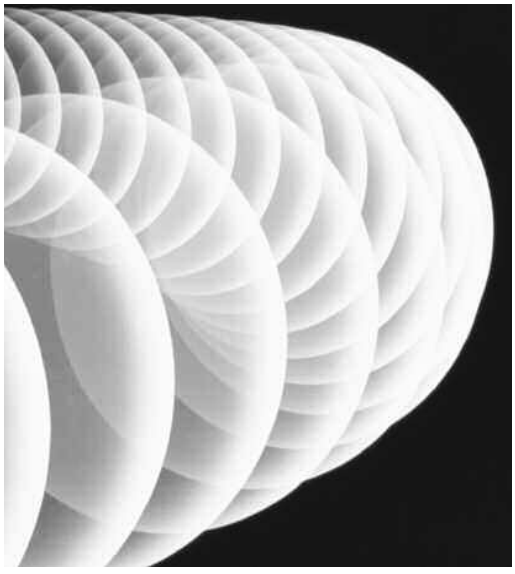
(1) Evidence of the extent of these cost savings in the electricity industry is provided in Kaserman, D.L. and Mayo, J.W (1991) "The Measurement of Vertical Economies and the Efficient Structure of the Electricity Utility Industry," Journal of Industrial Economics 39(5): 483-502, 1991.



ISOs: new investment incentive problems

As an alternative to ownership unbundling the Commission's proposals provide Member States with the option of allowing vertically integrated gas or electricity incumbents to retain ownership of their networks in exchange for handing over their operation to an independent systems operator (ISO).[2] In principle this should remove the opportunity for the owner of the transmission network to discriminate against third party suppliers. It also facilitates the integration of operation of transmission networks in separate regions and under separate ownership.

However, separating network operations from network ownership leads to several potential incentive, regulatory and organisational problems, especially with respect to the interface between the ISO and the network owner. Difficulties arise especially with respect to developing a contractual structure which provides the transmission owner (TO) and the ISO with appropriate incentives to minimise costs and expand the network in an efficient way when there are not such close connections between the two. Instead of reducing the need for regulatory oversight in the sector through the creation of an ISO, regulatory focus will simply shift from policing third party access to scrutinising the interface between the ISO and the transmission owners.



Initial reactions have revealed that both ownership unbundling, as well as a deep ISO model, is unpopular with a number of incumbent vertically integrated companies. Indeed the Commission is arguably already anticipating attempts to water down the unbundling implications of its Directive through forming voluntary regional co-operation agreements by incorporating the proposal for formal EU networks of transmission system operators in electricity and gas in its legislative package.

Regulation is the main driver of network investment

Currently there is a clear regulatory gap in Europe with respect to cross-border network investments. Inconsistent regulatory rules across the EU pertaining to revenue caps, regulated rates of return and investment incentives mean that investors face varying regulatory and commercial risks. The 3rd legislative package proposes the establishment of a new Agency for the Co-operation of Energy Regulators (ACER) which is a first step towards creating a clear and stable regulatory framework for cross-border investment. However, the powers and remit of ACER are as yet unclear. Most importantly, the degree of independence of ACER from the Commission is itself also unclear but regulatory independence is a key concern for potential investors.

(2) Independence in this context relates to independence from upstream and downstream interests in the sector. Variants of the ISO model have been implemented in Alberta, Canada; Australia; Britain; California; Chile; the PJM regions (Pennsylvania-New Jersey-Maryland); New York; and New England. There is much variety in the details of ISO structure in different locations.

The 'Gazprom' clause

Given the uncertainties surrounding future unbundling requirements, a number of the large integrated European utility companies are potentially considering the sale of transmission assets. Infrastructure funds are certainly interested in regulated businesses with relatively stable cash flows. However regulatory risk is not the only factor determining value realisation from network sales.

The draft Directive contains a clause, commonly referred to as the 'reciprocity' clause, which may have significant implications for the permitted identity of investors into TSOs. This clause provides that transmission systems or transmission system operators shall not be controlled by a person or persons from third countries, unless there is an agreement between the EU and this third country. This 'Gazprom' clause introduces potentially increased state intervention by requiring international government-level negotiations. It may also act to deter or bar some investors with a consequent impact on network values.

Conclusions

The EU's unbundling proposals are ambitious and controversial. The 3rd legislative package has now passed to the European Parliament and Council (Member States) for full legislative scrutiny. This "co-decision" process is open-ended, but usually lasts 2-3 years.

There is significant resistance to the unbundling provisions especially from France and Germany who will argue that ownership unbundling is an unnecessary change that will reduce investment and that the alternative ISO model is overly complicated and bureaucratic. Concerns are also likely to focus on whether the value potentially released from asset sales is less than the value lost from the 'benefits' of integration. The European electricity market requires enhanced physical integration and the associated investments. Regulatory risk is the main problem in this context and the Commission's proposals have not articulated a clear way forward on this issue.

