July 2002

The review of the first year of NETA

A review document

Volume 1

Summary

This document provides a comprehensive review of the first year of the new electricity trading arrangements (NETA) which were introduced in England & Wales from 27 March 2001 (Go-Live).

Background

NETA was designed to deliver more competitive, market-based trading arrangements more like those in other commodity markets, whilst maintaining the operation of a secure and reliable electricity system by the establishment of close to real time balancing arrangements. The expectation was that NETA would provide greater choice for market participants than the Pool-based trading arrangements previously in place, which required virtually all electricity in England & Wales to be brought and sold through the Pool. The new arrangements were also expected to be more efficient than the Pool, where prices had failed to properly reflect a more competitive generation market and falling generation input costs.

Emerging markets and increased liquidity under NETA

The analysis shows that, over the first year of NETA operation, new markets have emerged, in response to demand – Over-the-Counter (OTC) trades, power exchanges and on-line platforms, more price information has become available, and market liquidity has increased considerably. For example, the volume of OTC trades increased by over 200% from Go-Live.

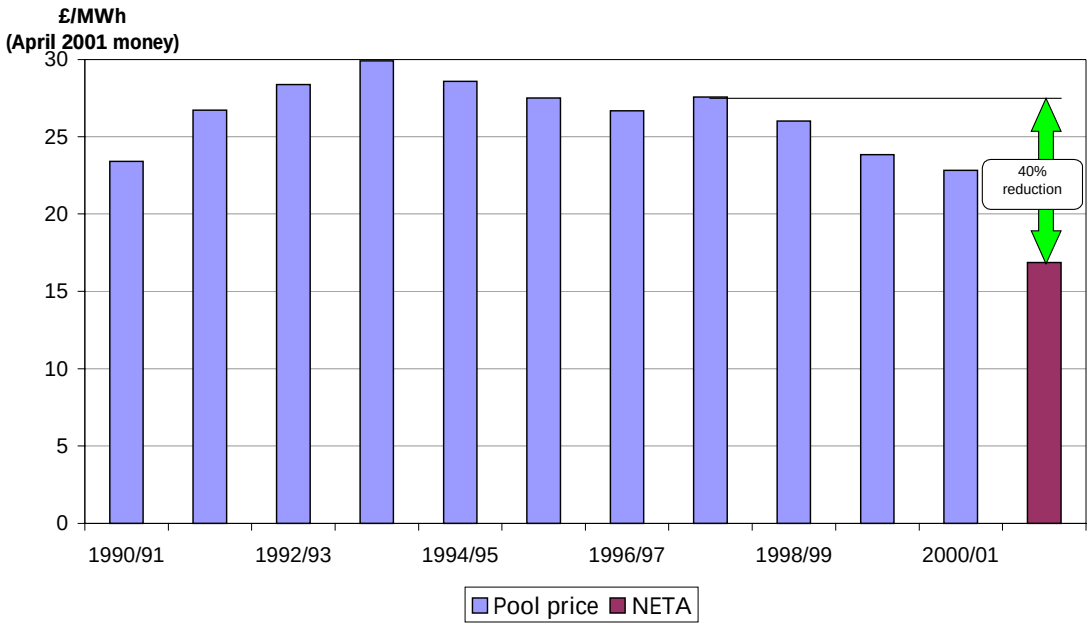
Contracts are being struck over reported timescales ranging from within-day up to several years ahead. The forward curve now extends to winter 2004. Longer-term forward price signals are a particularly important development in relation to security of supply, since they will signal the future need for new generation capacity and demand-side responsiveness.

Wholesale electricity prices have fallen since NETA was proposed

Before NETA was introduced the expectation was that the new trading arrangements, together with the more competitive generation market, more demand-side influence on price setting in the newly emerging markets, and lower generation input costs, offered the prospect of reductions in wholesale prices. These price reductions have occurred.

Since the reforms were proposed by OFFER and accepted by the Government in 1998,[1] month ahead baseload prices have fallen by 40% in real terms up to March 2002.

