ofgem Promoting choice and value
for all gas and electricity customers

GB wholesale electricity market liquidity: summer 2010 assessment

Document type: Consultation

Ref: 95/10

Date of publication: 29 July 2010

Deadline for response: 10 September 2010

Target audience: Energy suppliers and generators, consumers, consumer bodies and representatives, academics and other interested parties

Overview:
In February 2010 Ofgem published a Consultation Document on liquidity in the GB wholesale market. It identified a number of problems with market liquidity, including the ability of independent market participants to meet their hedging requirements. The consultation outlined our intention to assess the market's performance in summer 2010 (this report) and outlined some possible regulatory interventions should market initiatives not address the identified problems.

This report sets out an assessment framework tailored to our areas of concern and then examines market performance, as of summer 2010. We judge the market's performance to be mixed. Aggregate churn levels are increasing, and liquidity for prompt and medium term products meets the needs of most market participants. However, the evidence suggests that there are weaknesses in longer term liquidity, that price transparency has not improved and that independent market participants can find it difficult to hedge their customers' demand or generation output over a longer period. In light of this evidence, Ofgem is now developing further the potential regulatory interventions that could be put in place if the performance of the market in this area does not improve. As indicated in our February 2010 document we will conduct a further assessment around the end of the year to judge whether industry initiatives are addressing the issues identified.

Contact name and details: Robert Sale, Ijaz Rasool, Vanja Munerati

Tel: 020 7901 7000

Email: gb.markets@ofgem.gov.uk

Team: GB Markets

Context

The Energy Supply Probe (ESP) and Ofgem's subsequent work on liquidity have raised a number of concerns relating to GB wholesale electricity market liquidity and supply market contestability.

Various market participants have suggested that GB electricity wholesale market liquidity is insufficient for their needs. Our February 2010 Consultation Document found that inadequate liquidity may act as a source of competitive disadvantage to small, independent suppliers and may act as a barrier to entry into both the supply and generation market.

We concluded that our preferred outcome would be for the market to deliver solutions that addressed these concerns, but that regulatory intervention may be merited if the market fails to deliver against our objectives. We noted that we would publish a further document in the summer that would outline, in more detail, the metrics that we would use to assess the performance of the market and that we would undertake an initial assessment of the market's performance at this time. This document takes forward our previous work in these two ways.

Associated Documents

- Liquidity Proposals for the GB wholesale electricity market, 22 February 2010, 22/10
  http://www.ofgem.gov.uk/Markets/WhlMkts/CompandEff/Documents1/Liquidity%20Proposals%20for%20the%20GB%20wholesale%20electricity%20market.pdf

- Liquidity in the GB wholesale energy markets, 8 June 2009, 62/09
  http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=58&refer=Markets/WhlMkts/CompandEff

- Energy Supply Probe - Initial Findings Report, 6 October 2008, 140/08
  http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=4&refer=Markets/RetMkts/ensuppro

- Quarterly Wholesale / Retail Price Report – 16 June 2010, 73/10
  http://www.ofgem.gov.uk/Markets/RetMkts/ensuppro/Documents1/Electricity%20and%20Gas%20Supply%20Market%20Report%20June%202010.pdf

Table of Contents

Summary

Background

The Energy Supply Probe and subsequent work on liquidity in the GB wholesale energy markets found low levels of liquidity, when compared to other electricity and commodity markets. The analysis also showed that weaknesses in wholesale liquidity may be acting as a barrier to entry and growth by small and independent market participants and hence inhibiting the development of effective competition in the market.

Our February 2010 Consultation Document noted that our preferred outcome would be for the market to deliver solutions that addressed these concerns, but that regulatory intervention may be merited if the market fails to deliver against our objectives. We noted that we would publish a further document in the summer that would outline, in more detail, the metrics that we would use to assess the performance of the market and that we would undertake an initial assessment of the market's performance at this time.

Responses to the February Consultation

Many industry stakeholders responded to the questions posed in the February document and expressed a wide range of opinions about the state of the market, whether regulatory intervention is merited and the form that any such intervention should take. Most respondents accepted that GB wholesale power liquidity is imperfect in some respects, especially as regards longer dated liquidity, but a number of parties (especially the Big 6 energy companies) questioned the likely effectiveness of the intervention options in solving the problems. There was also a wide range of opinions on the appropriate length of time for allowing industry-led initiatives to work, with many stressing the need to see the potential impact of Britned on market liquidity in 2011 and others suggesting that action is needed now.

Current market performance

Ofgem's proposed framework for assessing the performance of the market in respect of liquidity looks at three key areas which reflect the concerns about overall liquidity and contestability identified in our previous work. Our use of this framework so far in summer 2010 has produced a mixed set of results regarding how the wholesale market is currently performing. The table below summarises the high level findings.

Assessment of current market performance

	Area	Comment	Evidence
1	High volumes in standard products	Mixed performance with a positive bias.	Strong improvement in overall levels of churn, although levels remain below the most liquid power markets. Widening of bid-offer spreads further along the curve although narrowing of spreads in products closer to delivery. Limited growth in exchange based trading.
2	Availability of longer date products (including financial derivatives)	Mixed performance with a negative bias.	Decline in base-load products along the curve although improvement in peak/off-peak volumes. Limited availability and trade in financial products, but industry-led plans to introduce new financial products.
3	Meeting independent market participants' requirements	Mixed performance with a negative bias.	Wide range of products available but trade concentrated in a few products. No change in minimum clip sizes, which are higher than in comparison markets. Areas of dissatisfaction predominate for independent market participants.

There are a number of positive developments, most notably that overall churn has been increasing since 2005. The market generally appears to meet the needs of large, vertically integrated market participants. We have seen the recent launch of the N2EX platform and there are plans to introduce new financial derivatives. We also expect market coupling through Britned to have a positive impact on overall liquidity.

On the other hand, there are areas which give concern. Liquidity further along the curve remains weak, and there is evidence of increasing bid-offer spreads. We have not seen a major increase in auction volumes and price transparency. There is ongoing dissatisfaction from many non-vertically integrated market participants about their ability to meet their wholesale power hedging needs.

Overall, the market is delivering some aspects of liquidity well, but not all the aspects of liquidity that support contestability and fully effective wholesale and retail competition.

Next steps

On the basis of the evidence gathered in this assessment, we are looking for further improvement in the performance of the market in respect of liquidity. Ofgem needs to be in a position to move to consulting on the detail of appropriate remedies should we conclude that industry-led initiatives will not deliver the required improvements. We are therefore now developing further the range of potential regulatory interventions that were set out in the February 2010 Consultation Document.

The next formal assessment of the market's performance will be undertaken around the end of the year, in line with the timetable set out in the February Consultation Document. No decision as to whether intervention is merited has been taken, and Ofgem continues to encourage the industry to improve all aspects of liquidity.

1. Introduction

1.1. The February 2010 Liquidity Consultation Document described why weaknesses in GB wholesale electricity market liquidity are of concern, our preference for industry-led solutions to address these concerns, and outlined some possible policy interventions which could be implemented if the market does not deliver. It invited views from industry stakeholders on all these issues.

1.2. This document has two main objectives:

- to set out a framework for assessing the market's liquidity performance, structured around our key areas of concern; and
- to report on the findings from our initial application of this framework.

1.3. We also report back on the responses received to the February 2010 Consultation Document.

Structure of the document

1.4. This document is organised as follows:

- Chapter 2 outlines the framework for assessing liquidity in the GB wholesale electricity market.
- Chapter 3 assesses the performance of the GB wholesale market to date against each of the metrics outlined in the Chapter 2.
- Chapter 4 sets out the conclusions and next steps.

1.5. Appendix 2 summarises the responses to the February 2010 Consultation Document. Appendix 3 highlights a number of ways in which European developments and Directives may impact GB wholesale liquidity over the medium term. Appendix 4 provides additional data to support the analysis in Chapter 3.

1.6. We invite views on the assessment framework and on our initial assessment of how the market is currently performing, as set out in this document. We are allowing a 6 week period for consultation and seek responses by 10 September 2010.

2. Proposed metrics

This chapter proposes a practical framework for assessing market liquidity, tailored to the specific concerns raised in our previous consultations.

Question 1: Do you agree that the proposed framework provides an adequate range of evidence for assessing market liquidity?

Introduction

2.1. In the February 2010 Consultation Document, we set out some high level success criteria for assessing how the market is performing and whether industry-led initiatives are delivering the required improvements. We also said that we would be developing these criteria further, including coming forward with more specific measures. In this chapter, we set out our proposed framework for assessing the performance of the market and summarise how this framework will be applied by Ofgem.

Measures for assessing market performance

2.2. The proposed metrics for assessing market performance are grouped around three headings, as follows:

- high volumes in standard products;
- the availability of longer dated products including financial derivatives; and
- meeting independent suppliers' and others' wholesale requirements (supporting retail and broader contestability).

2.3. Under these three headings we have a list of eleven metrics that merit attention. The metrics cover a broad range of aspects of liquidity, and reflect the varied wholesale liquidity interests and requirements of different types of market participant.

2.4. Under the first heading, we cover some standard measures of overall liquidity, as well as monitoring the platforms through which electricity is traded. Under the second heading, the metrics look in more detail at liquidity in forward products, because this is an important dimension of a liquid market and because it is particularly important in supporting the needs of independent market participants

and hence contestability. The variables under the third heading examine further the liquidity requirements to facilitate contestability[1].

2.5. Tables 1 to 3 outline the metrics under each of the three high level headings in turn. The final two columns in each table (L and C) indicate whether the metric relates to overall levels of liquidity (L) or supply market contestability (C).

Table 1: High volumes in standard products

	Metric	Specific measures	Comment	L	C
1	Aggregate churn: volumes traded across all products / GB physical consumption	▪ Trend over time ▪ Comparison to a range of high liquidity energy markets	A standard measure of liquidity	✔	
2	Bid-offer spreads for a range of standard products	▪ Trend over time ▪ Comparison to a range of high liquidity energy markets	A standard measure of liquidity	✔	✔
3	Use of platforms which promote price transparency	▪ % of total trade that is exchange-traded ▪ % of total consumption that is exchange-traded ▪ Diversity of participation on trading platforms	These measures enable us to monitor how liquidity is spread across platforms and the extent to which it can deliver reliable price formation and transparency	✔	✔

L: Reflects overall liquidity, C: Reflects contestability

Table 2: The availability of longer dated products (including financial derivatives)

	Metric	Specific measures	Comment	L	C
4	Volume of trade along the forward curve	▪ Volume of trades that are for 13-24 months ahead or more ▪ Average trade size and number of trades further along the curve ▪ Trend over time and comparison to a range of high liquidity energy markets	Indicates the extent of trade further along the forward curve	✔	✔
5	Availability of financial	▪ Volume of financial trading ▪ New financial product	Focuses on financial derivatives as an	✔	✔

[1] We note that appropriate wholesale market liquidity is only one aspect of contestability (though an important one), and that there could be other barriers to entry and growth which are important in determining corporate behaviour.

	derivatives	development	alternative instrument to longer-dated physical products		
6	Participation by banks / other financial institutions on trading platforms	▪ Growth in the number of banks and other financial intermediaries participating on exchanges and OTC platforms	An intermediate milestone which indicates if conditions are becoming conducive to trading by financial intermediaries and the development of financial products	✔	✔

L: Reflects overall liquidity C: Reflects contestability

Table 3: Meeting independent suppliers' and others' wholesale requirements (supporting retail and broader contestability)

	Metric	Specific measures	Comment	L	C
7	Diversity of products	▪ Range and concentration of traded products, compared to GB historical average and to a range of high liquidity energy markets	Indicates the presence of a wide product range which could facilitate hedging by non-vertically integrated market participants		✔
8	Number of counterparties active in the market providing hedging offers to small / independent suppliers	▪ Growth in number of counterparties	A range of service providers (for standard or structured products) indicates a robust supply-side for the market		✔
9	Participation of small / independent market participants on trading places	▪ Number of small / independent market participants who are trading directly on the various market platforms	Indicates the extent to which these platforms directly meet the needs of small / independent suppliers		✔
10	Availability of suitable products with small clip sizes	▪ Minimum clip size for a variety of products ▪ Volume of trades at the minimum clip size	Indicates the extent to which the market is providing products which meet the needs of small participants		✔
11	Feedback from a sample of small / independent suppliers, potential entrants, large energy users, and independent generators	▪ Areas of satisfaction ▪ Areas of dissatisfaction	The focus is on understanding if wholesale trading conditions are improving in ways that facilitate contestability. Useful to get feedback from a range of market participants who seek improved access		✔

L: Reflects overall liquidity C: Reflects contestability

2.6. A long list of metrics can mean complexity and the need for judgement in assessing performance. However, we believe that this approach is appropriate for the following reasons:

a. Liquidity has multiple aspects (e.g. volumes traded, volumes available, product range, price spreads, liquidity at different points along the forward curve, price transparency) and a range of measures is useful to capture these different dimensions.

b. Our objectives involve both overall market liquidity and promoting the ability of smaller/independent participants to meet their hedging needs to secure contestability. The two overlap in important ways, but are not necessarily met by the same things. Multiple measures enable us to monitor a range of things that contribute to one or other or both goals.

c. Experience in other high liquidity markets cannot necessarily be exactly replicated in the GB electricity wholesale market, for example due to structural reasons. This means that there will be an element of judgement in assessing the market's performance. Multiple measures will give Ofgem a broad set of evidence on which to exercise this judgement.

d. There are alternative routes to meeting our liquidity and contestability goals. For instance, the market could be based primarily on physical products or it could evolve towards more reliance on financial products; it could embody auctions or find other ways to achieve price transparency. A range of measures allows us to include some milestone indicators which could help us to identify progress towards emerging solutions.

Application of the framework to assess market performance

2.7. The assessment of market performance entails analysing each of the eleven variables and drawing conclusions as to whether, and in what respects, the market and industry-led initiatives are on track to deliver overall liquidity and contestability. The next chapter of this document shows how we have applied this framework in undertaking a preliminary assessment of the performance of the market, with quantitative data up to May 2010.

2.8. The majority of the metrics are assessed by looking at the trend over time and by comparing performance to that observed in a range of other energy markets. Both of these perspectives are useful but the main emphasis is placed on the trend over time, because the evidence suggests that it takes time for liquidity to grow; and, given structural differences between markets, it is not possible to set absolute target levels of performance with high confidence.

2.9. Some of the measures are likely to be more important than others in terms of providing insights on the performance of the market. However, we think that it would not be appropriate to give a specific weighting across the variables. Market participants vary in those aspects of liquidity which they regard to be of prime

importance, depending on their own hedging requirements and business model. Different stakeholders would apply different weighting schemes.

2.10. The metrics involve both quantitative and qualitative metrics. We understand that qualitative feedback needs to be treated with particular care, to avoid the danger that we are swayed by the special pleading of individual stakeholders. However, the quantitative measures will not necessarily give us a complete picture across all considerations, and therefore there is a useful role for qualitative data.

2.11. It is possible that this list of metrics will evolve over time, in response to industry stakeholder feedback and an improved understanding of how market liquidity is developing and where we need to focus regulatory attention.

3. Preliminary assessment

The analysis shows that the GB wholesale electricity market is performing well against some metrics but less well against others.

Question 1: Do you agree with the assessment of the metrics in this chapter?
Question 2: Do you have any comment on the level of improvement in the metrics that would make a significant difference for market participants?

Introduction

3.1. This chapter considers the performance of the GB wholesale electricity market, to date, against each of the metrics outlined in Chapter 2. Where relevant, this chapter looks at the performance of other electricity wholesale and/or commodity markets against each metric. Additional analysis and supporting charts can be found in Appendix 4.

3.2. In each case we also give an indication of what we would see as positive signs of improvement. In this respect, we have generally avoided setting absolute target levels in favour of measuring trends over time. This is to avoid the risk of potential unintended consequences that may arise in reaching specific targets, for example fragmenting liquidity, creating increased transaction costs or creating incentives for parties to demand higher and higher concessions. In addition, a focus on the trend over time will highlight if any improvement in liquidity is not sustained over time.

3.3. To gather qualitative feedback on a number of parameters, we sent out a questionnaire to a range of smaller market participants. The questionnaire is shown in Appendix 5 and the results have been included within this chapter.

High volumes traded in standard products

Overview

3.4. The June 2009 Discussion document found that the current level of liquidity in the GB wholesale electricity market, particularly along the forward curve, was low compared to a number of international electricity wholesale and commodity markets. The report also found that the current level of liquidity was low when compared to historic levels of liquidity in the GB wholesale electricity market and to the current GB gas market, which was considered by most market participants to be sufficiently liquid for their requirements.