From the UK perspective, if the EU's proposals are implemented as envisaged, then BETTA would need changing at a minimum to give NG investment decisions, something the Scottish network owners are likely to be opposed to.

However in many ways the Commission has already advanced further with its proposed reforms than some critics might have expected. German and French resistance is nothing new. The Commission is to a significant extent staking its reputation on energy sector reform, not just through the publication of the 3rd legislative package but also in the competition enquiries running parallel. It will not easily give up on the core proposals in the 3rd package, including the unbundling provisions, however protracted and fraught the "co-decision" process preceding the final version of the new Directive will be. ■

European Energy Market Trends Survey – Autumn 2007

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

This 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 and to monitor changes in market perceptions over time.

Results are based on the views of a representative panel of leading market participants and policy influencers. The survey itself takes the form of a detailed telephone questionnaire and is conducted on a strictly confidential and non-attributable basis. Respondents were interviewed in October 2007.

This quarter we received contributions from 33 senior market participants from 13 European countries (Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Poland, Spain, Switzerland and the UK).

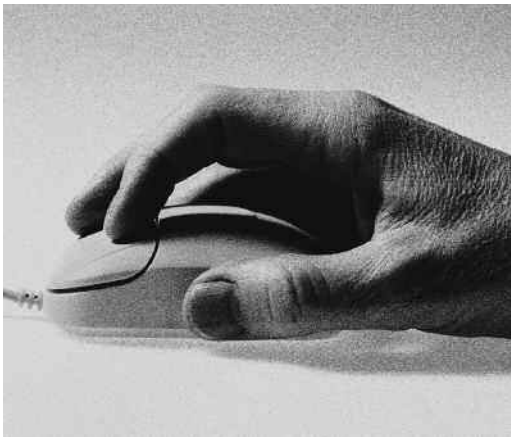
The key findings are as follows:

Market Trends:

• In a continuation of the trend witnessed in the previous two surveys, 67% of respondents believed that **spot power prices** would increase over the next twelve months. Just under a quarter of Panel members expect that spot power prices will be lower this time next year, with the remaining one in ten expecting them to remain level.

• In the gas market, there has been a significant rise in the number of Panel members arguing that **spot gas prices** will increase over the next twelve months – from 54% of respondents last quarter, to 63% this time. Opinion was polarised, however, with 30% of respondents anticipating falling gas spot prices and just 7% expecting prices to be level.

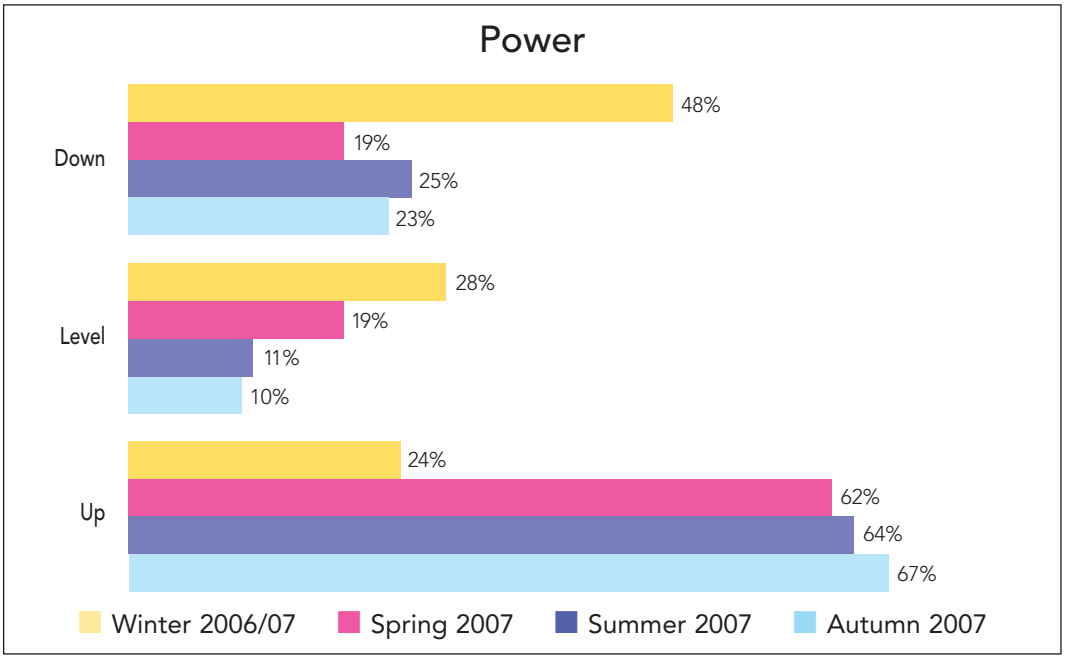
• Comments regarding **future power prices** in our four featured markets created a mixed picture. More respondents foresaw sharply rising **Scandinavian** power prices over the next 12 months (up from 39% of Panel members to 56%); the same percentage as last quarter (36%) thought that **UK** futures would rise sharply; yet fewer respondents than last quarter predicted sharply rising future power prices in either **Germany** (down from 50% to 41% of respondents) or the **Netherlands** (down from 40% to 33%). However, sharp increases (defined as more than 3% over the next year) remained the most popular prediction for each market.