Long-term spot price trends

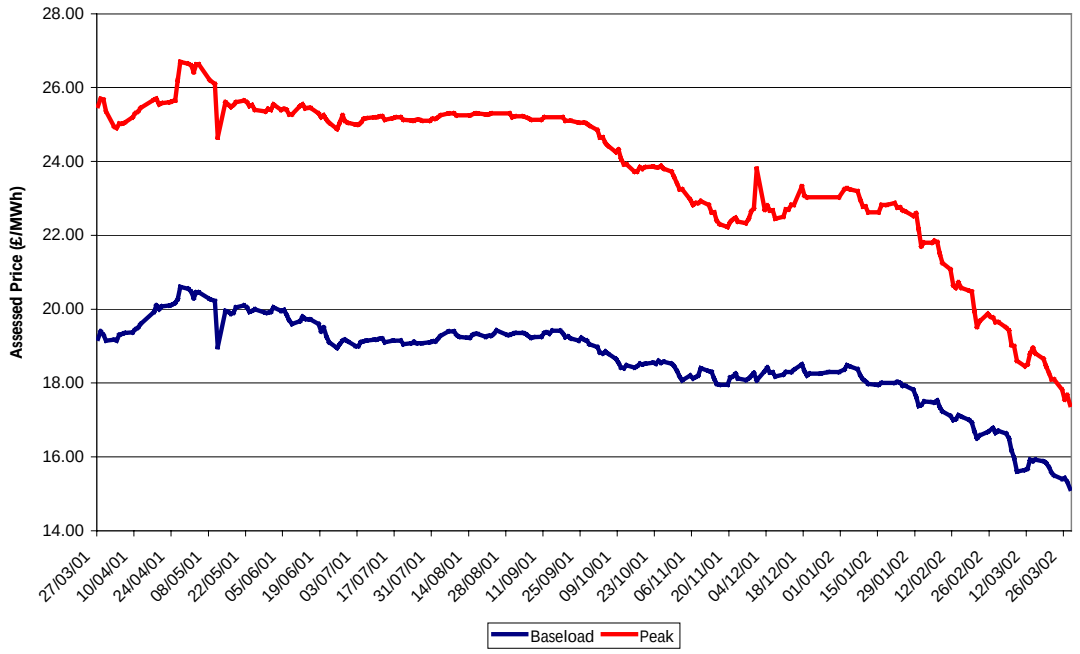


Source: Pool prices are PPP[2] and NETA prices are UKPX spot prices.

Over the year since NETA Go-Live (March 2001 – 2002) baseload prices fell by 20% and peak prices by 27%.

[1] "Review of electricity trading arrangements", OFFER, July 1998; Conclusions on the Review of Energy Sources for Power Generation and Government response to fourth and fifth Reports of the Trade and Industry Committee, October 1998.
[2] They have not been adjusted to account for the move from station gate to NBP.

OTC annual contract prices under NETA – baseload and peak[3]



Source: Platts UK GTMA Baseload Indices, nominal prices.

The balancing arrangements have worked well with balancing costs falling over the year and quality and security of supply maintained

The new balancing arrangements were intended to ensure that the National Grid Company (NGC), as System Operator (SO), is able to maintain short-term quality and supply. NGC may contract ahead for balancing services, and in addition the Balancing Mechanism, which opens at Gate Closure (set on Go-Live at 3.5 hours before real time, and since reduced to 1 hour), enables NGC to accept offers of and bids for electricity to enable it to balance the transmission system.

The balancing arrangements have worked well over the course of the first year of NETA. The quality and security of supply has been maintained. In total NGC's gross balancing actions (buying and selling electricity) have been around 2% of demand.

[3] It should be noted that, with the introduction of NETA, generators for the first time have become responsible for paying for a proportion of the costs of balancing the system and transmission losses. For approximately a six-week period between February 2001 and April 2001, contracts were traded both at the station gate (i.e. excluding these costs which were passed through to the supplier) and entry paid (i.e. including these costs). The difference in price between the two contracts was typically around £1/MWh. The values in Figure 4.3 are presented on a station gate basis (as they refer to the period prior to NETA) whist those in Figure 3.15 are presented on an entry paid basis and hence appear higher.