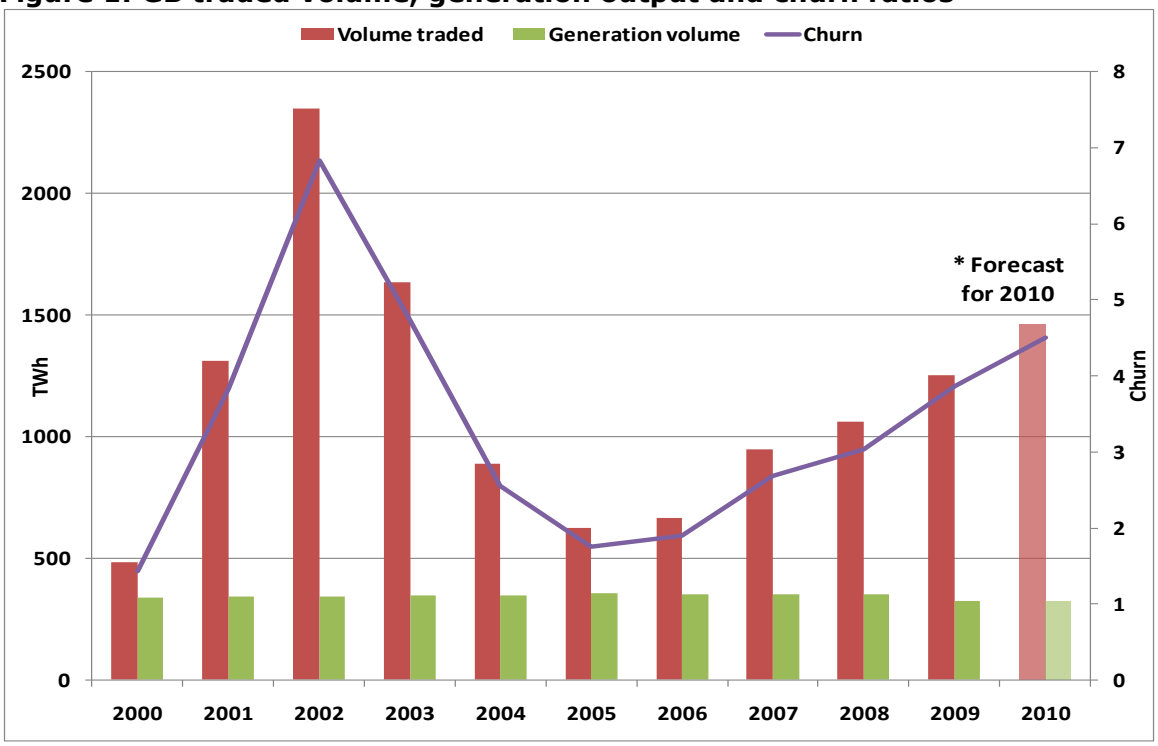
Aggregate churn (metric 1)

3.5. The churn ratio is a useful measure of overall levels of liquidity as it allows comparison of levels of liquidity across markets of different sizes and between different commodities. Liquid markets usually have churn ratios of several times the

rate of physical consumption. The analysis presented below shows the evolution of churn in the GB wholesale electricity market since 2000 and then compares annual churn rates in GB with churn rates in other wholesale electricity markets.

3.6. Figure 1 shows total annual volume of electricity traded, generation volume actually consumed in GB and the churn ratio since 2000. The chart also shows a forecast traded volume and churn ratio for 2010 based on traded volumes to May 2010.

Figure 1: GB traded volume, generation output and churn ratios



Source: ICIS Heren, ICE, DECC, energy brokers, Ofgem calculations. 2010 estimates are based on linear extrapolation of trading in the first five months of 2010.

3.7. Figure 1 shows that GB wholesale electricity churn reached a peak in 2002 before falling to a low of around 2 in 2005. The rise and fall in churn ratios during the period 2001 - 2003 is likely to have been influenced by the introduction of NETA and the trading activities (and subsequent exit) of a number of active trading companies such as Enron, TXU, AES and AEP. Since 2005 churn has steadily increased to around 4 in 2009 and is forecast to rise to around five in 2010.

3.8. Despite the increase in overall levels of churn in the GB electricity market in recent years the GB churn ratio remains below levels observed in the most liquid markets. Table 4 compares churn in GB with churn in a number of other European electricity markets. The table shows that whilst churn in GB is higher than in France it remains significantly lower than in Germany and the Nordic area.

Table 4: Churn rates in a number of European electricity markets

Year	GB	France	Germany	Netherlands	Nordpool
2001	3.8	0.4	5.0	1.1	7.9
2002	6.8	0.6	3.5	1.7	9.1
2003	4.7	0.7	4.3	2.3	5.5
2004	2.6	0.8	5.1	3.0	5.5
2005	2.0	0.9	6.0	3.6	6.4
2006	1.9	1.1	8.0	4.6	6.7
2007	2.7	1.4	8.5	5.0	7.5
2008	3.0	1.5	8.5	4.6	8.0
2009	3.9	1.8	9.6	3.4	7.6

Source: European Commission, European regulators, Ofgem calculations

3.9. There are likely to be a number of explanations as to why liquidity is higher in other markets. For instance structural factors such as greater levels of interconnection could explain why German and Nordic markets exhibit greater levels of liquidity than the GB market[2].

3.10. Whilst Figure 1 shows that overall churn has improved since 2005 and is forecast to rise further in 2010, overall levels remain below those observed in other liquid electricity markets. In undertaking our assessment at the end of the year we would view a continuation of the recent growth in overall GB churn levels as a positive sign.

3.11. There are various future developments that impact the medium run outlook for churn in the wholesale electricity market, and broadly point in a positive direction. Market coupling through Britned is expected to have a positive impact on liquidity in 2011, by bringing in new market participants seeking to take positions in the GB market. The introduction of Feed-in Tariffs (FITs) in the GB market could also have a positive impact, through incentivising additional, low carbon generation; the additional energy will ultimately need to be traded in the market to enable system balancing. We also note a range of new European regulatory initiatives, which are summarised in Appendix 3, whose impact is uncertain.

3.12. Whilst GB churn has increased since 2005 there are a number of important limitations with this measure. For instance, a high churn ratio could simply reflect very high levels of trading undertaken between large, incumbent market participants. Therefore, because churn is a high level measure of liquidity, it is necessary to undertake further analysis to obtain a balanced picture of liquidity in GB.

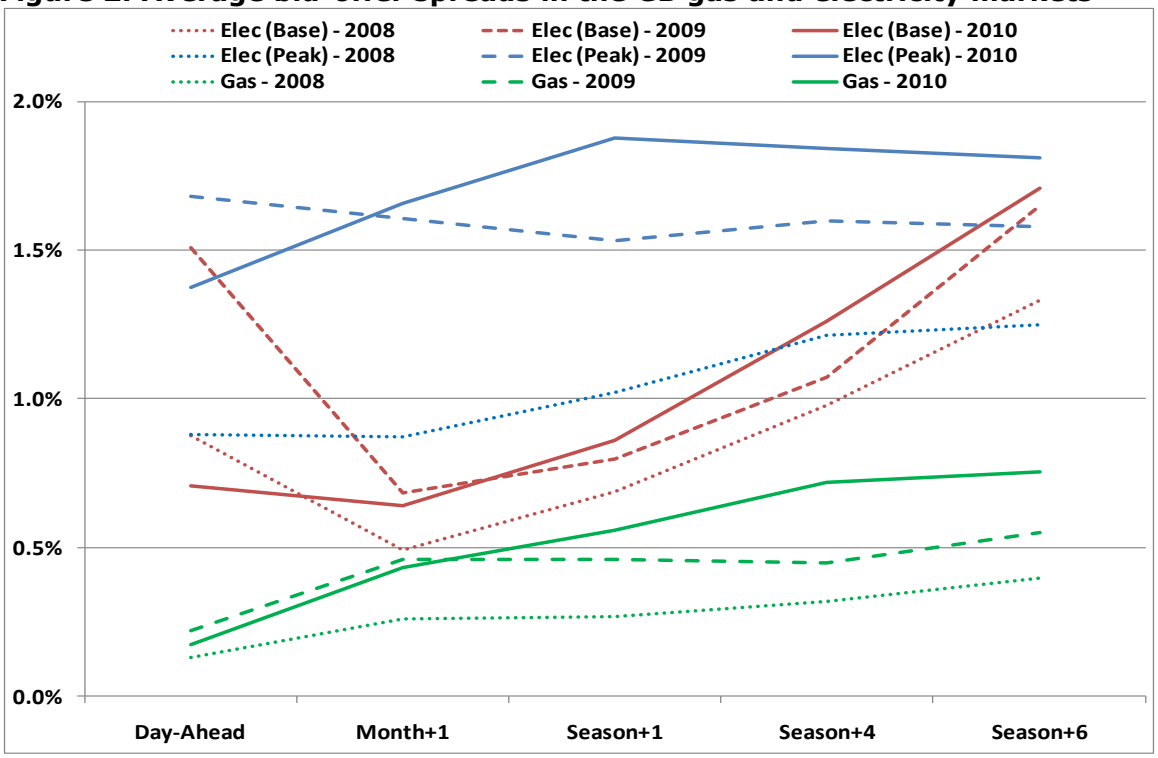
[2] This issue was analysed in the June 2009 Liquidity Discussion Document.

Bid-Offer spreads (metric 2)

3.13. A tight spread between the bid price (the price at which buyers are prepared to buy) and the offer price (the price at which sellers are willing to sell) is a good indication of a liquid market as it indicates the presence of a large number of participants and allows market participants to transact at a low cost.

3.14. The analysis uses Heren data to consider how spreads in the GB wholesale electricity market have evolved over time, compared to spreads in the GB gas market[3]. Figure 2 shows that the bid-offer spreads for a range of baseload and peak products in the GB electricity market are higher than spreads in the GB gas market.

Figure 2: Average bid-offer spreads in the GB gas and electricity markets



Source: ICIS Heren, Ofgem calculations

3.15. The analysis shows that spreads on near term products (such as day-ahead and month-ahead) have fallen in 2010 from levels observed in 2009 and 2008. However spreads further along the curve have increased, with spreads for peak

[3] Ideally we would like to know all volume and price information for all trades, however, data on volumes that were bid but never sold or offered but never bought is difficult to obtain. For this reason we have used trades actually transacted. The bid-offer spread analysis presented in this section calculates spread in % rather than absolute terms.

products increasing by up to 50% from 2008 levels. Gas spreads further along the curve have increased too but remain lower than electricity spreads. Comparing GB spreads to those in other European markets, the bid-offer spreads for the year-ahead baseload and peak products in the French market in 2009 were around 0.4% and 0.7% respectively, compared to around 1% and 1.5% in GB.

3.16. Figures 1 and 2 in Appendix 4 show the trend in GB baseload and peak spreads over a longer period and confirm the trend towards narrowing spreads for near term products and lengthening spreads further along the curve. Figures 3 and 4 in Appendix 4 compare the range of spreads observed in 2010 and 2009 and show that although spreads are higher further along the curve, the range of spreads is narrower in 2010 compared to 2009. We also note that longer term spreads have also risen in the gas market.

3.17. A number of respondents to our questionnaire noted that the availability of tight bid-offer spreads outside the front months (up to around six months out) has been falling over the past several years and a lack of liquidity across the forward curve, particularly for contracts for two years and further out, was also noted.

3.18. Spreads are likely to be wider for certain types of products, for instance those traded for delivery further along the curve and products with limited demand. However, it appears that GB electricity market spreads are higher than in previous years and other commodity markets, particularly further along the curve.

3.19. Ideally we would like to see spreads in prompt products continue to decline. In terms of spreads for longer dated products we would view it as a positive sign if spreads decline back towards 2008 levels.

Use of platforms which promote price transparency (metric 3)

3.20. Trading in GB occurs on a wide range of platforms including on exchanges, OTC (via electronic platforms or over the phone), and bilaterally between two counterparties. Trading can include trading electricity for future or prompt (close to real time) delivery. Trading can also be broken down into continuous trading (trading in products up to delivery) or via auctions (usually at the day-ahead stage) where volume is bought and sold at a clearing price (this type of trading generally occurs on exchanges).

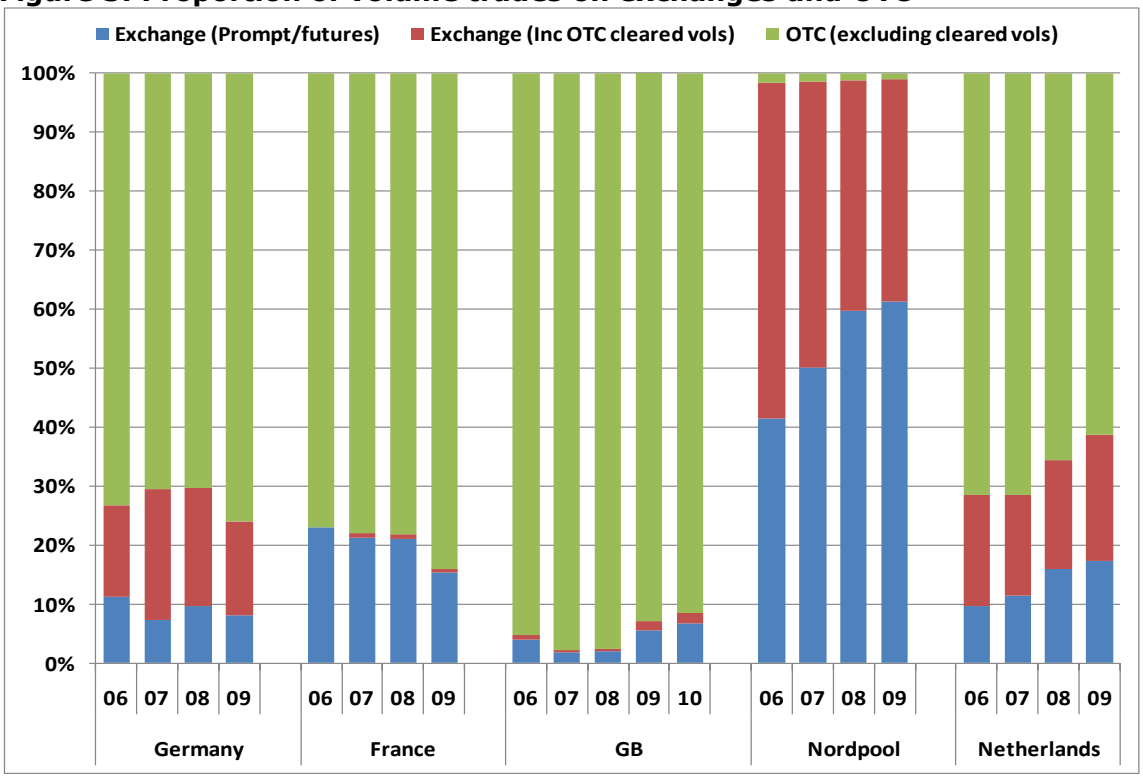
3.21. In GB the majority of trading occurs on OTC platforms. As a result price discovery is reliant on a range of sources including price reporters and informal market intelligence. It has been argued that the range of different platforms used for trading results in the splitting of liquidity and that the focus on OTC trading reduces information transparency, particularly price transparency.

3.22. High levels of exchange based trading have been put forward as one of the key reasons explaining the higher levels of liquidity observed in other European countries. It is suggested that this is because exchange trading, particularly via day-ahead auctions, allows for the creation of robust references prices and greater

transparency which can help the development of liquidity, particularly along the forward curve[4].

3.23. Figure 3 shows exchange and OTC traded volumes as a proportion of the total volume traded for a number of countries. The blue and red bars show exchange traded volumes, with the red bars showing OTC volumes that are cleared through exchanges (that is volumes traded on OTC platforms but given up for clearing on exchanges). The green bars show volumes traded solely on OTC platforms. All volumes are expressed as a proportion of the total traded volume.

Figure 3: Proportion of volume trades on exchanges and OTC



Source: Exchanges, Ofgem calculations. 2010 estimates for GB are based on extrapolation of exchange based trading in the first five months of 2010.

3.24. The chart shows that the majority of traded volume in GB is traded OTC (green bars) rather than on exchanges, although there has been some move to greater exchange based trading (blue and red bars) over the past year. In contrast, the chart shows that the majority of OTC trading in the Nordic area is cleared through Nordpool (an exchange).

[4] Whilst reference prices currently exist in GB none are universally accepted. Concerns include the volumes of trades used to define the price and the manner in which prices are obtained.

3.25. Exchange based trading, as a proportion of total consumption, is shown in Table 5 for a range of different countries since 2008. The table shows that the proportion of exchange trading in GB is significantly lower than in other European countries. In particular, there is limited forward trading and OTC traded volumes that are given up for clearing in GB.

Table 5: Exchange based trading as proportion of consumption

		Prompt	Forwards/Futures	Cleared OTC vols
Germany	2009	28%	51%	151%
	2008	29%	53%	169%
France	2009	13%	15%	1%
	2008	12%	20%	1%
GB	2009	4%	9%	3%
	2008	3%	3%	1%
Nordpool	2009	84%	364%	276%
	2008	84%	404%	320%
Netherlands	2009	28%	33%	74%
	2008	23%	38%	71%

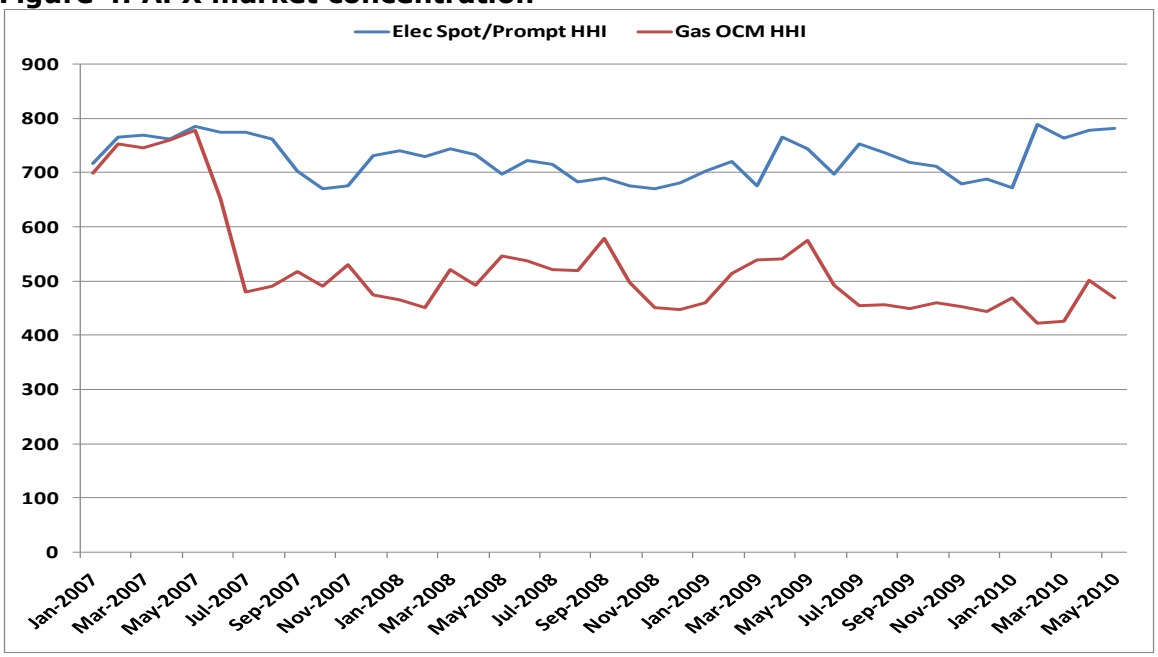
Source: Country exchanges, GB figures include APX/ICE trading

Diversity of participation on trading platforms

3.26. One element within metric 3 is diversity of participation on trading platforms. This is relevant because a diverse range of participants is likely to help contribute to the formation of trusted reference prices. The analysis below looks at the concentration of traded volumes across all market participants on the APX exchange; and then considers concentration on OTC platforms.