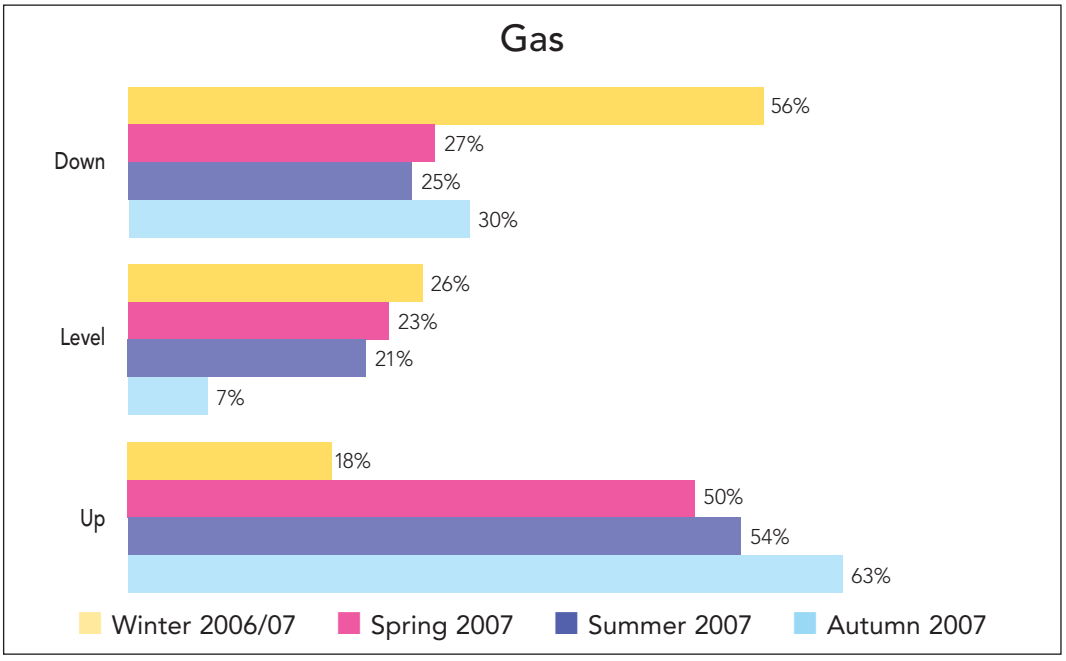


• **Future gas prices** are expected to increase across all four markets, although with some local distinctives: in **Germany** they will rise by more than 3% (according to 41% of respondents) or rise more slowly (so said 26%). Concerning **Scandinavia,** the most popular sentiment was also that prices would rise sharply (so said 44%), but a sizeable minority predicted no change.

Most respondents thought that future gas prices in **the UK** would increase – 30% said it would increase sharply, another 30% said it would increase slowly, and the remaining 40% expected lower prices or no change over the next year. Opinion was divided as to whether **the Netherlands** would experience sharply rising gas prices (so said 32%) or no change (29%).