There has been widespread market participation and increasing competition in the provision of balancing services, both via contracted balancing services and in the Balancing Mechanism, with significant demand participation emerging. Flexible plant have been better rewarded than under the Pool as evidenced by their share of accepted bids and offers.

NGC has developed its approach to balancing the system by changing the procurement mechanisms for some services as well as developing new ones. The combination of more participation and NGC actions has enabled NGC to reduce the overall costs of balancing by half during the course of the year. This enabled Ofgem to reduce NGC's balancing costs target for the year from April 2002 by more than £30 million.

Imbalance buy and sell prices have tended to converge over the year

Under NETA most settlement for wholesale electricity generation purchases are dealt with in the financial process associated with the forward, futures and spot markets. Only the close to real time balancing that NGC now carries out under NETA is settled through the Balancing and Settlement Code (BSC) process. Imbalance cash-out prices are designed to target the costs of balancing the system onto the parties on whose behalf the SO has taken balancing actions. Electricity imbalances prices charge participants for differences between their metered volumes and their notified conract positions at Gate Closure. This ensures that any electricity not covered by contracts is paid or charged an appropriate price.

The spread between System Buy Prices and System Sell Prices decreased since Go-Live, from £70/MWh to £17/MWh. This can be attributed to increasing experience of operation under NETA and to modifications to the BSC that have refined the separation between overall electricity balancing actions - which feed into imbalance prices - system balancing actions - which are recovered from all users of the transmission system.

It has generally been more expensive for NGC to call on additional flexible generation or demand reduction (which feed into System Buy Prices) than it has been for NGC to ask for bids from generators to remove generation form the system (which feed into System Sell Prices). Thus market participants have been keen to avoid imbalance exposure to the System Buy Price. Suppliers have typically chosen to be over-contracted at Gate Closure and generators have chosen to part-load some of their plant so that they can increase their output to cover any unforseen outages in their plant which might leave them short of electricity. At the same time the risk of exposure to electricity imbalance prices has incentivised generators to improve their

plant availability. In the first year of NETA, availabilities increased on average by 7.6% in comparison to the last year of the Pool.

Retail prices have declined since NETA reforms were proposed

Prices paid by industrial and commercial customers are down 20-25% since 1998, and are continuing to fall. Domestic customers have seen real price reductions of 8% on average if they have not moved to a competing supplier. However, the best offers are made by competitors. By looking around today the average customer can achieve a further saving of around 15%.

Domestic prices are less sensitive to changes in wholesale costs because these represent a smaller proportion of the total bill. It is also possible that suppliers are smoothing electricity price changes over years, reflecting long-term contracts, and setting off changes in gas and electricity costs to some extent.

To capture the maximum benefit of NETA, customers must switch supplier. Ofgem will continue to work to communicate this message to consumers, as well as monitoring retail markets for signs of anti-competitive behaviour.

Smaller generators report output has been maintained and price reductions are less than those experienced by larger generators

Responses to Ofgem's survey of smaller generators' experience over the first year of NETA operation revealed that:

- very few smaller generators have chosen to become BSC Parties. This was expected and in line with the position under the Pool (where few smaller generators chose to become Pool members) and also in line with the survey results from the 2 month review published in August 2001;
- most smaller generators continue to sell their output to their local supplier. While 50% of those responding said they had held discussions with independent consolidators, most said they did not offer better terms than their local supplier. Only 3 generators had contracted with a consolidator;

- on average, the price smaller generators reported receiving for exports over the first year of NETA was £20.6/MWh as compared with £23.2/MWh in the first two months of NETA a reduction of 11%. This compares with a reduction of 20% for baseload wholesale electricity prices generally over the first year of NETA. As at the time of the August review, the average price received by smaller generators thus remained somewhat more favourable than the overall position on generation prices; and

- the output of smaller generator respondents was slightly up (by 2.5%) over the first year of NETA compared to the previous year. This is in contrast with the survey results for the first two months of NETA, which indicated that exports had fallen by 44% compared to the same period in 2000. In particular, output from CHP plant, which was reported to have decreased by 61% reduction in the August review, showed a slight increase of 2% over the year. This could have been influenced by a fall in gas prices of 15% over the year.