3.27. Figure 4 shows the market share of total traded volume of all active traders on the APX's OCM (gas) and electricity exchange from 2007. The chart shows that although concentration on the electricity exchange is higher than on the OCM, concentration in both is significantly below levels that would be of concern. Typically an Herfindahl-Hirschman Index (HHI) figure of around 1800 or higher is considered to be indicative of a market with high levels of concentration.

Figure 4: APX market concentration



Source: APX

3.28. Using data underlying Figure 4, the share of total electricity volume traded on the exchange by the top five market participants has increased from around 47% in 2007 to 50% in 2009. Turning to the OTC market, and using data from brokers, the share of the top five market participants trading on their platforms has increased from around 46% in 2007 to around 51% in 2009 (Table 6).

Table 6: Market share of the top five market participants on OTC platforms

	2004	2005	2006	2007	2008	2009
Av market share of top 5 participants	43%	45%	47%	46%	49%	51%

Source: Brokers

3.29. This analysis indicates that market concentration on the main GB electricity exchange is low but increasing. The analysis also shows that the share of the top five market participants is broadly similar on exchange and OTC platforms.

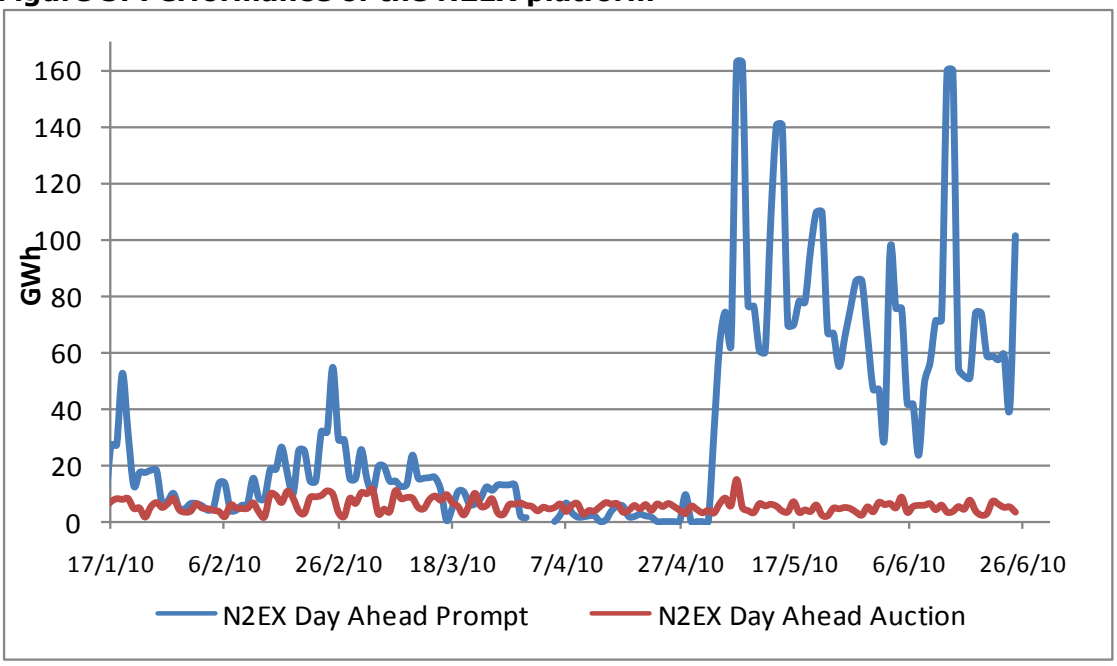
Key recent developments

3.30. A new electricity exchange was launched in January 2010 by N2EX. N2EX currently offers a day-ahead auction and a prompt market and is planning to launch spot and futures products later in the year.

3.31. Figure 5 shows the performance of N2EX since it started operating. The chart shows that auction volumes have remained stable. Assuming volumes continue at their current rate for the rest of the year, auction volumes are likely to be

significantly lower than in other European countries, where liquid auctions are credited with creating robust reference prices. For instance, auction volumes as a proportion of consumption in Germany for the first five months of 2010 were 39% compared to 0.6% in GB.

Figure 5: Performance of the N2EX platform



Source: N2EX

3.32. N2EX has generated significant day ahead prompt volumes, especially since May 2010. Based on an average GB daily consumption figure of around 1TWh/day (consumption is higher in winter and lower in summer) prompt volumes of 160GWh represent around 16% of GB daily demand. This is material but still a lower percentage than observed in a number of the most liquid markets. It should be noted that these volumes are OTC traded which are given up for clearing on the N2EX exchange rather than trades which originate on the platform itself.

3.33. We would welcome an increase in exchange based trading to the extent that it aids price transparency and leads to the development of robust, reliable reference prices which then allow for greater forward and financial trading to occur. We note recent moves to improve the level of exchange based trading, but performance to date has been mixed. We would view it as a positive sign if exchange traded volumes, including auction volumes, show an increasing trend on current levels by the end of the year.

Availability of longer dated products (including financial derivatives)

Overview

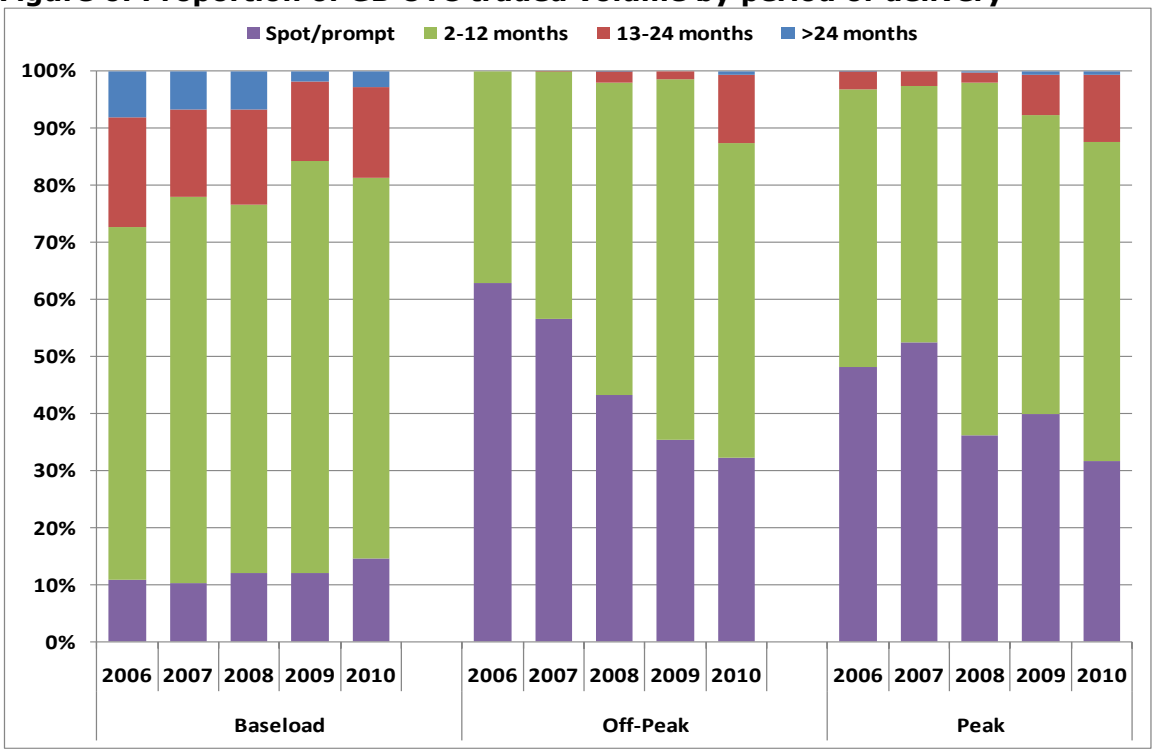
3.34. The June 2009 Discussion Document found that whilst a number of market participants considered liquidity in the prompt market sufficient for their hedging requirements, the level of liquidity further along the curve was of greater concern.

Volume of trading along the forward curve (metric 4)

3.35. The distance over which market participants seek to hedge varies between participants, for instance some generators seek to sell some of their output up to three years ahead whilst some large I&C customers often prefer to buy one year out. Smaller market participants have indicated that the furthest they generally look to hedge is around 18-24 months out.

3.36. Analysis of products traded along the curve provides an indication of the level of liquidity in the forward market. Figure 6 shows the percentage of volume traded, across all electricity OTC baseload products, off-peak and peak products, broken down by period of delivery.

Figure 6: Proportion of GB OTC traded volume by period of delivery



Source: OTC traded volumes, Ofgem calculations

3.37. The chart shows that there has been a decline in the proportion of baseload traded volumes further along the curve (>24 months) since 2006. However, trading along the curve appears to be increasing for off-peak and peak products (especially for products 13-24 months out). Peak and off-peak products are often used by suppliers to fine tune their energy requirements close to real time, so trading is generally concentrated in the prompt. Therefore, an increased availability of these products, further along the curve, is encouraging.

3.38. Table 7 provides similar analysis for a number of other wholesale electricity markets, again broken down by period of delivery. (Figures 5 and 6 in Appendix 4 show the results graphically).

Table 7: Proportion of OTC traded volume by period of delivery

		GB				France				Germany			
	Time Period	07	08	09	10	07	08	09	10	07	08	09	10
Baseload	>24 months	7%	7%	2%	3%	2%	3%	2%	6%	3%	5%	4%	3%
	13-24 months	15%	17%	14%	16%	12%	12%	7%	13%	12%	15%	15%	12%
	2-12 months	68%	65%	72%	67%	53%	53%	59%	58%	74%	72%	73%	76%
	Spot/prompt	10%	12%	12%	15%	33%	32%	32%	24%	12%	8%	8%	9%
Off-Peak	>24 months	0%	0%	0%	1%	0%	0%	2%	2%	0%	0%	1%	1%
	13-24 months	0%	2%	1%	12%	0%	4%	2%	0%	8%	13%	7%	11%
	2-12 months	43%	55%	63%	55%	46%	48%	32%	67%	71%	63%	60%	59%
	Spot/prompt	57%	43%	35%	32%	54%	48%	64%	31%	21%	23%	32%	30%
Peak	>24 months	0%	0%	1%	1%	0%	2%	1%	5%	2%	5%	5%	4%
	13-24 months	3%	2%	7%	12%	2%	6%	4%	8%	8%	13%	15%	17%
	2-12 months	45%	62%	52%	56%	28%	40%	29%	35%	49%	47%	46%	56%
	Spot/prompt	52%	36%	40%	32%	69%	52%	66%	52%	41%	34%	35%	22%

Source: OTC traded volumes, other regulators, Ofgem calculations

3.39. The table shows that GB compares favourably with Germany in terms of distance of forward trading, particularly for baseload products. However, higher peak and off-peak volumes are traded in Germany along the curve compared to GB. The distance of forward trading is higher in GB across most products compared to France.

3.40. In terms of exchange based trading, as the analysis above shows there is very limited exchange trading in GB, with most of this trading concentrated in the prompt. Conversely, trading in financial products on Nordpool is considered to be liquid up to 3 years ahead (with products offered up to six year ahead) and electricity futures and options contracts are offered on EEX (German exchange) up to six years ahead.

3.41. Whilst the analysis above may indicate high volumes of trading along the curve this may consist of few trades and/or trades with very large volumes. We have therefore undertaken analysis comparing average trade size and number of trades in GB compared with other wholesale electricity markets.

3.42. Our analysis shows that whilst the average baseload trade size in the near term periods ('2-12 month' and 'spot/prompt') in GB are similar or lower than in other European countries for the period 2007-2010, the average size further along the curve is significantly higher (see Figures 7-9 in Appendix 4). For peak and off-peak products average trade size has been fairly volatile over time although the trade size for near term periods is broadly comparable with other European countries. Average trade size further along the curve has been higher in GB than in other countries, although there has been some improvement in this respect recently.

3.43. All of the independent market players who responded to our questionnaire unanimously agreed that they had not observed any improvements in liquidity further along the forward curve or any new longer dated or financial product being made available in the past 6 months.

3.44. The overall GB picture on distance of forward trading is mixed. There has been a decline in the volume of baseload trading further along the curve but an increase in forward trading of off-peak and peak products. The number of trades transacted in GB is also lower than other European countries, particularly further along the curve (see Figure 10 in Appendix 4). This indicates that fewer trades are occurring along the curve in GB, but at higher average volumes. This combination may therefore fail to meet the needs of smaller scale market participants.

3.45. We would view improvements in forward trading, particularly in baseload trading further along the curve, and a continuation of the recent improvement of trading in peak and off-peak products along the curve as positive signs.

Availability of financial derivatives (metric 5)

3.46. Currently, there is only a very limited amount of trading in financial derivatives on the GB wholesale electricity market, with the market dominated by OTC forward transactions that are largely physically rather than financially settled. There is some exchange based financial trading in the GB electricity market but this is either concentrated on the prompt rather than further along the curve (in the case of APX) or involves limited volumes (in the case of ICE).

3.47. The presence of financial derivatives such as options and futures is a feature of other more liquid markets such as the Nordic area and is likely to encourage non-physical market players to enter and trade in the market more easily than a predominately physical market. It is also likely to provide market participants with a wider choice of products to hedge their supply requirements.

3.48. There are some positive plans for the launch of new financial products. For instance N2EX is intending to launch cash settled futures contracts later in 2010. The reference prices will be based on either trading on the continuous market or on the cleared auction price. Ensuring that the reference price is robust and reliable (based on sufficient levels of underlying volume) is important as this is one of the key reasons cited for the absence, to date, of the development of a financial market in GB.

3.49. Whilst the state of the GB market is weak in terms of current levels of financial derivative trading there are signs that this situation could improve in the future. Historically, the majority of trading in the GB wholesale electricity market has been physical with very limited trading of financial products. Therefore, we would view the development of financial products in GB such as CfD's and futures products as a positive sign.

Participation by banks / other financial institutions on trading platforms (metric 6)

3.50. A high number and diverse range of market participants trading in the wholesale market is a good indication of low barriers to entry and can be an indication of confidence in the market. This metric addresses in particular participation by banks and other financial institutions, as a leading indicator of future growth in the availability of financial products.

3.51. Table 8 compares membership of various exchanges and shows the total number of banks/financial institutions participating on each exchange.

Table 8: Participation by banks and other financial institutions on exchanges

	2007			2010		
	Banks / financials	Others	Total	Banks / financials	Others	Total
APX (UK) (Spot)*	7	30	37	9	49	58
APX (UK) (Forward)				4	2	6
APX (NL) (Spot)	10	33	43	8	49	57
APX (NL) (Forward)	12	25	37	7	34	41
APX (BE) (Forward)	5	16	21	5	22	27
Nordpool (Spot)	5	119	124	12	321	330
Nordpool (Forward)	10	106	116	25	107	127
EPEX Ger (Spot)	12	117	129	10	157	167
EEX Ger (Forward)	16	60	76	20	59	79
N2EX (Spot)	-	-	-	4	12	16

* 2007 data includes both spot and forward participants.

3.52. The analysis shows that the level of participation by banks/financial participants on GB spot markets is broadly comparable with levels observed on other European spot exchanges, but the number of financial participants trading forward is noticeably lower on GB exchanges compared to other European markets. On the positive side, financial participants trading on the GB spot market could become more active in trading financial products along the curve in the future.

3.53. Non-physical market participants also trade on the various OTC platforms where a significant proportion of GB currently trading occurs. Data from OTC GB brokers show that there are around nine financial participants trading GB electricity OTC and these participants account for around 20% of total volume.

3.54. We would view an improvement in the number and diversity of participants on both exchange and OTC platforms as a positive sign. In particular, we would view growing participation by financial institutions as a positive leading indicator regarding the prospects for the trading of financial products.

Meeting independent suppliers' and others' wholesale requirements

Overview

3.55. The June 2009 and February 2010 liquidity documents noted concerns that low levels of liquidity were acting as a barrier to entry in the supply market. In particular a number of small/independent market participants suggested that limited access to efficient risk management tools was acting as a key barrier to entry and growth in the supply market. The metrics in this part of the assessment framework look in more detail at the extent to which the wholesale market currently meets the needs of smaller, independent market participants (both supply and generation).