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





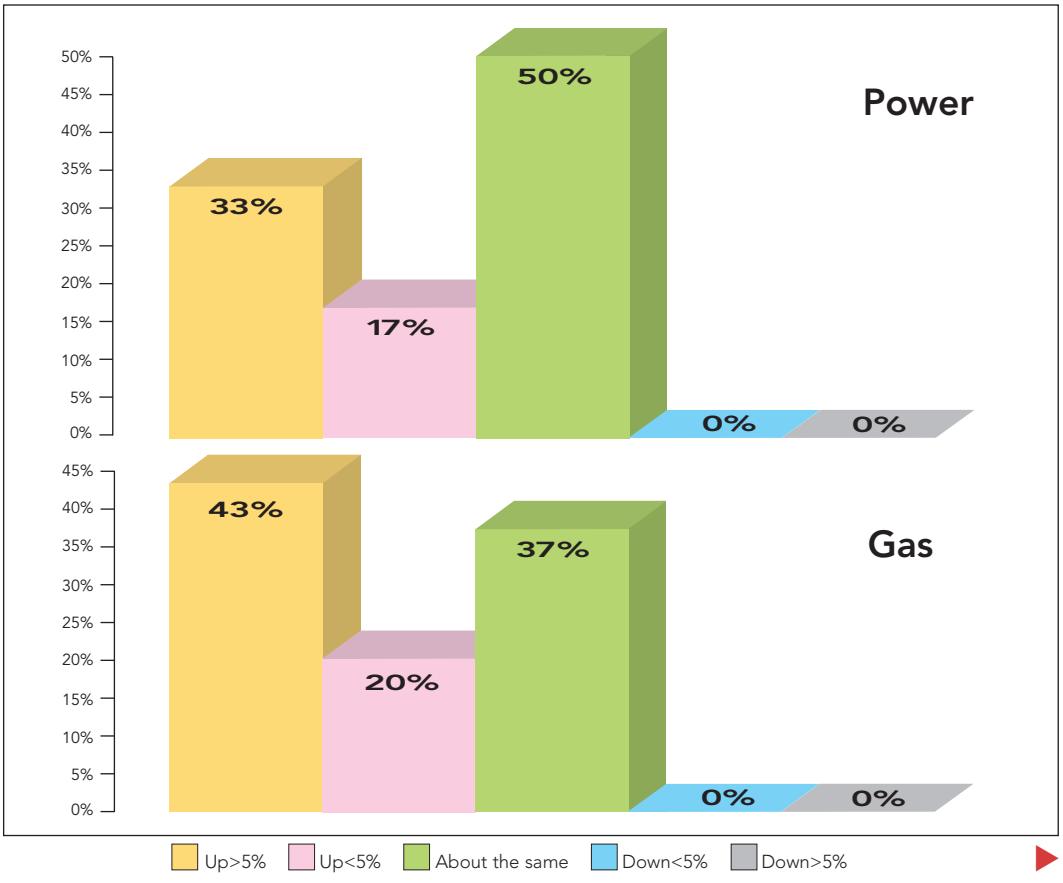
Key factors Influencing Energy Prices

For the following five issues our Panel were asked whether each would have an upward, downward or stable effect on energy prices in the next 12 months. The Panel were also asked to rate, on a scale of 1-5, how significant issues would be in determining energy prices over the next five years. The most significant factor was again said to be movements in fossil fuel prices, followed by environmental pressures, which would both exert an upward pressure on energy prices.

	Direction	Mean Significance
Movements in fossil fuel prices	Upwards	4.19
Environmental pressure	Upwards	3.83
Infrastructure developments	Downwards	2.45
Industry consolidation	Upwards	2.17
Market liberalisation	Downwards	2.10

- Panel members were asked to identify issues likely to be at the forefront of energy markets in the next 12 months. Whilst no single issue dominated discussion, several respondents mentioned the proposals for the next phase of the EU ETS and moves towards a carbon market. Further market consolidation, discussions on unbundling and the integration of regional markets also drew attention. Other issues included growing pressure for new nuclear build, LNG regasification developments, and market coupling.

How do you see EU market trading activity (defined as volumes traded – exchanges and bilateral) changing over the coming 6 months?



- Respondents whose companies have some cleared traded volumes said that, on average, 47% of their trading was cleared (up significantly from 35% last quarter).
- 50% of respondents expected an increase in trading activity in the power market over the next 6 months, a figure down from last quarter's 65%. No respondents expected trading activity to fall.
- A greater proportion of respondents believe there will be an increase in trading activity for gas: 63% said they thought this would be the case over the next 6 months (down slightly from 69% last quarter).
- Regarding the proportion of market activity going through exchanges during the next 6 months, there has been a drop in expectations: now 30% of respondents expect the proportion of power trading going through exchanges to increase, with 60% anticipating it will remain stable. For gas trading, 48% expect a greater proportion of market activity to go through exchanges, and 41% say it will remain stable.

Special Topic: Market Reform and Market Coupling

(a) EU Market Reform

On 20 September 2007 the EU Commission announced a package of measures designed to improve the competitiveness of the EU power and gas market.

Survey participants were invited to agree or disagree with the following statements:

	Agree	Disagree	Don't Know/ No Comment
The package as a whole will improve market competition	83%	7%	10%
Full ownership unbundling of TSO networks is the best solution	70%	13%	17%
The ISO solution is a compromise but a workable alternative	53%	27%	20%
The proposed new Agency of National Regulators will increase market integration	67%	7%	27%
The proposed new network organisations will increase cross-border trading	60%	20%	20%
Greater wholesale market transparency will increase market-liquidity	93%	3%	3%
There should be no limitations on non-EU investment in EU energy networks	53%	23%	23%

In your view what, if anything, is missing from this package of measures?

"Nothing"	Specific Failings
64%	36%

Selected Comments

"From a broad perspective, concrete expectations about what the Commission sees as the path forward. They have indicated high level goals but failed to give national legislative bodies enough concrete expectations; the room for interpretation is too broad."

"A clear process towards market integration, greater emphasis on regional approaches, better defined powers for regulators and agency and a simpler regulatory process."

"Financial incentives for structural change."

"I still think overall security of supply in Europe is a political strategic issue and perhaps more needs to be done. They are trying market ways to do this, but it is a political issue."

"Potentially, I think the requirement to publish more trade-sensitive data, e.g. planned outages at power stations, but this is not important enough to be in the Commission document."