The position of smaller generators is continuing to evolve both in response to changes in the trading arrangements and other initiatives. In particular the introduction of the Renewables Obligation from 1 April 2002 has benefited many renewable generators and the climate change levy benefits both renewables and good quality CHP.

Ofgem is taking forward work to ensure that smaller generators are adequately rewarded for the embedded benefits they bring to local suppliers.

Governance arrangements have been flexible and have enabled changes to the rules through the year

The governance of the Pool was widely recognised as inadequate and cumbersome and during the 11 year's of its operation the Pool failed to respond adequately to changing circumstances. In designing the new balancing and settlement arrangements it was recognised that the governance structure needed to be sufficiently flexible to allow modifications to be made to the rules in a timely fashion as the market developed and in the light of operational experience.

The flexible governance arrangements developed for the BSC (and the associated Connection and Use of System Agreement) have been effective and enabled changes to made quickly where necessary and efficiently. Seventy two modifications were proposed to the BSC in the first year of NETA.

Further developments to the trading arrangements are expected over the next two years

The following reforms to the trading arrangements are in process:

- reforms to the transmission access and losses arrangements;
- the creation of a 'deeper' SO investment incentive scheme for NGC; and
- the introduction of British Electricity Trading and Transmission Arrangements (BETTA).

Table of contents

1. Introduction

Purpose of this document

1.1 This document provides a review of the first year of the new electricity trading arrangements (NETA), introduced in England & Wales from 27 March 2001 ('Go-Live'). It follows two initial reports, published by Ofgem in August 2001, the first of which reviewed the operation of NETA during its first three months and the second, commissioned by the Minister for Energy and Competitiveness in Europe, discussed smaller generators experience over the first two months, based on a survey carried out by Ofgem.

1.2 This report is comprehensive. It incorporates an update of smaller generators experience, a summary of retail prices since NETA was proposed, as well as reporting more generally on the first full year of NETA (27 March 2001 – end of March 2002). It also provides, where appropriate, a brief update of developments since 1 April 2002.

Background

1.3 The new arrangements were introduced to address some of the weaknesses of the Pool-based wholesale electricity trading arrangements introduced in 1990 at the time of privatisation of the electricity industry. In particular, NETA was designed to deliver more competitive, market-based arrangements, giving a greater choice of markets in which to purchase and trade electricity with more active demand-side participation in the market. It was envisaged that forward trading would lead to the emergence of forward price curves that would better facilitate efficient new entry, by providing both generators and suppliers with clearer signals of when entry was likely to be profitable – thereby enhancing security of supply. The new balancing and settlement arrangements were designed to ensure the National Grid Company (NGC) as System Operator (SO), was able to maintain short-term quality and security of supply.

1.4 Pool prices had not responded to the more competitive generation market and lower generation input costs, which were features of the electricity wholesale market during the 1990s. It was believed that the new arrangements offered the prospect of reductions in wholesale electricity prices and hence potentially lower prices for both industrial and domestic customers.

Outline of this document

1.5 In Chapter 2 we set out the background to the reforms to the wholesale electricity market and an overview of the new trading arrangements. In Chapter 3 we review emerging markets under NETA whilst Chapter 4 analyses the trend in wholesale prices. Chapter 5 reviews the operation of the balancing arrangements and Chapter 6 examines the imbalance settlement process. Chapter 7 examines NGC's performance as SO against the commercial incentives put in place by Ofgem at the start of NETA. Chapter 8 summarises trends in retail prices. Chapter 9 examines the experience of smaller generators during the first year of NETA, based on a further survey by Ofgem.

1.6 Chapter 10 assesses the participation of demand-side under NETA, and examines the extent to which NETA has been successful in replacing the previous 'one-sided' market under the Pool, where generators set prices and provided most balancing services to NGC, with two-sided trading arrangements in which suppliers and customers actively participate in price setting and the providing of balancing services. Chapter 11 describes how the new, more flexible governance arrangements incorporated in the Balancing and Settlement Code (BSC) have performed in allowing the rules to develop in the light of experience. Chapter 12 covers developments in trading arrangements still to be implemented, including reform of transmission access and losses arrangements, an extension of NGC's SO incentives, and the extension of the new trading arrangements to Scotland. A series of appendices provide further detail of topics covered in the chapters.