Diversity of products (Metric 7)

3.56. The lack of a suitable range of products in the GB wholesale market has been raised by a number of market participants as a factor discouraging entry. A market which contains a wide range of products aids contestability as it makes it easier for market participants to hedge their customer demand and adjust their hedged position and hence reduces the overall cost of hedging[5]. This is particularly the case for independent suppliers who do not own flexible generation assets.

3.57. The analysis below assesses the number of different combinations of products traded in each calendar year on the GB OTC wholesale market. It should be noted that the analysis does not necessarily reflect the availability of products offered, but rather those which were successfully traded.

3.58. Table 9 shows the number of products traded from 2007 to 2010 for GB (a similar breakdown for Germany and France is provided in Table 1 in Appendix 4). In addition, the Herfindahl-Hirschman Index (HHI) is used to assess the extent to which trading (volumes traded for each product) is concentrated in a narrow range of products.

[5] It could be argued that smaller players could go some way to managing risk without buying detailed products far along the curve by hedging their customers' average consumption using standard base-load and peak products. As delivery approaches and more detailed products begin to trade suppliers can fine tune their hedge to reflect their required volume profile. However, there are a number of risks associated with such a strategy including basis risk and high transaction costs particularly where bid-offer spreads are wide.

Table 9: Product availability and concentration

	2007		2008		2009		2010	
Total no of products traded	70		70		80		64	
Of which:	No of products	% volume	No of products	% volume	No of products	% volume	No of products	% volume
Baseload	7	92%	6	91%	6	89%	6	89%
Off-Peak	32	4%	32	4%	40	5%	30	5%
Peak	31	4%	32	5%	34	5%	28	6%
HHI GB	3918		4000		3727		3969	
HHI Germany	2727		3471		3341		3160	
HHI France	2022		2176		2242		2094	

Source: Broker data, Ofgem calculations

3.59. The HHI index ranges from 0-10,000, with higher scores relating to increasing levels of concentration. The analysis shows that trading is fairly concentrated in a narrow range of products in GB, although concentration does not appear to have changed significantly over time.

3.60. Comparison across markets shows that overall product diversity is higher in GB than in Germany or France. However, market concentration is higher in GB, indicating that volumes are concentrated in just a few products[6]. In addition, GB product diversity has fallen from 2003 levels when there were around 100 products traded.

3.61. Whilst a greater overall range of products is currently made available to market participants in GB compared to other European markets, smaller market participants have indicated that some of the products that they need to hedge are not available. Clearly it is in the commercial interests of market participants such as exchanges and brokers to offer products that are in demand. Providers are unwilling to provide non-standard products or products traded further along the curve[7] when there is only limited demand, but entry may not occur until such products exist.

3.62. We would view an improvement in product offerings that are useful for smaller market participants and a number of financial products being offered as positive signs of improvements in GB wholesale liquidity and contestability.

[6] See Table 1 in Appendix 4. This looks at OTC trading and hence excludes products traded on exchanges such as EEX where a large proportion of trading in Germany occurs.
[7] Even where these products are offered they are likely to have high bid-offer spreads or trade infrequently.

Number of counterparties active in the market providing hedging offers to small, independent suppliers (metric 8)

3.63. To assist in the assessment of the metrics outlined in this section we have supplemented our own analysis with a questionnaire sent out to a sample of market participants including small suppliers, independent generators and large energy users. The questionnaire (shown in Appendix 5) included a question on the number of counterparties active in the market providing hedging services.

3.64. Independent suppliers who provided feedback stated that up to six counterparties are currently active in providing hedging offers to independent market players. Independent generators quoted a much broader range, from seven to thirty counterparties, although they noted that a smaller number account for the majority of the traded volume. In addition, it was recognised that not all independent market players will have access to each of these parties and that there may be limitations to the extent to which counterparties can trade, for example due to credit requirements.

3.65. Some independent suppliers noted an increase in the number of counterparties active in the market over the last six months. However, this was not observed by all respondents. We will need to monitor whether this increase is sustained and observed by a wider group.

Participation of small/independent market participants on trading places (metric 9)

3.66. Our analysis shows that smaller market players do not make up a significant proportion of the total number of participants on exchanges. We also understand that smaller market participants are not particularly active on OTC platforms, instead preferring to secure their hedging requirement from third parties.

3.67. Most of the independent suppliers and the large energy users who took part in the questionnaire are not members on any electricity exchange operating in the GB market. Some parties commented that they are monitoring the developments and will join one of the exchanges once liquidity is sufficient to trade comfortably. However, some noted that the credit requirements on all exchanges are prohibitive or that none of the exchanges trade products that they need to hedge their demand.

3.68. Conversely, all the independent generators who responded are APX members, and in some cases ICE and N2EX members. All stated that they are broadly satisfied with their experience although they noted that exchanges are used for short term products only and the proportion of volumes sourced is relatively small compared to the OTC route. Some commented that trading is restricted to prompt markets to minimise the level of margining required. Although their experience in using the APX exchange is broadly satisfactory, one party noted a general lack of liquidity and transparency in the spot market.

3.69. Ideally we would like to see greater direct participation by smaller market participants in the wholesale market. However, we appreciate that this is not the only business model open to smaller market participants who may utilise third parties such as banks to source their hedging requirements. As such this metric will need to be considered alongside metric 8.

Availability of suitable products with small clip sizes (metric 10)

3.70. A specific concern of smaller market participants has been the availability of products with small clip sizes, with parties noting that the inability to purchase products in small volumes presents a barrier to entry and growth.

3.71. Table 10 shows the minimum clip size, for all GB baseload and peak contracts, on an annual basis, for a range of delivery periods. The table also shows the proportion of volume traded at these clip sizes (figures in brackets). Similar figures for Germany and France are provided in Tables 2 and 3 in Appendix 4.

Table 10: Minimum clip size (MW) for a variety of GB products

	Baseload			
	>24 months	13-24 months	2-12 months	Spot/prompt
2007	10 - (0.5%)	5 - (1.7%)	5 - (1.6%)	1 - (0.003%)
2008	5 - (0.9%)	5 - (1.5%)	5 - (1.2%)	1 - (0.004%)
2009	5- (2.2%)	5 - (1.1%)	5 - (0.9%)	1 - (0.003%)
2010	5 - (2.0%)	5 - (1.9%)	5 - (0.7%)	1 - (0.003%)
	Peak			
2007		10 - (21%)	5 - (0.6%)	1 - (0.004%)
2008	10 - (75%)	10 - (17%)	5 - (0.4%)	1 - (0.003%)
2009	10 - (18%)	10 - (34%)	5 - (0.6%)	1 - (0.003%)
2010	10 - (64%)	10 - (38%)	5 - (0.3%)	1 - (0.005%)

Source: OTC traded volumes. Products with less than five trades in each year were excluded.

3.72. The table shows that since 2007 there have been some, albeit very limited, downward adjustment in the minimum clip size for baseload products, with the minimum clip size falling from 10MW to 5MW for products delivered 24 months out. The table also shows that very small volumes are traded at the minimum clip size.

3.73. For peak products the minimum clip size has remained constant since 2007, and is as high as 10MW further out along the curve. Conversely, clip size in Germany, for all delivery periods has been just 1MW since 2008 for both baseload and peak products. French minimum sizes are more comparable to those in GB.

3.74. The availability of longer dated products, with small clip sizes can allow smaller market participants to hedge their customer demand requirement further in advance and at lower cost. Whilst minimum clip sizes in GB have fallen over time (for baseload products) they are higher than in other liquid markets for similar products, particularly for peak products.

3.75. Ideally we would like to see clip sizes across different products fall over time, volumes traded in these clip sizes increase and products that smaller market participants need introduced (although we appreciate the difficultly in providing products where demand does not currently exist). We also appreciate that the wholesale market is not the only route to market for new entrants / smaller market participants and as such would need to assess performance against this metric in the light of other relevant metrics (such as metric 8).

Qualitative feedback (metric 11)

3.76. One of our metrics involves qualitative feedback from a range of smaller-scale and independent energy industry participants, to understand if wholesale trading conditions are changing in ways which encourage their participation and facilitate competition. Information was gathered via a questionnaire (shown in Appendix 5) which was sent to a number of small/independent suppliers, potential new entrants, large energy users and independent generators in order to understand their experience in the wholesale electricity market over the past six months.

3.77. We found that most independent suppliers source their wholesale power through another party or through the Big 6 suppliers. Conversely, independent generators predominantly access the wholesale market via the OTC route and use exchanges for their short term hedging requirements. Large energy users tend to source their power through either one of the Big 6 or another party or a combination of OTC, exchange and another party.

Specific areas of satisfaction and dissatisfaction

3.78. The majority of respondents did not feel that the wholesale trading conditions for independent market players were broadly sufficient to support contestability and their participation in the wholesale market. Whilst there was some satisfaction with the prompt market, the longer term market, particularly for products for two years and further out, was considered inadequate.

3.79. Some noted that large credit requirements and a lack of counterparties prevent direct involvement in the wholesale market. Several commented that the market is reasonably robust up to twelve months forward and that there is a reasonable depth in standard products on the curve. One party noted that some of the Big 6 have become more open to entering into discussions on setting up a trading relationship when approached, but this was not observed by a range of respondents.

Summary

3.80. The analysis presented in this chapter shows a mixed picture across our eleven metrics. Table 11 summarises our findings.

Table 11: Summary of findings

	Metrics	Performance
High volumes in standard products		
1	Aggregate churn: volumes traded across all products / GB physical consumption	Strong improvement in overall levels of churn, with churn forecast to rise to five in 2010. However, churn remains below levels in the most liquid wholesale electricity markets.
2	Bid-offer spreads for range of standard products	Widening of spread for products further along the curve although some narrowing for products closer to delivery.
3	Use of platforms which promote price transparency	Limited exchange based trading; slight improvement in recent years but well below other markets. N2EX trading provides some positive signs.
The availability of key longer dated products (including financial derivatives)		
4	Volume of trade along the forward curve	The overall picture is mixed. Decline in baseload products traded further out along the curve, but an improvement in peak and off-peak volumes. Peak volumes further out are lower than levels in other markets.
5	Availability of financial derivatives	The current availability of financial products remains low but there are plans for new product development.
6	Participation by banks / other financial institutions on trading platforms	Current participation is lower than in other highly liquid electricity markets, but could provide a reasonable base for growth in forward trading over time.
Meeting independent suppliers' and others' wholesale requirements (supporting retail and broader contestability)		
7	Diversity of products	Wide range of products available in the GB market but trade concentrated in a few products.
8	Number of counterparties active in the market providing hedging offers to small / independent suppliers	Some reports of an increase in the number of entities offering hedging services but not observed by all parties.
9	Participation by small / independent market participants on trading places	Small/independent suppliers do not utilise exchanges often, largely due to credit issues. No small supplier has joined the N2EX as yet.
10	Availability of suitable products with small clip sizes	The minimum clip size of products traded in GB has not changed over the past few years and remains above some other markets.
11	Feedback from a sample of small / independent suppliers, potential entrants, large energy users, and independent generators	Range of messages, but widespread criticism of longer term liquidity.

4. Conclusions and next steps

4.1. In this document, we have set out a liquidity assessment framework tailored towards assessing the concerns outlined in our February 2010 document and the results from an initial application of this framework to the GB wholesale electricity market.

4.2. The results give a mixed picture. On the positive side, we highlight the following:

- The annual trend in aggregate churn has been rising since 2005.
- There has been industry-led innovation and new development, most recently through N2EX. There are plans to introduce new financial derivatives.
- The market generally appears to meet the needs of large, vertically integrated market participants.
- There are some important positive drivers that will impact the market over the medium term. We expect that market coupling through Britned will lead to increased participation in the market by a range of European energy firms and will have a positive impact on overall liquidity.

4.3. On the other hand, there are areas which give concern:

- Overall churn remains well below that seen in the most liquid electricity markets.
- Liquidity further along the curve remains weak, and there is evidence of increasing bid-offer spreads.
- We have not seen a major increase in auction volumes and price transparency.
- There is ongoing dissatisfaction from many non-vertically integrated market participants about their ability to meet their wholesale power hedging needs.

4.4. Overall, the market is delivering some aspects of liquidity well, but not all the aspects of liquidity that support contestability and fully effective wholesale and retail competition are present. Whilst there are some future developments which suggest an improving outlook, the outcome is not yet clear. Further improvement is needed and it remains conceivable that recent improvements will not be sustained.

Possible regulatory interventions

4.5. On the basis of the evidence gathered in this assessment, we are looking for further improvement in the performance of the market in respect of liquidity. Ofgem needs to be in a position to move to consulting on the detail of appropriate remedies should we conclude that industry-led initiatives will not deliver the required improvements. We are therefore now developing further the range of potential regulatory interventions that were set out in the February 2010 Consultation Document.

4.6. In further developing the options, there are several key considerations. Firstly, respondents to the February Consultation Document made a number of valid points regarding design issues which could impact the effectiveness of individual regulatory options and these need to be considered. Secondly, any intervention designed to improve an aspect of liquidity would need to be consistent with, and integrated within, any overall package of energy market reforms. This applies both to the overall direction underpinning energy market reform and to the specific details of measures.

4.7. At the same time as considering regulatory solutions, we will continue to monitor the market and track the progress of industry-led initiatives. The next formal assessment of the market's performance will be undertaken around the end of the year, in line with the timetable set out in the February Consultation Document.

4.8. Any decision to implement a regulatory intervention would take into account ongoing and expected market progress, the cost and effectiveness of tools in remedying the specific areas where the market is not delivering, and the overall direction of energy policy. No decision that such intervention is merited has been taken, and Ofgem continues to encourage the industry to improve all aspects of liquidity.

Next steps

4.9. Over the coming months, Ofgem will:

- consider the responses to the consultation and continue to engage with industry stakeholders,
- continue to monitor the market's performance on an ongoing basis,
- carry out a further assessment, using this framework, around the end of this year, and
- further develop and evaluate possible interventions.

Appendices

Index

Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by 10 September 2010 and should be sent to:

gb.markets@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Any questions on this document should, in the first instance, be directed to:

Vanja Munerati
Ofgem
9 Millbank
London
SWIP 3GE
020 7901 7000

CHAPTER: Two

Question1: Do you agree that the proposed framework provides an adequate range of evidence for assessing market liquidity?

CHAPTER: Three

Question1: Do you agree with the assessment of the metrics in this chapter?

Question2: Do you have any comment on the level of improvement in the metrics that would make a significant difference for market participants?

Appendix 2 - Summary of responses to the February 2010 Consultation Document

1.1. The "Liquidity proposals for the GB wholesale electricity market" consultation document published in February 2010 sought views from interested parties on a range of questions including views on potential interventions to address our concerns. We received 33 responses of which six were marked confidential in whole or in part. This appendix lists the respondents and summarises their views.

List of Respondents

	Name
1	Alpiq
2	APX ENDEX
3	Argus
4	Buy Energy Online
5	Centrica (Confidential annex)
6	ConocoPhillips (U.K.) (Confidential)
7	Consumer Focus
8	Cornwall Energy
9	CPower
10	DONG Energy
11	Drax
12	Ebico
13	Ecotricity (Confidential)
14	EDF
15	Elkraft
16	E.ON
17	ESBI
18	First Utility (Confidential appendix)
19	GDF Suez
20	Good Energy
21	Intergen
22	International Power
23	Morgan Stanley (Confidential)
24	N2EX
25	National Grid
26	OPUS
27	Rio Tinto Alcan

28	RWE Npower
29	Scottish Power
30	Shell
31	Spark Energy
32	SSE
33	Welsh Power (Confidential)

1.2. Where received in a publishable form, responses that were not marked as confidential can be found on Ofgem's website (www.ofgem.gov.uk) and copies are also available from Ofgem's library.

Summary of responses

1.3. This section provides a summary of the responses broken down by each question and where appropriate by different stakeholder groups (e.g. independent generators, small suppliers). There is greater consensus within stakeholder groups than between different groups, but different views on specific questions are also found within these stakeholder groups.

Chapter 1: Defining the problem

Question 1: Do you agree that the harm caused by low levels of liquidity is sufficient to merit policy intervention, if such low levels persist?

1.4. The majority of respondents agree that there is a problem with liquidity in the GB wholesale electricity market and that policy intervention may be required. Views on the nature of this intervention vary depending on the perceived causes of low liquidity and what respondents view as the desirable outcomes of intervention.

1.5. A number of respondents, across all stakeholder groups, indicate that there are two distinct issues, overall low levels of liquidity and barriers to entry for small suppliers. It is noted that although these issues overlap, it should be made clearer which issue is being addressed. Some independent generators note that the issue of barriers to entry for independent generators should be given similar attention as that given to the challenges facing small suppliers.

1.6. The majority of the Big 6 view current levels of liquidity in the wholesale market as generally sufficient or acceptable. Two accept that greater liquidity is desirable but are confident that current market arrangements, supported by new and emerging market initiatives, are developing appropriate solutions. None of the Big 6 support a case for direct regulatory intervention.

1.7. The majority of the independent generators, small suppliers and other respondents believe that some form of policy intervention is merited. Respondents advocating intervention note that this should be directed to the perceived cause of

the problem. These respondents identify a lack of contestability and competition in the wholesale market, especially trading further along the curve. A number of small suppliers highlight problems in acquiring volume and shaped products in the forward market, whereas independent generators point to a lack of counterparties in forward market trading.