"Greater power for the pan-European regulator."

(b) Market Coupling

Is market coupling the best way to create an integrated European power market?

Yes	No	Don't Know
44%	28%	28%

Selected Comments

"No, because market coupling does not enable detailed trading, although it helps."

"Yes, definitely, because it's the best way to optimise cross-border flows."

"No, because the bottlenecks are still there. It may be more organised but they are still there."

"Yes, because it is quite an effective way of removing cross-border anomalies."

"No, because you need more medium-term capacity rights to be traded."

"Yes, market coupling means cross-border flows are directed towards price differences."

"No, because market coupling is just one way to allocate transmission capacity. Market coupling by itself will not do anything for competition, because of arcane economic reasons."

"Yes, but it's not enough to optimise market coupling, we need to increase the capacity of the interconnection between countries."

Would you agree that the Belpex project has been a success?

Yes	No	Don't Know/ No Comment
42%	6%	52%

Selected Comments

"Yes, because it enables the integration of a market that was fragmented before, and price trends have been balanced out."

"It has flattened prices but it doesn't really open the market."

"Yes, it's been a great success because it has boosted liquidity on the exchanges and helped to increase market convergence."

"Yes, both markets have been coupled most days since this new market started."

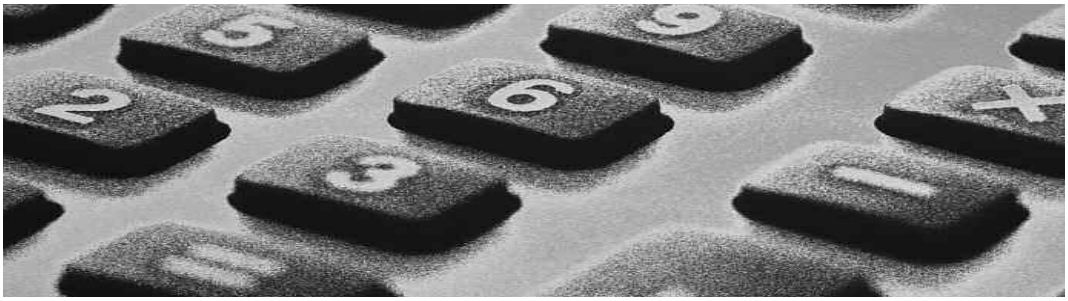
"No, because it has massively changed the nature of the forward market."

"Yes, because everything is going forward together and gaining in liquidity."

"Yes, market prices have flattened across France-Belgium-Netherlands, providing transparency and liquidity in Belgium and improving this in France and the Netherlands."

Survey participants were invited to agree or disagree with the following statements about market coupling:

	Agree	Disagree	Don't Know/ No Comment
Market coupling is the best solution for congestion management	61%	19%	19%
Implicit auctions of capacity are more efficient than explicit auction	48%	32%	19%
Some markets (e.g. UK/France) are not amenable to coupling	45%	35%	19%
Market coupling works best where there is a day-ahead power exchange	78%	9%	13%
Market coupling could create capacity that is not there	22%	25%	53%
Spot market coupling does not allow market participants to hedge transmission price cost	41%	31%	28%
Market coupling is not a substitute for more fundamental reforms (e.g. OU of TSOs and co-operation between regulators)s	81%	6%	13%