2. Background

Introduction

2.1 The new electricity trading arrangements (NETA) were developed by Ofgem and the Department of Trade and Industry (DTI) over a period of around three years through a process involving extensive consultation with industry, customers and other interested parties. NETA was implemented with effect from 00:00 hours on 27 March 2001. This date is often referred to as the 'Go-Live' date.

2.2 This Chapter provides an overview of the previous trading arrangements in England & Wales, the reasons for and objectives of reform, an overview of the new trading arrangements and a brief summary of Ofgem's NETA reviews after the first few months of operation.

The previous trading arrangements; the Pool

2.3 The Electricity Pool of England & Wales (the 'Pool') was at the centre of the previous trading arrangements. It was one of the first mechanisms of its kind when it was set up at privatisation in 1990. This meant that in its creation, and in the development of rules associated with it, there was limited experience from other countries to draw upon. It was developed by way of a process that gave considerable weight to the existing arrangements operated pre-privatisation by the Central Electricity Generating Board (CEGB), when the electricity system was publicly-owned and centrally planned. The CEGB ranked power stations in a cost based 'merit order' and centrally despatched plant according to the merit order, to meet its forecast of national demand and to overcome transmission constraints.

How the Pool worked

2.4 The Pool provided a mechanism for setting a single wholesale price and for centrally despatching generation to meet demand. It was compulsory for licensed generators to join the Pool by signing the Pooling and Settlement Agreement (PSA) and to sell the vast majority of their electricity output into the Pool and similarly for licensed suppliers to join the Pool and to purchase all their supplies out of the Pool to meet the demand of their customers.

2.5 NGC, on behalf of the Pool, provided an estimate of national demand; required generators each day to provide offers specifying the price at which they were prepared to sell their electricity; ranked the offers in ascending order to meet its estimated demand; and determined the Pool price at the highest accepted offer price (i.e. System Marginal Price). A capacity payment, intended to reward capacity availability in the short-term and also to provide longer-term investment signals and incentives, was then calculated and added to the price. The size of the capacity payment varied depending on the amount and mix of generation capacity declared available relative to forecast demand. As SO, NGC despatched plant to balance demand, taking account of any constraints on the system. In general, the role of demand in the Pool was very limited since a centralised forecast of demand was used for scheduling purposes. However, up to 30 of the largest consumers bid into the Pool in competition to generators (they were known as 'demand-side bidders').

The reform of electricity trading arrangements

2.6 Throughout the Pool's existence, concerns were raised about many aspects of the trading arrangements. There were discussions about the scope for improving it and Ofgem's predecessor, the Office of Electricity Regulation (OFFER),[4] instigated various investigations into the operation of the Pool. Over time, the need for reform was urged ever more strongly by customer groups and other interested parties.

2.7 The process of reform began in October 1997 when the then Minister for Science, Energy and Industry invited the Director General of Electricity Supply (DGES) to consider how a review of the electricity trading arrangements might be undertaken.

2.8 Following public consultation in November 1997,[5] Terms of Reference for the review were finalised in March 1998[6] (see Appendix 1). These confirmed that the Review was to be carried out by OFFER in consultation with the DTI and that a panel of independent advisers would be appointed to enhance the expertise and independence of the Review.

[4] On 16 June 1999, the former regulatory offices, Ofgas and OFFER, were renamed the Office of Gas and Electricity Markets (Ofgem). References in the text to documents and events before this date use the name of the original regulatory office.
[5] "Review of Electricity Trading Arrangements - A Consultation Paper", November 1997.
[6] "Review of Electricity Trading Arrangements - Report on Consultation on Terms of Reference", March 1998.