Question 2: Do you agree that the focus should be on electricity markets?

1.8. The majority of respondents believe that the focus should be on the GB wholesale electricity market, notwithstanding those respondents who do not believe that there is a liquidity problem in either the GB gas or electricity markets. A few respondents state that although the electricity market should be the main focus, the gas market does merit some attention now or in the future.

Chapter 2: Success criteria for market initiatives

Question 1: Do you think our high level success criteria are appropriate?

1.9. A number of respondents note that the success criteria need to be defined in greater detail before a full response can be given. Some also suggest that the success criteria should more clearly relate to what Ofgem is investigating, i.e. barriers to entry for small suppliers or improvements in overall levels of liquidity. Several respondents suggest additional success criteria that could be taken into consideration.

High volumes traded in standard products

1.10. Whilst some of the Big 6 note that this criterion lacks clarity, others in this group argue that trade in standard products is already high and suggest that sustained growth in this area should be measured instead. Some respondents note that this is a measure of overall levels of liquidity only and does not indicate how useful this liquidity is to small suppliers or new entrants.

Availability of key longer dated products and/or financial derivatives

1.11. Most independent generators and small suppliers offer support for this criterion. One respondent from this group suggests that the criterion should be modified to: 'availability of these products, without prohibitive funding costs, at clip sizes required by small suppliers'. Three Big 6 respondents note that they expect such products, such as baseload and peakload derivatives, to become available as a result of current market initiatives.

Use of trading platforms by small/independent suppliers

1.12. Many respondents express doubt that this criterion is useful. This is either because the current trading mechanisms are not seen as the main barrier for

small/independent suppliers, especially along the forward curve, or because small suppliers may find other options better suited to their needs. Some respondents note that this criterion relies on the assumption that the products which small/independent suppliers need to take part in the market, will actually be made available.

Positive feedback from small/independent suppliers and potential entrants

1.13. Four of the Big 6 respondents warn that use of this criterion creates the danger of a bias in Ofgem's liquidity evaluation. However, others accept that such a criterion is needed, but warn that it is applicable only to the issue of supporting small suppliers.

Question 2: Do you have views on how these can be quantified and the appropriate target level of performance?

1.14. Whilst several respondents suggest specific targets, many respondents are cautious about setting specific targets because of the potential unintended consequences in reaching such targets, for example fragmenting liquidity, creating increased transaction costs or creating incentives for parties to demand higher and higher concessions. Several respondents suggest measuring trends over time rather than establishing absolute targets to ensure that any liquidity improvements or improvements in the availability of certain products and clip sizes are maintained.

Question 3: When should market success be judged?

1.15. Half of the Big 6 respondents state that new market initiatives, such as N2EX, should be given more time (12-18 months) to develop. Most small suppliers and independent generators express a preference for an assessment as soon as possible. A number of respondents suggest that Ofgem's assessment timeline should extend until the start of market coupling via the BritNed interconnector.

Chapter 3: Overview of the possible remedies

Question 1: Are there any other policy options, beyond those set out in chapters 4-8, which merit attention?

1.16. Many respondents note that there is cross-over between Ofgem's work on liquidity and measures intended to enhance security of supply, for instance in the context of cash-out arrangements, and suggest that Ofgem's proposals should be consistent across these areas. Various respondents note that greater market coupling with Continental Europe via interconnectors and removing cross border barriers should improve market liquidity and facilitate new entry.

1.17. Whilst respondents from the Big 6 are not in favour of any policy that would fundamentally affect industry structure, a number of independent generators suggest

structural intervention to unbundle the existing vertical integration between generation and retail operations among the Big 6.

1.18. Some respondents note that it may be appropriate to consider a hybrid of Ofgem's proposals. Some respondents also suggest that Ofgem should monitor the potential for demand side participation in the wholesale market. Several respondents suggest a referral to the Competition Commission.

Chapter 4: Direct trading obligation

Question 1: Is a direct trading obligation an appropriate solution to the problems related to wholesale market liquidity?

1.19. The majority of respondents argue that this is not an appropriate solution, with only a limited number expressing support. Respondents feel that such an obligation will not help overall market liquidity and transparency. Various respondents note that the obligation would be difficult to monitor and enforce. Two respondents comment that the obligation could discourage potential market entrants, because of an increased regulatory burden and regulatory uncertainty. Some small suppliers suggest that such an obligation may take business away from sellers who are currently willing to trade with small suppliers. A number of respondents from across stakeholder groups note that any obligation should not interfere with sellers' rights to require appropriate credit arrangements and if an obligation to trade did this, it would increase risk in the market.

1.20. All the Big 6 oppose this proposal and note that this option would not add anything new as market players already offer the terms and products to market participants where it is economic to do so given market conditions (and taking into account counterparties' ability to meet collateral requirements). Two of the Big 6 express a willingness to discuss establishing guidelines or a voluntary code of conduct which may help small suppliers set up trading arrangements. Two respondents among the Big 6 add that current generation licence conditions already prohibit sellers from discriminating between suppliers.

Question 2: Which licensees should be subject to the obligation?

1.21. Given the lack of support for this option the majority of respondents who answer this question do so from a largely theoretical point of view. Some suggest that any obligation should apply to all large generators, whereas others suggest that the focus should be on large vertically integrated companies, whilst a minority believe any requirement should be on any generator with a large share of market generation capacity.

Question 3: What requirements should be put in place relating to products, pricing, collateral and other conditions of trade?

1.22. Most of the Big 6 note that collateral arrangements should continue to be assessed on an individual basis and that if parties are compelled to offer terms, they should retain control over what these are. One of the Big 6 note the possibility of voluntary guidelines being introduced to simplify risk assessment procedures for small suppliers and to help market participants agree to trade in clip sizes attractive to small suppliers. Another respondent from this group mentions the possibility of designing a new template trading agreement for small suppliers to make trading easier for them.

1.23. Some respondents from outside the Big 6 emphasise the importance of suitable product availability on the forward market and the possibility of minimal collateral requirements for trades with smaller players. Many respondents stress the importance of the transparency of prices in any direct trading obligation and the need for clear guidance and compliance monitoring by Ofgem.

Question 4: Is it appropriate to extend the obligation to cover generation purchases?

1.24. Some of the Big 6 note that current market arrangements already allow suppliers to purchase from small or independent generators where it is economic to do so and cite various reasons why there is no need for the obligation to cover generation purchases. Reasons include that there is already a competitive market for these purchases; and that most small generators operate embedded generation and may not wish to trade directly on the wholesale market.

1.25. Some independent generators suggest that it is preferable to seek a market structure which fundamentally encourages all parties to trade across the curve and from all sizes of generation business.

Question 5: What costs would this option impose?

1.26. Most respondents indicate that increased credit risk is the major cost implied by this option. Many respondents also point out that monitoring and enforcement costs for Ofgem could be high. One respondent argues that this option may have a hidden cost for small suppliers by removing the opportunity for an independent player to offer better terms. Some respondents warn that the costs are likely to hit small/independent generators harder if the obligation is extended to them as they have less resource to comply with the obligation.

Chapter 5: Market making agent

Question 1: Is a market making arrangement an appropriate solution to the problems related to wholesale market liquidity?

1.27. A number of respondents from across stakeholder groups view a market maker as a potentially useful tool, especially if it is a voluntary, market-led initiative. Some respondents note that this option could be a temporary measure until other measures that address market structure are introduced.

1.28. Many respondents from across stakeholder groups note that this option may help small suppliers but it will not affect overall market liquidity or address the fundamental causes of low liquidity. Some respondents also note that it will not help small suppliers with their hedging requirements further out on the curve if the proposal applies to the day ahead market only. Some respondents warn that the market could become fragmented if a limited market maker approach is adopted. Most of the Big 6 do not support an imposed market making agent or see it as a last resort option. Many respondents indicate that it would be preferable for a market maker to evolve voluntarily and some indicate that this could happen on the N2EX platform.

Question 2: What products should be made available through a market maker?

1.29. Many respondents comment that if this option is put in place to help small suppliers, the products made available through a market maker should be those useful to small suppliers, with the focus on small clip sizes and longer-dated products. Other respondents favour the market maker offering only standard products. Some indicate that mandating products would stifle innovation and that the market maker should be free to respond to market demand. Whilst there is some support for a 'large volume' approach in order to reduce the risk of split liquidity, other respondents favour a gradual approach with limited products, perhaps broadening as liquidity increases.

Question 3: What volume obligation would be appropriate?

1.30. Two broad views are expressed in the responses. The first is that a limited volume obligation is appropriate and that the products should be geared to small suppliers, particularly as regards their shape and maturity. The second view is that large volumes should be obligated to ensure that liquidity is not split between the market maker and the rest of the market. Some respondents note that if there is an obligation to offer a firm bid-offer spread then there is no need to have a volume obligation.

Question 4: Would the establishment of a "Market Making Agent" facilitate the introduction of market making?

1.31. Most respondents that address this question have reservations about whether a Market Making Agent would facilitate the introduction of market making. Some respondents note that more detail about the Agent is needed and that the choice of platform to accommodate the trades would be important. Some respondents comment that a market maker would occur naturally if the market was transparent and had different credit requirements. They note that a mandatory agent might reduce transparency by hiding the true stack of bids and offers, or could deter voluntary market makers from participating in the market.

Question 5: What costs would this option impose?

1.32. A number of costs are identified by respondents with many commenting that the scale of the costs would depend on the scope and design of the Market Making Agent.

1.33. Costs identified include set up costs of the market making function, operational costs, the cost for incumbents of negotiating and signing contracts and the cost of underwriting the underlying products provided by the Agent. Two respondents note the costs to the market as a whole resulting from a decrease in liquidity that could arise with the introduction of a compulsory market making agent.

1.34. Views are mixed on how the Market Making Agent's costs could be recovered with some suggesting that the market as whole should fund these costs and others that costs should be shared by those using the service.

Chapter 6: Mandatory auctions

Question 1: Are mandatory auctions an appropriate solution to the problems related to wholesale market liquidity?

1.35. Most of the Big 6 are not supportive of mandatory auctions and cite concerns that mandated auctions may reduce the liquidity that currently exists in OTC trading or on exchanges and create fragmented markets. Some mention that auctions do not allow re-trading and re-optimisation against fluid gas prices.

1.36. The majority of independent generators are not supportive of mandatory auctions. Conversely, most small suppliers note that the mandated release of volume through auctions could help their hedging needs, especially in the medium to long term, if these auctions are held regularly and provide the appropriate products with small clip sizes. Concerns raised by small suppliers are collateral requirements, the need for universal information about each participant's demand, the risk of prices rising sharply as the auction volume gets close to the auctioning requirement and the risk of gaming behaviour. Other respondents note that similar mechanisms are used in other European markets and in the USA and could translate well into the GB market, but stress the need to develop secondary trading in order to sustain and improve overall market liquidity.

Question 2: How should the volume of generation subject to a mandatory auction be set?

1.37. A number of respondents note that in order to create a credible reference price there must be sufficient depth of volume in the auctions. Estimates of this depth vary from 10% of produced volume as a minimum to 100% of installed generation. One respondent warns that the auction needs to be sufficiently deep, but not cause a fundamental change in BETTA arrangements. Some respondents comment that a pool type arrangement should be avoided.

Question 3: Who should be obliged to offer into the auction?

1.38. Many respondents suggest that no party should be obliged to participate in auctions. One small supplier recommends that only portfolio generators should be mandated to release volume rather than single site generators whilst others note that renewable generation should be exempt as output from these is difficult to predict. One respondent notes that all generators above a certain threshold should be required to submit volume to the auction, whereas another suggests that an obligation should only apply to vertically integrated companies above a certain size.

Question 4: What design features should be incorporated into the auction process and rules?

1.43. A number of respondents suggest that the products available on the auctions should be those that are useful to small suppliers, in particularly pre-defined products for periods of up to 24 months forward.

1.39. One Big 6 respondent notes that any mandatory auction should be based on marginal tranche pricing, and that all licensed generators and suppliers would bid in a proportion of their forecast available plant or demand. Two independent generators suggest that suppliers should be obligated to participate in any auction. One small supplier states that a mandatory day-ahead uniform clearing-price auction for each of the 48 half-hours would create a credible clearing price for each half hour and encourage the development of financial products. It further recommends that the auction is run by a not-for-profit entity.

1.40. Many respondents comment on the importance that no market player should be able to trade with itself and so circumvent the auction. One respondent proposes standardised product tick sizes. Two other respondents suggest the prohibition of information exchange between the generation and supply arms of vertically integrated companies.

1.41. Three respondents suggest that ideally there should be no reserve prices in the auction, although one notes that if this is not possible then the reserve prices should be linked to a transparently tradable commodity in order that the reserve price does not deter participation in the auction.

1.42. Other design factors raised in the responses are the regularity of the auctions and the need for ongoing monitoring of the market to guard against manipulation by dominant players.

Question 5: Should the mandatory auction apply to day-ahead volumes and/or to longer dated forward products?

1.43. Most of the Big 6 do not support mandatory auctions, although one notes that if this option is pursued the auction should be on a day-ahead basis and this could be effective in stimulating markets in longer dated products.

1.44. Views from independent generators are mixed, with some commenting that neither type of mandated auction is suitable, or that mandated auctions should be in longer dated forward products and one suggesting that they should be used at the day-ahead stage only.

1.45. The majority of small suppliers note that auctions in longer dated forward products would be most useful to them as long as there is sufficient variety and depth of products. However, one small supplier offers support for mandatory day-ahead auctions on the basis that this will provide a robust reference price and could lead to the development of a market in financial derivatives.

1.46. Other respondents note that liquidity in day-ahead markets is already reasonable and that the focus of intervention should be on the development of liquidity in forward products; and suggest that improved price discovery in these time horizons will lead to a more fundamental improvement to overall liquidity.

Question 6: What costs would this option impose?

1.47. The costs most commonly identified are associated with setting up and administering the auction. The consensus is that these costs should be borne by market participants, possibly by a form of transaction fee. Many respondents note that incumbents will have to bear private costs associated with changing their trading practices and possibly renegotiating contracts in order to comply with the mandatory auction regime.

1.48. Two respondents note that credit and risk costs would be likely to increase whilst one identifies an increased risk of day-to-day imbalances under mandatory auctions.

Chapter 7: Self-supply restriction

Question 1: Is a self-supply restriction an appropriate solution to the problems related to wholesale market liquidity?

1.49. None of the Big 6 support this proposal and four note that there are already good commercial reasons for vertically integrated companies to buy a proportion of their supply requirements from the market. Several Big 6 respondents comment that this policy would introduce inefficiencies as vertically integrated companies will have to pay a premium price for additional purchases to meet demand. Some also comment that this policy is unlikely to increase long-term liquidity or hedging options for small suppliers.

1.50. The majority of independent generators are supportive of this option as it would go some way to addressing the structural problem of vertical integration that they perceive to be the root cause of low liquidity. However, three of these respondents comment that additional measures would be needed to make the market truly liquid and contestable.

1.51. Whilst two small suppliers do not support this option, three state that a self supply restriction could work in combination with other measures.

Question 2: Who would be covered by the self supply restriction?

1.52. One of the Big 6 respondents suggests that only market participants who do not currently contribute towards GB wholesale electricity market liquidity should be covered by the restriction. Another suggests that all groups whose supply activities' volumes are less than their generation volumes should be covered, but warns that this could then reduce these suppliers' investment in new generation.

1.53. Independent generators suggest that all vertically integrated companies should be subject to the restriction. Likewise, some small suppliers note the restriction should apply to all vertically integrated companies above a minimum threshold or be proportional to their market share. Two respondents state that the restriction should apply to any participant who has a significant share of generation or is a large generator.

Question 3: How should the extent of a self-supply restriction be set? Should it relate only to the supply to domestic customers?

1.54. Several respondents state that the restriction should apply to both domestic and business customers in order to reduce the complexity of the measure. However, two other respondents comment that a self-supply restriction should not apply to I&C sector demand as this demand is largely met by the traded market and the restriction would have minimal impact. Two independent generators note that the restriction should apply to the supply of domestic customers because each of the Big 6 has a stable customer base here and this is the least competitive part of the retail market.

Question 4: Should a self-supply restriction be accompanied by measures to ensure that small participants have access to the products they need? If so, which products?

1.55. Many respondents acknowledge that a self-supply restriction does not address the problem of access to the products, clip sizes and shape needed by small suppliers. Several respondents suggest that a regulated market maker could operate alongside a self-supply restriction.

1.56. One small supplier states that there would need to be a mechanism to ensure that all standard products are available to small suppliers. Another respondent suggests that a measure should accompany a self-supply restriction to ensure that products at a low clip size and with shape flexibility are available to small suppliers without excessive premium.

1.57. Some independent generators suggest that the self-supply restriction should not have this accompanying measure. One suggests that the products required will

depend on the customer types that are being supplied by each participant, and so an over-arching accompanying measure will not work.

Question 5: How could the previous problems related to enforceability be overcome?

1.58. Respondents who address this question identify that the key enforcement issue would be to track the purpose of wholesale transactions. Many respondents, including four of the Big 6, state that the current market structure and trading arrangements would make this option impossible to monitor and enforce, as it is not possible to assign final sales to original generation in a liquid market.

1.59. One respondent suggests that all generation and supply businesses should provide Ofgem with a breakdown of traded volumes by counterparty. Another respondent suggests the introduction of a requirement to trade significant volumes OTC with brokers (rather than through longer-term structured contracts) and a requirement to report all trades to the regulator. A further respondent notes that the EU Third Package contains new information gathering powers for National Regulatory Authorities (e.g. Article 40) and that this may help Ofgem to monitor compliance.