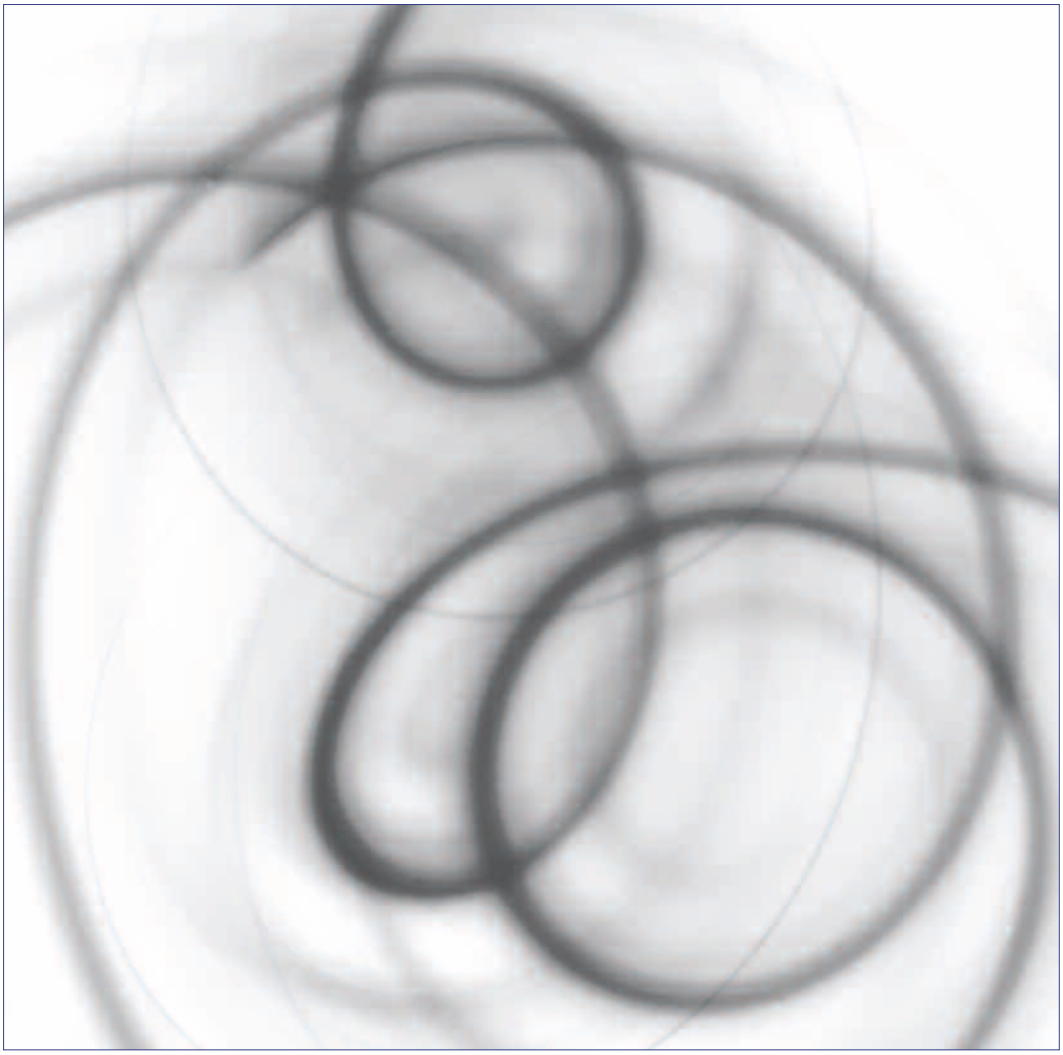
Are we likely to see an increase in market coupling?

Yes	No	Don't Know/ No Comment
78%	3%	19%

The markets most frequently mentioned as likely to demonstrate increased market coupling were Germany (14 mentions), Scandinavia/Nord Pool (11), France (6), Spain (4), Belgium (4), North Western Europe (4) and the Netherlands (3).

Many pairings were suggested over the next 2-3 years, especially Germany with Scandinavia; Germany with France; Germany with other central European countries; Spain with France; and Nord Pool with the Dutch market. Ultimately there could be a Germany-France-Belgium-Netherlands coupling, and further integration with the Nordic market, and perhaps Scandinavia towards the Baltic and Russia in the long run.

MOFFATT ASSOCIATES
November 2007



APX News

Launch of APX Trayport Compatibility

In October 2007, APX introduced compatibility between the EuroLight 4.0 trading platform and Trayport's GlobalVision Trading Gateway. This allows members to trade from within their GlobalVision screen the majority of products from the APX Gas UK, APX Gas ZEE and APX Gas NL markets. A selection of APX Power UK products will also be available through the Interface.

Record Volumes for APX Power NL

APX Power NL's Day-Ahead Market had volumes of 2,037 GWh in October 2007, the highest ever monthly volume. A new daily volume record of 79,634 MWh was reached on APX Power NL's Day-Ahead Market on Wednesday 31 October 2007. This volume equals approximately 26% of average net electricity consumption in The Netherlands.

More APX Members

Several new Members joined APX between July and November 2007.

AIRTRICITY, an integrated renewable electricity utility specialising in onshore and offshore wind farms, joined APX Power UK.

ARCADIA, a major crude oil trading company, (Arcadia Petroleum Ltd.) joined APX Gas UK.

CONSTELLATION ENERGY, a US based energy company, joined APX Power UK, APX Gas NL and APX Gas ZEE. Constellation is already a trading member of APX Gas UK.

ENERGIAE, one of Ireland's leading independent energy suppliers joined APX Power UK.

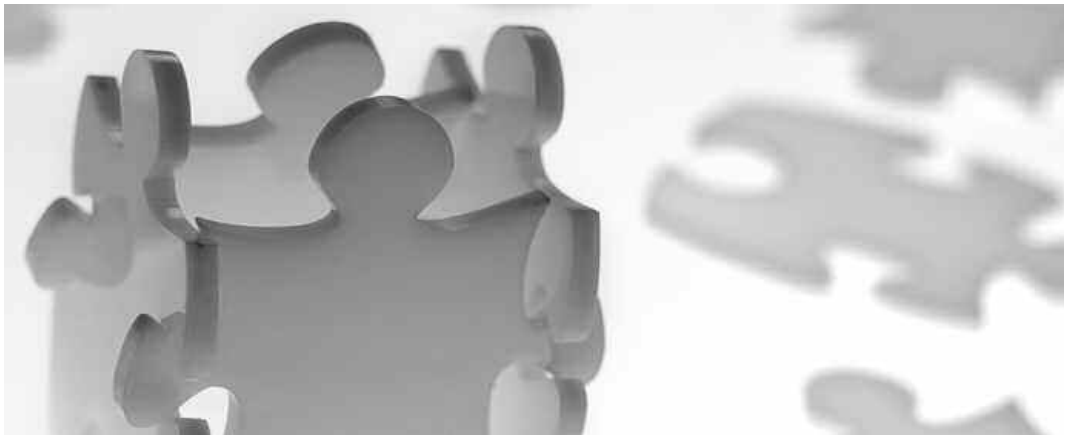
ENERGY 24, a 24-hour management and trading services company, joined APX Power UK.

JP MORGAN, a leading financial services firm, (J.P. Morgan Securities Ltd.) joined APX Power NL.

MITSUI ENERGY RISK MANAGEMENT, a consolidated subsidiary of Mitsui & Co., Limited, joined APX Gas UK. Mitsui is APX Group's first Japanese Member.

WINGASD UK, the provider of gas and related supply services, joined APX Gas UK.

APX Group now has 219 Members from over 15 countries.



New Member Product Boards Established

The APX Group recently established two Member Product Boards; one Member Product Board for the United Kingdom and one for Continental Europe.

The purpose of a Member Product Board is to assist the Management Board of the APX Group by giving it advice on matters relating to the strategy, product development, rates, membership fees and clearing arrangements of the APX Group exchanges.

The Member Product Boards are independent of the Management Board of the APX Group and may make proposals directly to the APX Supervisory Board, if the Management Board decides not to follow its advice.

A full list of the Member Product Board Members can be found at www.apxgroup.com > APX Group > About the Group > Member Product Boards.

New Broker Give-up Service for UK Power Market

The APX Group and a leading energy broker, Tullett Prebon Energy, have worked together to offer a fully cleared broker give-up service to members of APX Power UK. It is the intention to offer this service to APX Gas UK members later this year. As an incentive to attract members to join the service, the APX Group will be offering a fee-free period of three months from commencement for the clearing and notification of all trades entered through this new service.

BEB uses APX Indices for Surcharges and Settlement

BEB Transport und Speicher Service GmbH, a German natural gas transportation and storage company, has included APX indices as a reference to calculate the imbalance prices for shippers that are out of balance in its gas system.

The relevant gas price for the settlement of hourly and cumulative imbalances shall be determined by BEB on the basis of a basket of spot market prices (index basket).

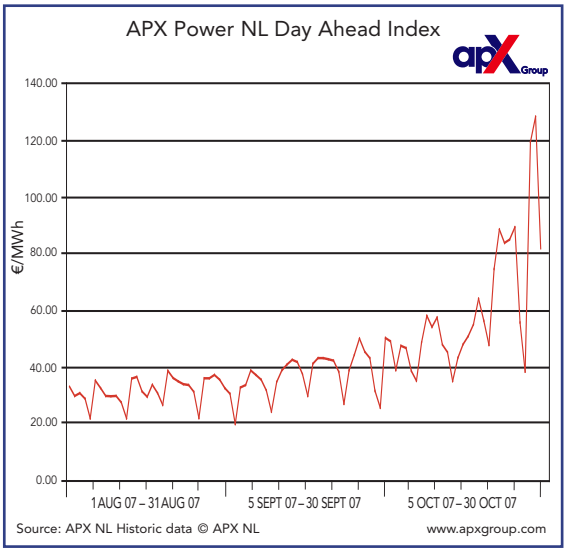
Currently the basket contains the following APX price indices:

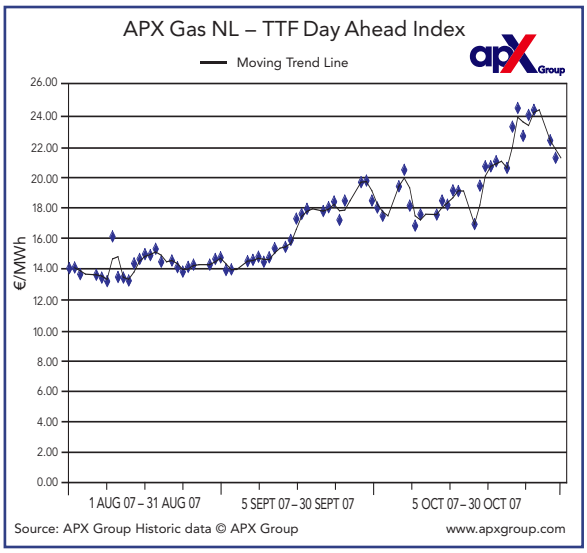
- APX Gas UK (APX Gas UK OCM SAP)
- APX Gas NL (APX TTF-Hi DAM All-Day Index)
- APX Gas ZEE (APX Zeebrugge DAM All-Day Index)