1.60. Two respondents argue that exchanges should be regulated and required to provide Ofgem with data to monitor transactions between parties with the same parent company. One respondent suggests that the final half-hourly traded position between generators, using their Production accounts, and suppliers, using their Consumption accounts, could be notified to Elexon ahead of gate closure.

Question 6: What costs would this option impose?

1.61. The most commonly identified costs are monitoring, enforcement and compliance costs. The scale of these and whether they fall on the regulator or on market participants will depend on the scale and design of the restriction. For example, one respondent notes that the costs will be higher if a new exchange is established, whereas if the restriction is platform neutral the main costs would be additional brokering and compliance costs for vertically integrated companies. Another respondent suggests that this option may be very cost efficient if an exchange or other professional market participant can handle the trading.

1.62. Some respondents note that transaction costs of market participants could increase due to the increased trading volumes. Some respondents comment that there will be an increased risk of counterparty default placed on vertically integrated companies and this will lead to an increase in credit requirements. One respondent notes that the generation and supply arms of vertically integrated companies may end up with approximately opposite positions with similar counterparties, so the credit impact on the overall business should be approximately neutral.

1.63. One respondent suggests that a full impact assessment would be needed in order that the costs of the restriction are not viewed in isolation from the benefits.

Chapter 8: Collateral requirements

Question 1: Do you think that any of the possible approaches outlined in this chapter have merit and should be pursued further?

1.64. There is a broad consensus among respondents that collateral/credit requirements create a major barrier to entry and growth for smaller firms whereas some respondents note that they also affect larger players. However, many respondents also note that the difficulties which parties experience with credit requirements would persist even if overall liquidity issues were resolved.

1.65. Whilst some respondents favour policy intervention in this area, others strongly oppose arguing that none of the approaches put forward in the Consultation Document would bring about an increase in liquidity proportionate to the costs and risks that they might bring. Several respondents also recognise that the industry has developed a large variety of instruments to manage risks and that enforcing or restricting the choice of risk mitigation instruments could increase barriers to entry. Some respondents point out that the market is in a better position to innovate new forms of hedging and collateral without regulatory intervention.

1.66. Several respondents comment that as N2EX develops and attracts more participants, it is likely to lead to a reduction in collateral requirements, arguing that collateral on an exchange can be significantly more efficient than spreading collateral over bilateral counterparties. Conversely, some respondents stress that exchange based collateral requirements are less flexible than those negotiated through bilateral trading and thus more costly.

1.67. Several respondents identify further policy options that could aid risk mitigation such as development of pool cover insurance policy, the provision of a credit line to rated entities or introduction of a centrally managed volume aggregating service. One respondent notes that the development of financially settled derivative contracts would result in the traded electricity market becoming considerably more attractive for financial intermediaries and that these firms are well placed to innovate in dealing with credit risk.

Chapter 9: Conclusions and next steps

Question 1: Do you agree with the proposed assessment criteria?

1.68. Most respondents agree that the proposed assessment criteria identify appropriate high level objectives for any market based policy option although some ask for more detail on how performance against these criteria will be measured. Several also note that Ofgem needs to make a clear distinction between the two issues that are being considered i.e. overall market liquidity and support for small/independent suppliers.

1.69. Finally, some respondents note that the ability for small or prospective new entrant independent generators to manage their wholesale risks should be a further criterion as this group often faces similar problems to small suppliers on the wholesale market.

Question 2: Which do you think is the best policy option or combination of options?

1.70. The Big 6 generally do not support any of the policy options and stress the ability of current market initiatives to improve overall market liquidity. However, some respondents suggest conditional support for mandatory day-ahead auctions or of voluntary guidelines on trading with small, independent market participants.

1.71. Many independent generators support the introduction of a self-supply restriction, with one respondent suggesting this policy in combination with a Market Making Agent. One independent generator supports mandatory day-ahead auctions in combination with a Market Making Agent. One small supplier opts for mandated auctions as a means to provide the granularity and term needed by small suppliers and new entrants, whereas another states that a self-supply restriction in combination with a regulated market maker would provide the optimal intervention.

1.72. Among other respondents, several support a mandatory day-ahead auction and to a lesser extent mandatory forward auctions. There is also some support for greater transparency in trading, direct trading obligation with a voluntary market making role for the Big 6 and for a self-supply restriction in combination with a regulated market maker or mandatory auctions.

Appendix 3 - Impact of current European Directives on GB electricity market liquidity

Overview

1.1. This appendix gives an overview of current European initiatives and directives which could impact GB wholesale market liquidity. It covers a number of directives and initiatives that aim to improve market integrity and which could affect the costs and transparency of trading electricity. Also covered are the links between market coupling initiatives and GB liquidity, where it is anticipated that market coupling could significantly improve GB wholesale liquidity. The appendix looks first at the various market integrity initiatives being raised by the Commission and then discusses the potential impact of market coupling.

Market Integrity initiatives

1.2. Work is being carried out by three separate Directorates-General (DGs) in the European Commission. Over the next few months DG Internal Market and Services (DG MARKT), DG Energy (DG ENER) and DG Climate Action (DG CLIM) will all produce proposals that are aimed at improving the integrity of the trading of financial and physical products. Relevant initiatives include:

- The reviews of the Market Abuse Directive (MAD) and Capital Requirements Directives due in Autumn 2010 and the review of Markets in Financial Instruments Directive (MiFID), due in early 2011, led by DG MARKT.
- A proposal on a tailor-made regime for the integrity and transparency of the energy sector due in September 2010, led by DG ENER.
- An assessment, possibly followed by a legislative proposal, on the integrity of the carbon markets due in 2011, led by DG CLIM.

MAD, MiFID & Energy Market Specific Proposals

1.3. The Markets Abuse Directive (MAD) provides a common EU framework for the disclosure of information to the market and seeks to prevent, detect and investigate insider trading and market manipulation. MAD is designed for financial markets and applies almost exclusively to financial instruments admitted to trading on a regulated market. Commodity products (e.g. physically settled spot market products) are not covered and commodity derivatives market products are covered only if they are admitted to trading on a regulated market. This means that the present scope of MAD regulations (insider trading, market manipulation) generally does not apply to any over-the-counter (OTC) trades, including standard OTC (spot and forward) transactions that make up the bulk of traded electricity and gas markets in GB. The ongoing MAD review is attempting to address specific perceived shortcomings of its current treatment of commodity derivatives. A review of the MAD is due by end 2010.

1.4. MiFID aims to establish market oversight over investment service activities carried out by investment firms, including trading in commodity derivatives; set up a level playing field in terms of regulatory supervision of trading venues (i.e. regulated markets and multi-lateral trading facilities); and ensure fair and orderly trading and appropriate transparency of trading venues for shares admitted for trading on a regulated market. These transparency obligations do not apply to commodity derivatives. Overall, the definition of financial instruments in the Directive does not cover the spot market in commodities and physically settled OTC transactions, which are non-standardised.

1.5. The MiFID directive is also currently under review, and this is due to be completed by the first quarter of 2011. Some of the potential changes may have important consequences for liquidity. One possible change involves a requirement for the mandatory central clearing of derivatives. Mandatory clearing tends to increase the costs of trading, and so it has the potential to reduce GB liquidity, but has the benefit of reducing risks in the market. Specialist commodity derivative market participants (including for energy products) can currently avail themselves of two exemptions from MiFID (and a further exemption from the Capital Requirements Directive) in specific cases. These exemptions will be addressed as part of the review of MiFID in 2010. It is probable that energy products will remain exempt and that the integrity of energy market trading will be addressed by other initiatives.

1.6. The gap in the regulation of physical trading, and the exemptions for energy products, has led DG ENER at the Commission to suggest proposals that explicitly cover energy. Policies currently being explored include:

- mandatory central clearing – as suggested in MiFID for derivatives;
- transparency requirements - e.g. immediate notification of outages (as currently occurs in Nordpool);
- constraints on trading following outages; and
- reporting requirements - reporting of all transactions, or possibly a transactions repository.

1.7. The net impact of these proposals on GB market liquidity is uncertain and would depend on how they were implemented. Mandatory clearing would tend to make trading more costly, which could lead to lower levels of liquidity. On the other hand, increased regulatory oversight may aid confidence in the market and bring in new players, and greater price transparency could help to reduce entry barriers and make the market more contestable.

Carbon Market Integrity

1.8. The integrity of the European Union Greenhouse Gas Emission Trading System (EU ETS) is also being reviewed by the European Commission's DG CLIM. This review is looking at both the trading of derivatives and physically settled products.

1.9. The EU ETS is an important consideration for power generators who often hedge their costs, including carbon, several years ahead and thus make substantial use of

forward and future European Union Allowances (EUA) prices. Any proposals that would make it more costly to trade EUAs could reduce liquidity in the market. Therefore, policy proposals will need to strike a careful balance in which any additional costs are weighed against any potential risks to market integrity.

Market Coupling

1.10. Of all the European led initiatives and directives, market coupling is likely to have the most significant impact on GB wholesale market liquidity. Market coupling is a result of existing regulations (1228/2003) and the associated congestion management guidelines. Essentially, market coupling is a method for allocating capacity on interconnectors between different countries, or regions, that utilises implicit auctioning to establish one price that determines the flow of electricity. The model proposed is to use power exchanges to schedule the interconnector flows so that power flows from low price to high price regions. This is achieved by combining all the bids and offers on both power exchanges to find the joint market clearing position, taking account of interconnector capacity. Where the interconnector capacity is "large", this may result in prices equalising in the connected markets, explaining the label "market coupling" or "price coupling". Where the capacity is relatively low, prices would not equalise but flows should still be efficient.

1.11. A key component of this approach is a robust day-ahead power exchange. In the GB, APX and N2EX have established exchange-based power trading platforms. It remains to be seen how these exchanges will develop but, in principle, either power exchange could operate a market coupling arrangement. Indeed, if a wider market coupling solution is developed, it may be possible for more than one power exchange in GB to participate.

1.12. Day-ahead market coupling is already in place between the French, Dutch and Belgian markets and has been seen to be successful. Extension to include Germany is planned for autumn 2010. There is support to integrate the France-UK-Ireland region into this price coupling arrangement, as well as with the Nordic area. APX is due to allocate capacity via market coupling on the Britned interconnector when it commences operation in 2011.

1.13. Increased interconnection and market coupling are likely to improve liquidity in the GB wholesale electricity market by providing access to additional generation in other markets and incentivising a wider pool of parties to trade in the GB market. In particular, price coupling at the day-ahead stage could improve prompt market liquidity.

Conclusion

1.14. There are several European policies and initiatives that have the potential to affect GB wholesale market liquidity. Of these policies the most significant effect is likely to come from market coupling, which has the potential to increase GB market liquidity. The Commission is also looking closely at the rules and regulations governing the trading of financial and physical products. The effects of such

regulations are currently hard to predict, because firm proposals are still under development and because they have mixed implications for GB liquidity. On the one hand they may reduce liquidity if they result in greater trading costs, but on the other hand they may induce greater market confidence and price transparency which would have positive impacts on liquidity. Ofgem will keep abreast of developments and their potential consequences.

Appendix 4 - Additional quantitative analysis

This appendix contains additional analysis to support the analysis in Chapter 3. Discussion of the data's relevance is included in Chapter 3.

Bid-offer spread analysis (metric 2)

Figure 1: Baseload bid-offer spread analysis

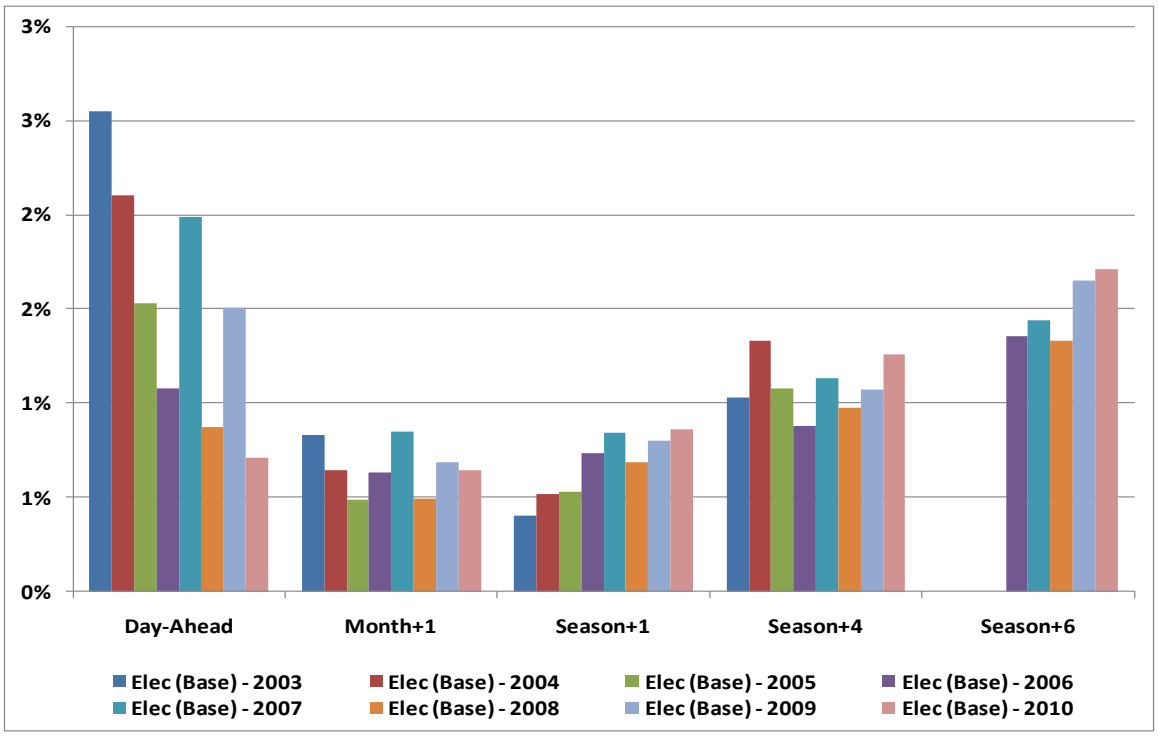
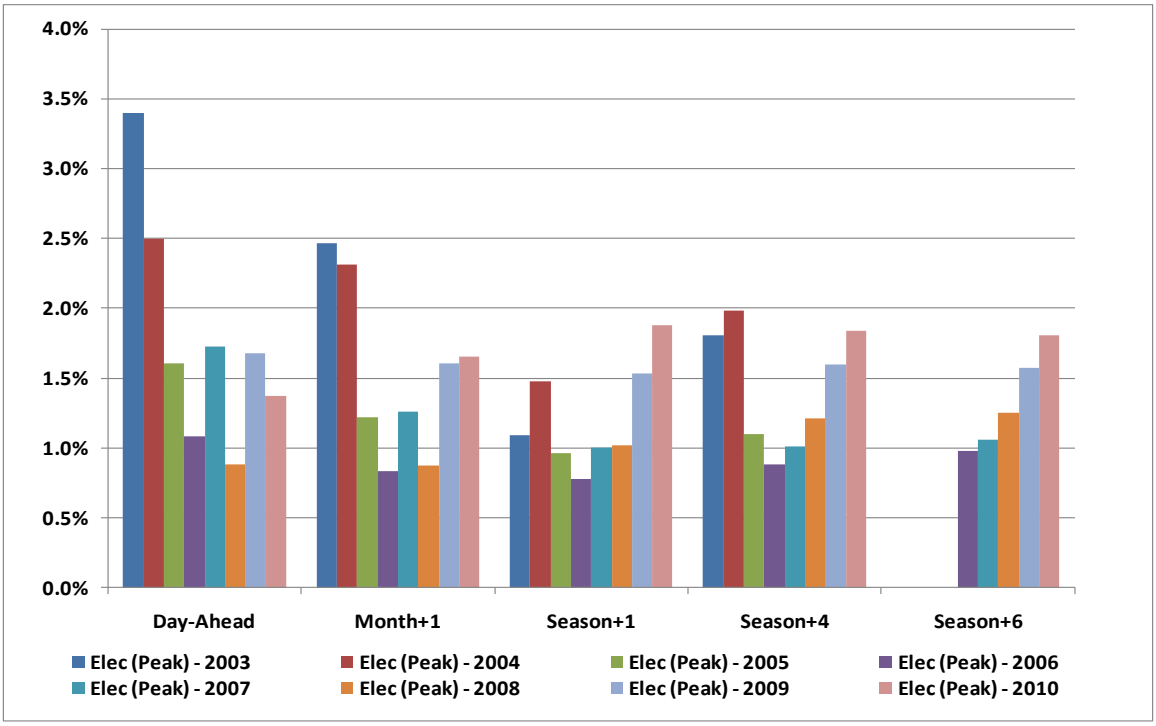
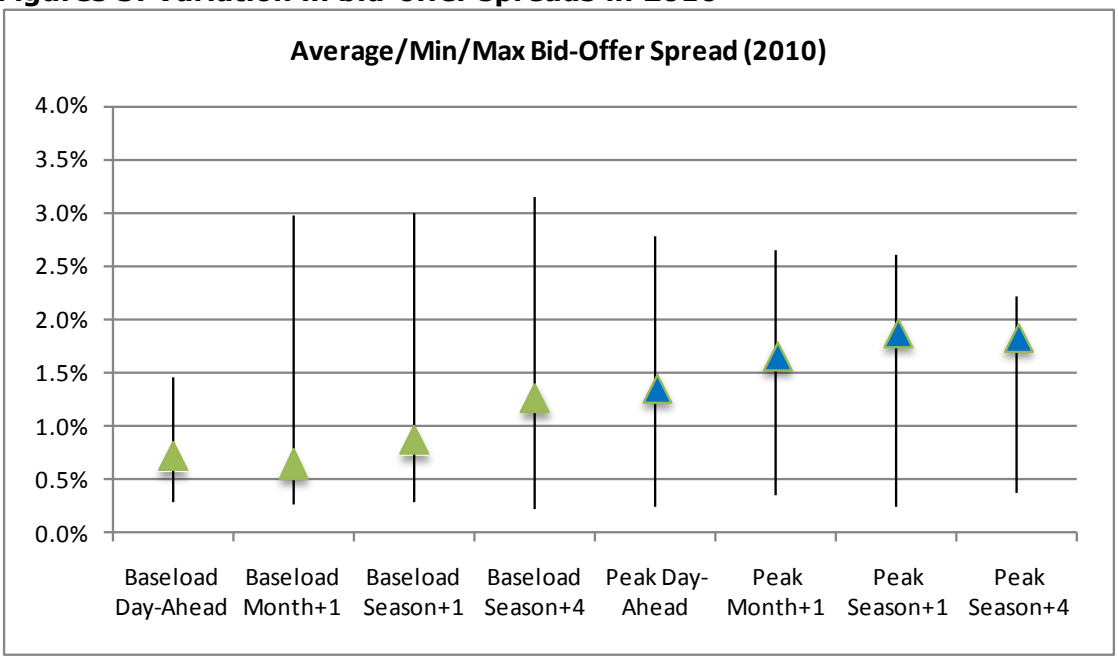