All APX Exchanges on EuroLight™ Platform

In November 2007, APX Power UK upgraded its trading platform to the EuroLight™ 4.0 trading platform. Members of APX Power UK, APX Gas UK, APX Gas ZEE and APX Gas NL may now see all gas and electricity markets on one screen, with Trayport access, and one legal counterpart. APX's EuroLight™ platform has been in operation on APX's power markets since 2004 and has proved to be a stable and easy-to-use trading platform. ■

APX Indices





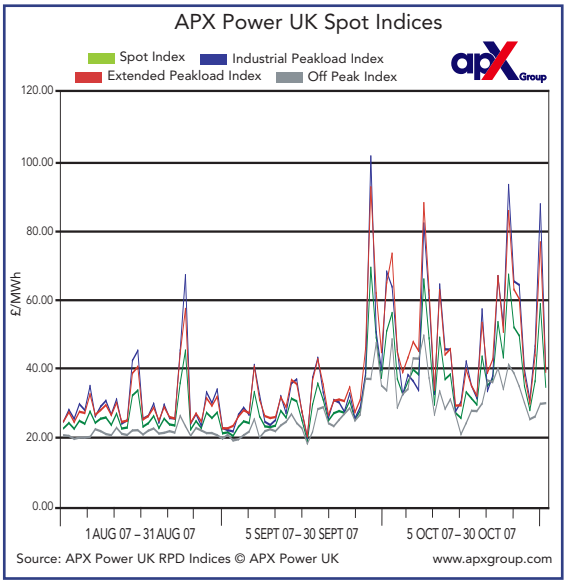
APX Power NL Day Ahead Average Prices

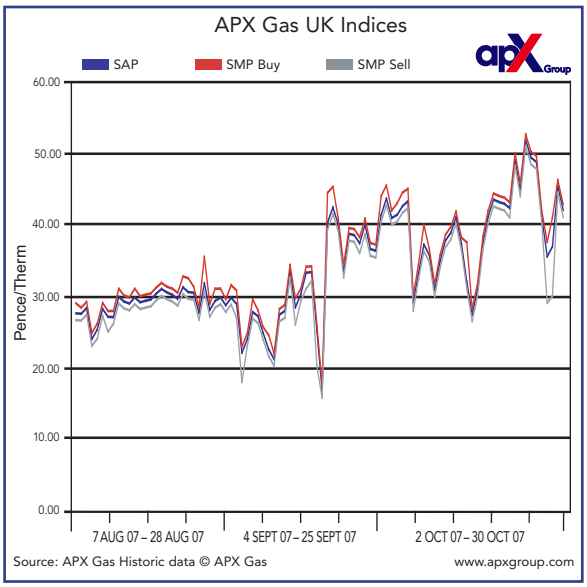
The APX published average prices are comprised of base load, off peak and peak load (07.00–23.00) prices based on the average price (in Euro/MWh) of Dutch power traded every day on APX for delivery the next day. Weekend prices are only comprised of base load prices and volumes.

APX Gas NL 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





APX Power UK Spot Indices

The APX Power UK Spot Indices are based on the APX Power UK 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 APX Power UK.

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.

Disclaimer

Energy Viewpoints is published by APX Group free of charge and is provided on an 'as is' basis for general information purposes only. The information provided by *Energy Viewpoints* is of a general nature, not intended to address specific circumstances of any individual or entity and does not contain professional or legal advice.

While APX Group undertakes every effort to provide accurate and complete information, *Energy Viewpoints* may not necessarily contain comprehensive, complete, accurate or up-to-date information. It is not intended to constitute and should not be relied upon as advice to the merits of investment in any commodity, market, contract or other product and may not be used for advertisement or product endorsement purposes.

APX Group makes no representations and disclaims all express, implied and statutory warranties of any kind to the recipient, and/or any third party including warranties as to its accuracy, completeness, usefulness or fitness for any particular purpose. The exclusion of liability includes any consequential damage, loss or additional costs of any kind suffered as a result of any material published in *Energy Viewpoints* unless caused by intentional default or gross negligence on the part of APX Group's employees.

The layout of *Energy Viewpoints*, graphics and pictures used and the collection of third party contributions are protected by copyright. APX Group reserves all rights in respect thereof. The reproduction of pictures, graphics, information, text and extracts of *Energy Viewpoints* shall be allowed upon prior consent of APX Group only.

APX Group has no influence on the contents or reliability of information or opinions contributed by third parties. Such third party contributions do not necessarily express opinions of, or information generated by, APX Group. APX Group disclaims all express, implied or statutory liability for third party contributions and provides such information or opinions for general information purposes only.

Any claims or disputes arising by virtue of the use of *Energy Viewpoints* shall be exclusively construed in accordance with and be governed by the substantive laws of the Netherlands.