Figure 2: Peak bid-offer spread analysis

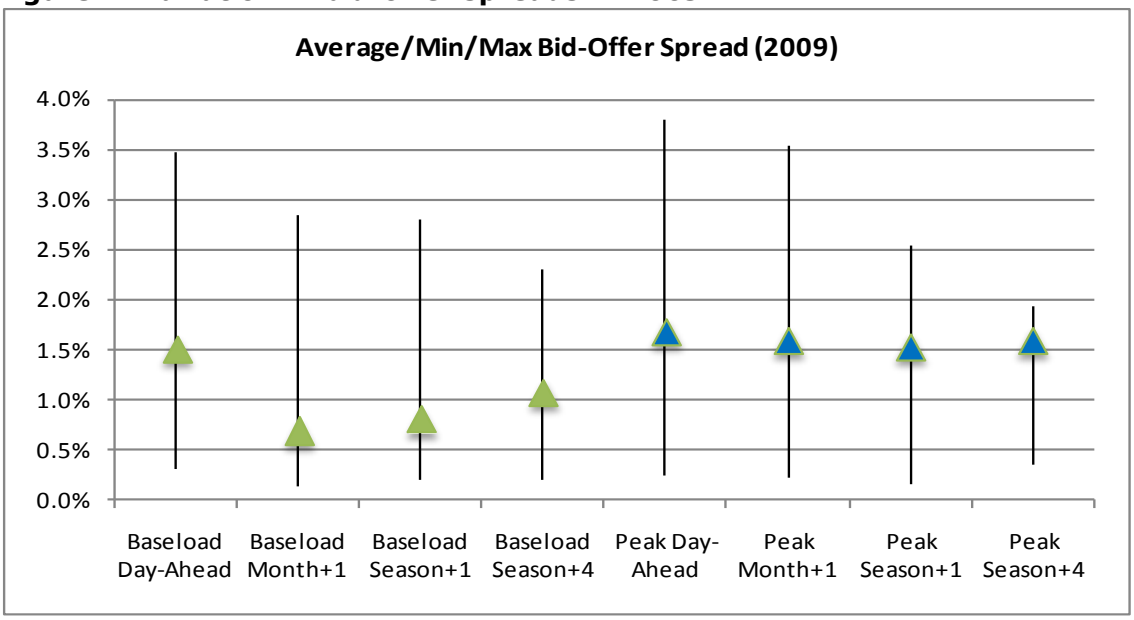


Figures 3: Variation in bid-offer spreads in 2010



* The vertical lines represent the range of the spread, i.e. the minimum and maximum spread for each product. The green and blue triangles represent the average spread (mean).

Figure 4: Variation in bid-offer spreads in 2009



* The vertical lines represent the range of the spread, i.e. the minimum and maximum spread for each product. The green and blue triangles represent the average spread (mean).

Volume of trading along the forward curve (metric 4)

Figure 5: Proportion of German traded volume by period of delivery

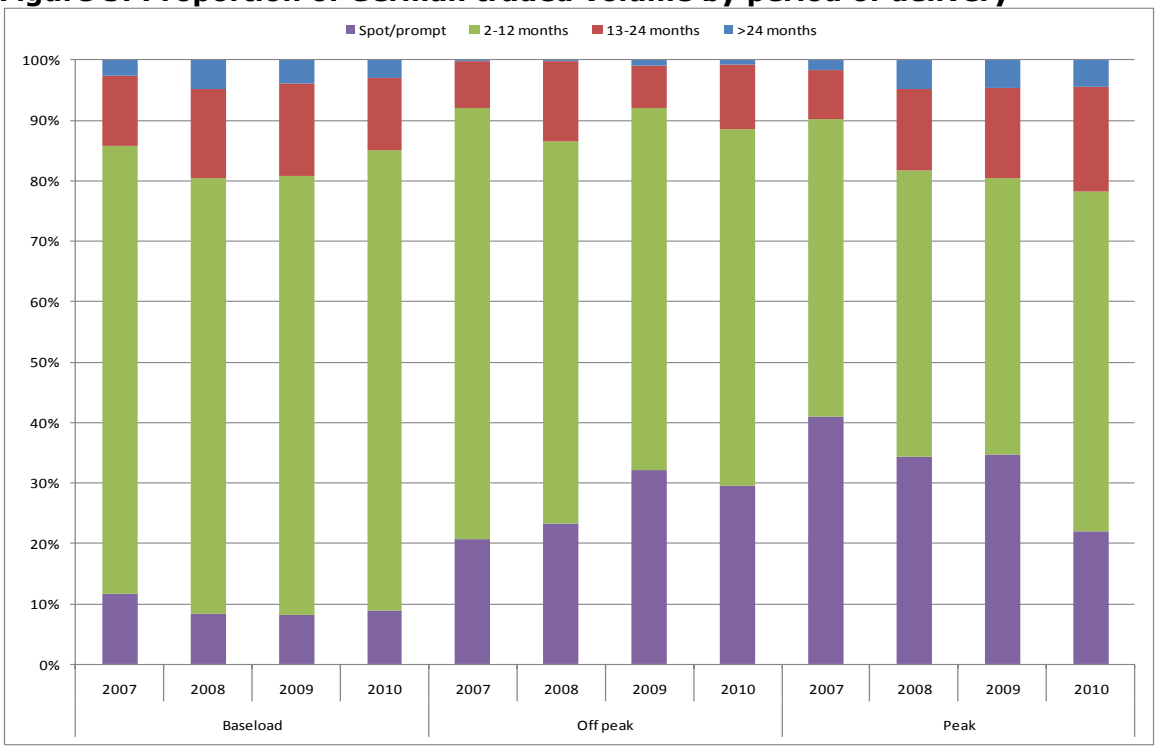


Figure 6: Proportion of French traded volume by period of delivery

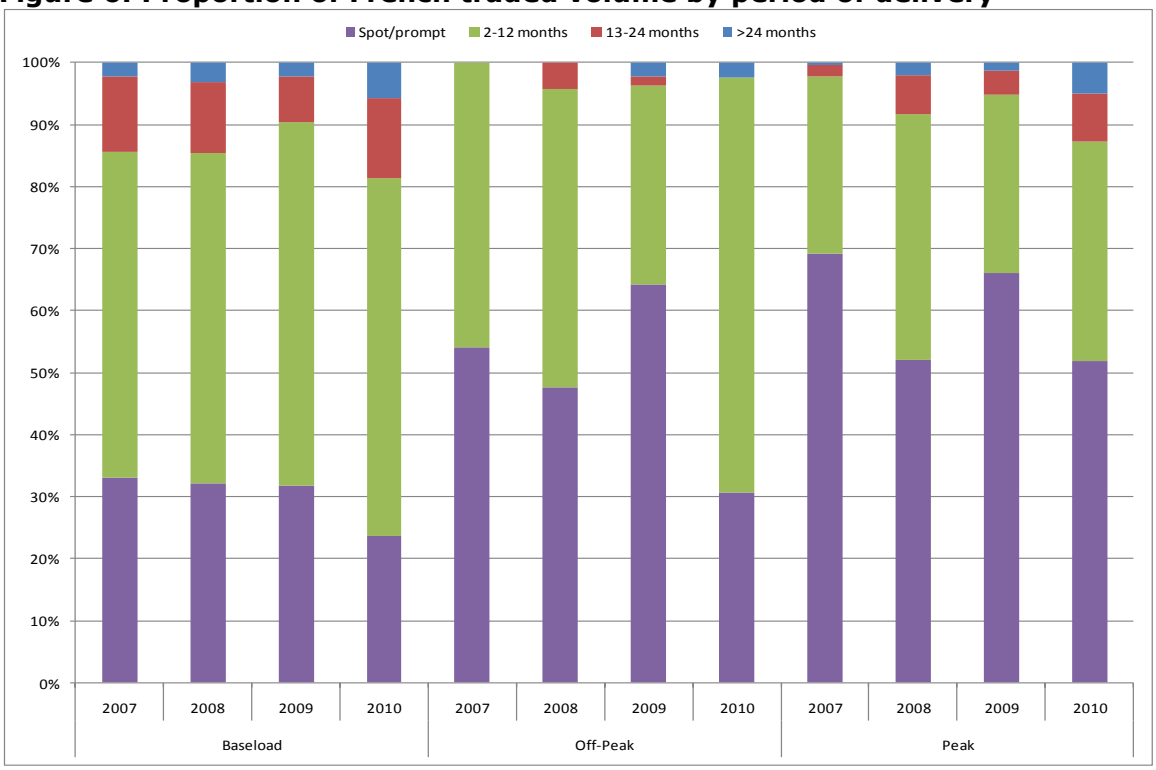


Figure 7: Average trade size - baseload

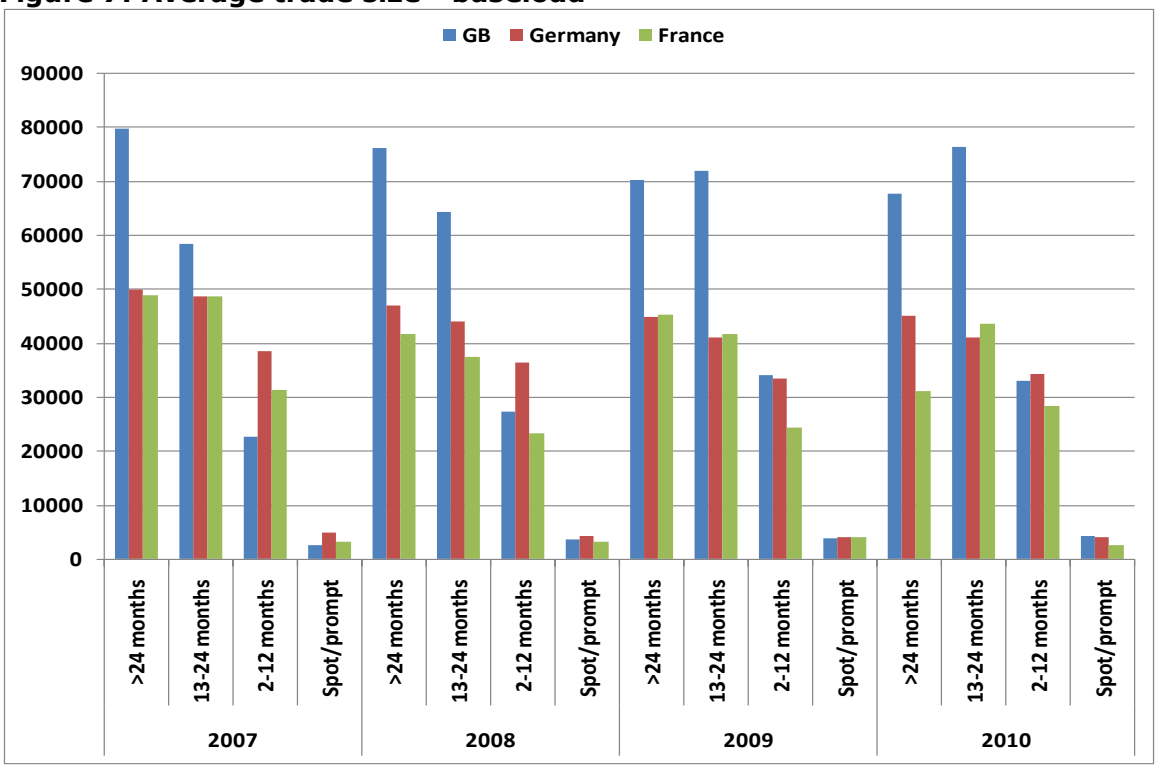


Figure 8: Average trade size - peak

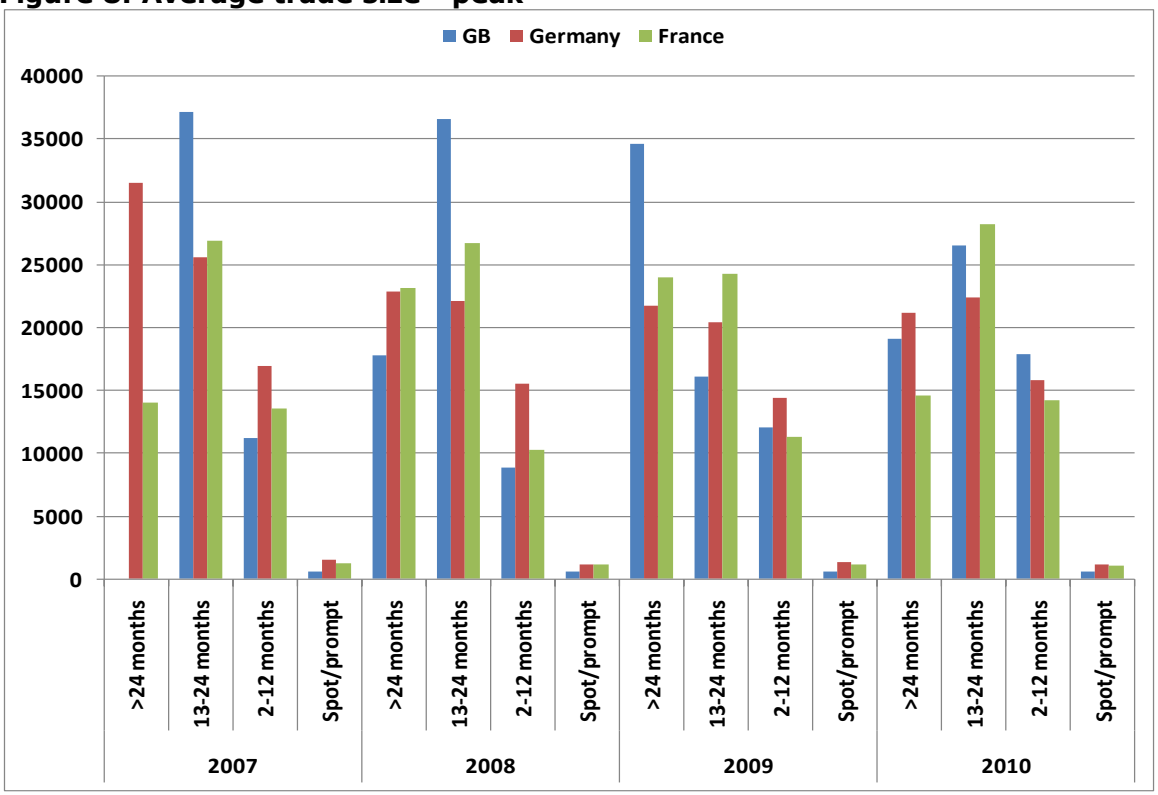


Figure 9: Average trade size - off-peak

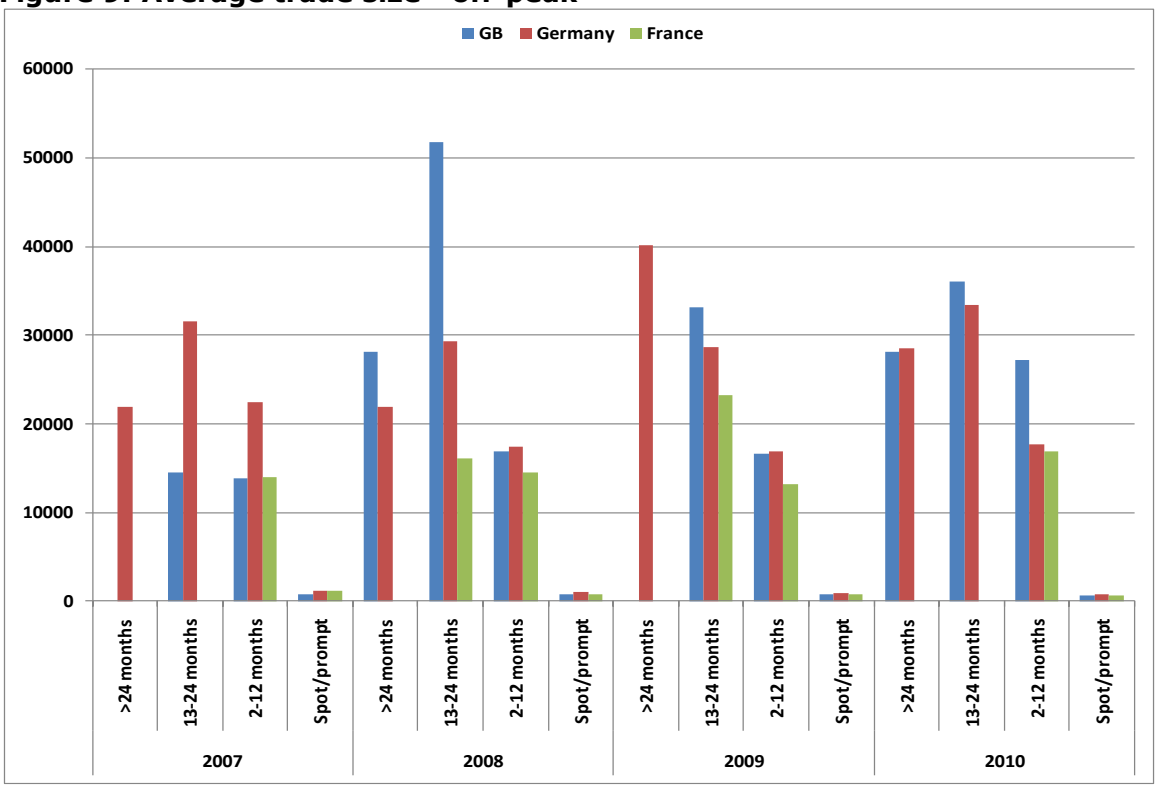
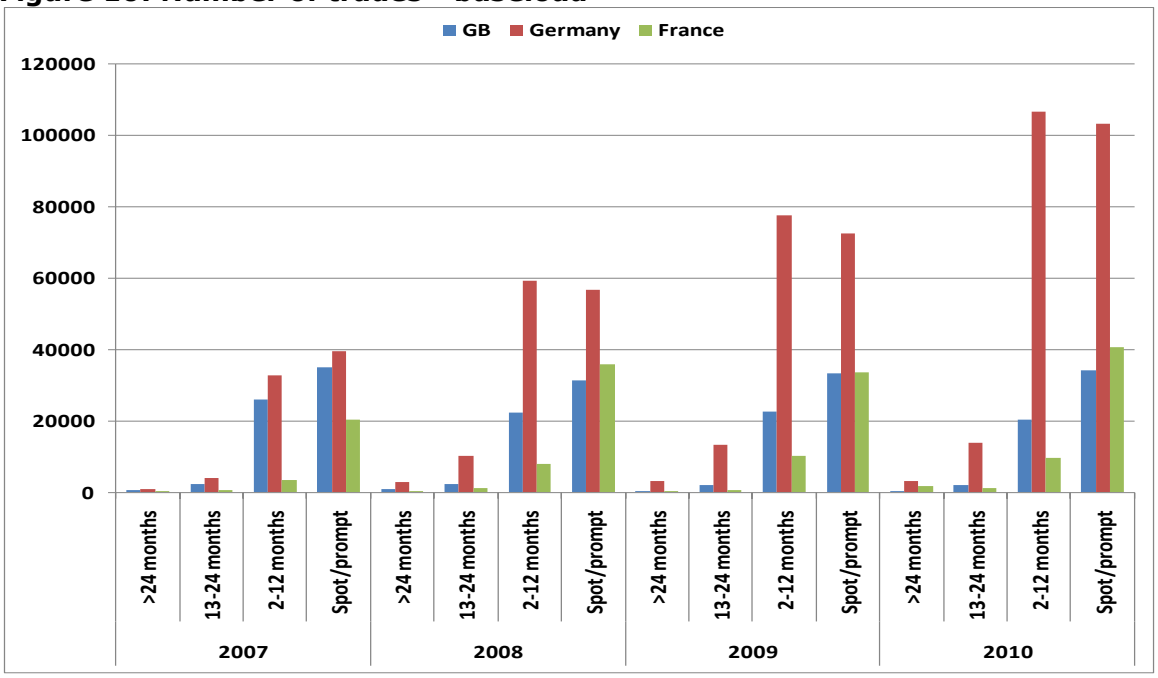


Figure 10: Number of trades - baseload



Diversity of products (metric 7)

Table 1: Product availability in a number of European countries (OTC)

GB

	2007		2008		2009		2010	
Total no of products traded	70		70		80		64	
Of which:	No of products	% volume	No of products	% volume	No of products	% volume	No of products	% volume
Baseload	7	92%	6	91%	6	89%	6	89%
Off-Peak	32	4%	32	4%	40	5%	30	5%
Peak	31	4%	32	5%	34	5%	28	6%
HHI	3918		4000		3727		3969	

Germany

	2007		2008		2009		2010	
Total no of products traded	26		34		34		37	
Of which:	No of products	% volume	No of products	% volume	No of products	% volume	No of products	% volume
Baseload	9	87%	10	90%	9	90%	10	89%
Off Peak	7	3%	10	2%	10	1%	11	1%
Peak	10	10%	14	8%	15	9%	16	10%
HHI	2727		3471		3341		3160	

France

	2007		2008		2009		2010	
Total no of products traded	19		20		19		19	
Of which:	No of products	% volume	No of products	% volume	No of products	% volume	No of products	% volume
Baseload	6	83%	6	86%	6	87%	6	83%
Off-Peak	6	4%	7	2%	6	1%	6	2%
Peak	7	14%	7	12%	7	12%	7	15%
HHI	2022		2176		2242		2094	

Availability of suitable products with small clip sizes (metric 10)

Table 2: German clip size

	Baseload			
	>24 months	**13-24 months**	**2-12 months**	**Spot/prompt**
2007	1 - (0.5%)	1 - (0.4%)	1 - (0.1%)	1 - (0.003%)
2008	1 - (1.1%)	1 - (1.1%)	1 - (0.5%)	1 - (0.005%)
2009	1 - (2.3%)	1 - (1.8%)	1 - (1.0%)	1 - (0.014%)
2010	1 - (1.9%)	1 - (1.8%)	1 - (1.1%)	1 - (0.009%)
	Peak			
2007	4 - (2.0%)	1 - (0.3%)	1 - (0.1%)	1 - (0.1%)
2008	1 - (1.6%)	1 - (1.2%)	1 - (0.5%)	1 - (0.02%)
2009	1 - (3.2%)	1 - (2.6%)	1 - (1.2%)	1 - (0.01%)
2010	1 - (1.7%)	1 - (1.9%)	1 - (1.1%)	1 - (0.01%)

Table 3: French clip size

	Baseload			
	>24 months	**13-24 months**	**2-12 months**	**Spot/prompt**
2007	5 - (82.1%)	5 - (71.9%)	1 - (0.1%)	1 - (0.4%)
2008	5 - (94.8%)	1 - (1.1%)	1 - (0.9%)	1 - (0.1%)
2009	5 - (86.5%)	1 - (0.5%)	1 - (0.5%)	1 - (0.04%)
2010	5 - (19.3%)	5 - (76.6%)	1 - (0.1%)	1 - (0.01%)
	Peak			
2007	10 - (100%)	5 - (30.4%)	5 - (11%)	5 - (0.5%)
2008	5 - (80.9%)	5 - (51.4%)	1 - (0.8%)	1 - (0.1%)
2009	5 - (68.6%)	5 - (69%)	1 - (0.4%)	5 - (1.4%)
2010	5 - (18.2%)	5 - (67.7%)	5 - (37.4%)	5 - (0.5%)

Appendix 5 - Questionnaire for gathering qualitative data

OFGEM QUESTIONNAIRE:
Meeting independent market participants wholesale requirements

Part One – General details

1. Organisation name: _____

2. Contact person: _____

   E-mail: _____

   Telephone: _____

3. Please indicate the category that best describes your organisation:

   Independent supplier ☐

   Independent generator ☐

   Potential new entrant ☐

   Large energy user ☐

4. How do you usually source your wholesale power? Please also specify what proportions are procured if multiple platforms are used.

   Directly on wholesale market: OTC ☐ Exchange ☐

   Through the 'Big 6' suppliers ☐

   Through another party ☐

Part Two– Use of platforms which promote price transparency: Exchanges

5. Are you a member on any of the power exchanges operating in the GB market?

   Yes ☐ No ☐

6. If yes, which platform do you use: APX ☐ N2EX ☐ ICE ☐

7. Has your experience in using the specified exchange been satisfactory?

   Satisfactory ☐ Unsatisfactory ☐

   Please provide any relevant information supporting your response to question 7:

   _____

8. If you answered No to question 5, please indicate why not, and whether you are planning to join any of the exchanges in the foreseeable future:

The Office of Gas and Electricity Markets
*9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk***

_____

Further Comments: _____

Part Three – Number of counterparties active in the market providing hedging offers to independent market players

9. How many counterparties are currently active in the market providing hedging offers to independent market players? If this question does not apply to your business model, please ignore or mark n/a.

   Please specify a number of counterparties: ☐

10. Have you observed an increase in the number of potential trading counterparties during the past 6 months?

    Yes ☐ No ☐

    In support to your answer to question 10, please specify which parties you are referring to or if confidential, please indicate which stakeholder group these counterparties belong to (e.g. financial institution, independent supplier/generator, European player): _____

Further Comments:

_____

Part Four - The availability of key longer dated products and/or financial derivatives

11. Have you observed any improvements in liquidity further along the forward curve in the past 6 months?

    Yes ☐ No ☐

12. Have you observed any new longer dated or financial product being made available in the past 6 months?

    Yes ☐ No ☐

13. If Yes, please specify the products: _____

    Further Comments:

    _____

Part Five – Overall experience

14. Do you consider that the wholesale trading conditions for independent market players are broadly sufficient to support contestability/your participation in the wholesale market?

    Yes ☐ No ☐

Areas of satisfaction: _____

Areas of dissatisfaction: _____

2 of 2

The Office of Gas and Electricity Markets
9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk**

Appendix 6 – The Authority's Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute (such as the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Acts of 2004, 2008 and 2010) as well as arising from directly effective European Community legislation.

1.3. References to the Gas Act and the Electricity Act in this appendix are to Part 1 of those Acts.[8] Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This appendix must be read accordingly.[9]

1.4. The Authority's principal objective is to protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems. The interests of such consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases and in the security of the supply of gas and electricity to them.

1.5. The Authority is generally required to carry out its functions in the manner it considers is best calculated to further the principal objective, wherever appropriate by promoting effective competition between persons engaged in, or commercial activities connected with,

- the shipping, transportation or supply of gas conveyed through pipes;
- the generation, transmission, distribution or supply of electricity;
- the provision or use of electricity interconnectors.

1.6. Before deciding to carry out its functions in a particular manner with a view to promoting competition, the Authority will have to consider the extent to which the interests of consumers would be protected by that manner of carrying out those functions and whether there is any other manner (whether or not it would promote competition) in which the Authority could carry out those functions which would better protect those interests.

[8] Entitled "Gas Supply" and "Electricity Supply" respectively.
[9] However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.

1.7. In performing these duties, the Authority must have regard to:

- the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- the need to secure that all reasonable demands for electricity are met;
- the need to secure that licence holders are able to finance the activities which are the subject of obligations on them[10]; and
- the need to contribute to the achievement of sustainable development.

1.8. In performing these duties, the Authority must have regard to the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.[11]

1.9. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

- promote efficiency and economy on the part of those licensed[12] under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
- protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity; and
- secure a diverse and viable long-term energy supply, and shall, in carrying out those functions, have regard to the effect on the environment.

1.10. In carrying out these functions the Authority must also have regard to:

- the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.11. The Authority may, in carrying out a function under the Gas Act and the Electricity Act, have regard to any interests of consumers in relation to communications services and electronic communications apparatus or to water or

[10] Under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Acts in the case of Electricity Act functions.
[11] The Authority may have regard to other descriptions of consumers.
[12] Or persons authorised by exemptions to carry on any activity.

sewerage services (within the meaning of the Water Industry Act 1991), which are affected by the carrying out of that function.

1.12. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation[13] and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

[13] Council Regulation (EC) 1/2003.

Appendix 7 - Glossary

A

APX

APX Group is a holding company owning and operating energy exchange markets in the Netherlands, UK and Belgium. APX-ENDEX, a subsidiary of APX Group, provides exchange trading, central clearing & settlement and data distribution services.

B

Barrier to Entry

A factor that may restrict a firm's entry into a market.

Baseload product

A product which provides for the delivery of a flat rate of electricity in each hourly period over the period of the contract.

Bid-offer spread

Bid-offer spread shows the difference between the price quoted for an immediate sale (bid) and an immediate purchase (ask) of the same product; it is often used as a measure of liquidity.

Broker

A broker handles and intermediates between orders to buy and sell. For this service, a commission is charged which, depending upon the broker and the size of the transaction, may or may not be negotiated.

Big 6

The name collectively given to the six companies that supply most of the energy to domestic households in the GB market. They are Centrica, E.ON, Scottish and Southern Energy, RWE, EDF and Scottish Power.

C

Churn rate

Churn is typically measured as the volume traded as a multiple of the underlying consumption or generation level.

Clearing

The process by which a central organisation acts as an intermediary and assumes the role of a buyer and seller for transactions in order to reconcile orders between transacting parties.

Clip size

The size (usually in MW) of the contract to be traded.

Collateral

A borrower will pledge collateral (securities, cash etc) in order to demonstrate their ability to meet their obligations to repay monies loaned. The collateral serves as protection for a lender against a borrower's risk of default.

Contestability

The actual or threat of new entry into a market.

Contract for Difference (CfDs)

A contract designed to make a profit or avoid a loss by reference to movements in the price of an underlying item. The underlying item is not bought or sold itself.

Counterparty Risk

The risk that a counterparty to a contract defaults and does not fulfil its contractual obligations.

D

Day-Ahead market

A form of spot market where products are traded for delivery in the following day.

E

EEX

European Energy Exchange. An energy exchange based in Leipzig, Germany. EEX operates spot and derivatives markets for energy and related products.

EPEX

European Power Exchange. An energy exchange based in Paris, France. EPEX operates spot and derivatives markets for electricity products.

ESP

Energy Supply Probe. This study by Ofgem, whose initial findings were published in October 2008, investigated the state of competition in the GB energy supply markets. No evidence of a cartel was found although competition was deemed to not yet be fully effective in all sectors of the market.

F

Financial settlement

Whenever a contract's value at maturity is settled with a monetary transaction.

Forward

The trading of commodities to be delivered at a future date. Forward products may be physically settled - by delivery - or financially settled.

H

Hedging

Transactions which fix the future price of a good or service, and thereby remove exposure to the daily (or spot) price of a good or service. This enables those purchasing a good or service to reduce the risk of short term price movements.

Heren ICIS

A publisher of gas, power and carbon market information.

Herfindahl Hirschman Index (HHI)

A measure of market concentration calculated by adding up the squared values of market shares for each firm in the market. It is influenced both by the number of firms in the market and differences in their relative sizes. The value of the HHI decreases as the number of firms in a market rises. Similarly the value of the HHI will be greater the larger the degree of inequality in firm size.

I

ICE

Intercontinental Exchange, an American financial company that operates Internet-based marketplaces which trade futures and over-the-counter (OTC) energy and commodity contracts as well as derivative financial products.

I&C Sector

Industrial and Commercial sector. The non-domestic sector in general rather than any specific group of customers.

Incumbent

An incumbent is a firm that is already present in the market. In the context of this document the term is generally applied to the large vertically integrated firms present in the GB electricity market (Big 6).

M

Market Coupling

Market coupling is a method for integrating electricity markets in different areas, applied across a number of European countries.

N

N2EX

The N2 Exchange, a recently established GB electricity market platform, which is operated by Nasdaq OMX and Nord Pool Spot AS.

Nord Pool

Nord Pool, the Nordic Power Exchange, a single power market for Norway, Denmark, Sweden and Finland.

O

OCM

On the day commodity market. This market enables anonymous, financially cleared, on-the-day trading in gas between registered market participants. The market is operated by APX-ENDEX.

Over the counter (OTC)

Trading of financial instruments, including commodities, that takes place directly between counterparties. This is in contrast to exchange based trading where the exchange acts as a counterparty to all trades.

P

Peak product

A product which provides for the delivery of a flat rate of electricity for the period of the day when demand is typically highest, over the period of the contract.

Physical settlement

Whenever a contract at maturity results in an exchange of the contracted good for its contracted value.

Product

The type of contract available. Examples include day-ahead, weekly, weekend, block seasonal, year, etc. Standard products are those that are widely traded on well-established terms, so exchanges generally deal in standard products. By contrast, structured products are those where the terms are precisely tailored to match the

contract buyer's requirements, and they usually involve variable contract volumes and/or non-standard volumes and durations.

Prompt trading

For the purposes of this document prompt trading refers to trading for delivery between (but not including) within-day and the next month (front month). This includes a number of products, including products for delivery for the following day (e.g. day-ahead), weekend, weekdays, and trades for the balance of week and balance of month.

S

Shaped product

A shaped product is a contract which specifies different amounts of electricity to be delivered at different times. A bespoke shaped product with half-hour granularity could specify a different volume for every half-hour period of the contract's duration.

Spot price

The price for a product which is delivered immediately or within a very short period of time (usually within-day).

T

TXU

Texas Utilities, today known as Energy Future Holdings Corporation.

Appendix 8 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

Andrew MacFaul
Consultation Co-ordinator
Ofgem
9 Millbank
London
SW1P 3GE
andrew.macfaul@ofgem.gov.uk