The objectives of the Review

2.9 The objectives of the Review were to consider what changes to the electricity arrangements would:

- meet the needs of customers with respect to price, choice, quality and security of supply;
- enable demand to be met efficiently and economically;
- enable costs and risks to be reduced and shared efficiently;
- provide for transparency in the operation of the pricing mechanism and the market generally;
- enhance the ability to respond flexibly to changing circumstances in future;
- promote competition in electricity markets, including by facilitating ease of entry into and exit from such markets;
- avoid discrimination against particular energy sources; and
- be compatible with Government policies to achieve diverse, sustainable supplies of energy at competitive prices and with wider Government policy, including on environmental and social issues.

Further considerations

2.10 In doing so, to consider the implications of, and for:

- the role of the NGC with respect to trading within and outside the Pool;
- the development of competition in generation and supply;
- trading arrangements in Scotland;
- the development of contracts markets (including for physical delivery, contracts for differences and futures contracts);
- interactions between electricity and gas;

- legislation on competition and utility regulation in Great Britain and the European community; and

- other Government policy initiatives including those on energy sources for power stations and generator emissions.

The review of electricity trading arrangements

2.11 The review of electricity trading arrangements proposals published in July 1998[7] by OFFER noted that in many respects the Pool-based trading arrangements had worked satisfactorily. The balancing arrangements had maintained the quality and security of supplies. The trading and pricing arrangements had assisted new generators in entering the market and allowed competition in supply to be introduced.

2.12 However, the review confirmed many of the concerns about the Pool-based trading arrangements. Price setting was complex; capacity payments were not working as intended, in that they did not respond to short-term changes in capacity margin and provided poor signals and incentives long-term; bids and Pool prices had not reflected costs. The arrangements for price setting in the Pool had facilitated the exercise of market power at the expense of consumers. There was less recognition of the benefits of flexible capacity than would be likely in a competitive market, and less liquidity in the contracts markets. More generally generators and suppliers did not face fully the costs and consequences of their actions because neither group made firm commitments to generate or consume electricity. Pool governance was not conducive to change, with no significant role for customers or the DGES.

2.13 The proposals suggested by the DGES were to put in place market-based trading arrangements more like those in commodity markets and competitive energy markets elsewhere. They were designed to be more efficient and provide greater choice for market participants while maintaining the operation of a secure and reliable electricity system.

[7] "Review of Electricity Trading Arrangements, Proposals", July 1998.

The development and implementation of the new electricity trading arrangements

2.14 The DGES' proposals were accepted by the Government as the right way forward in October 1998 in its White Paper on Energy Policy.[8] The White Paper also identified the following issues where further consideration would be needed as the new trading arrangements were developed:

- continued security of electricity supplies in the long and short-term;
- prices that are transparent and ensure liquidity; and
- appropriate consideration of CHP, renewables generators, small embedded generators, NFFO generators and Interconnections.

2.15 In November 1998 a framework document[9] was published which explained how the NETA programme for the reform of electricity trading arrangements would be taken forward. It confirmed that OFFER and the DTI would lead the process, supported by a Programme director, and that the NETA programme would facilitate the full participation of the industry and its customers.

2.16 An intensive programme of work under DTI and OFFER/Ofgem direction and involving all interested parties culminated in the publication of more developed proposals in July and October 1999. During 2000, these proposals were further developed and clarified, with special consideration given to the issues raised in the October 1998 White Paper. Finally the Balancing and Settlement rules were incorporated into the Balancing and Settlement Code (BSC).

2.17 The BSC ascribes a number of administrative functions to a company called the BSC Co. The role of the BSC Co is fulfilled by ELEXON, and ELEXON has no functions other than those ascribed to it under the BSC. In particular, it is responsible for contracting with service providers (known as BSC Agents) who provide and operate the computer and other central systems needed for settlement under the BSC. It also provides administrative and secretarial support to the BSC governance procedures.

[8] "Conclusions on the Review of Energy Sources for Power Generation and Government response to fourth and fifth Reports of the Trade and Industry Committee", October 1998.
[9] Review of Electricity Trading Arrangements, Framework Document, November 1998.

2.18 The Balancing Mechanism and the Settlement process required new IT systems to be built and operated. The procurement process was managed by the NETA Programme under the leadership of Ofgem and the DTI. During 2000/2001 these central systems were tested, including in respect of their interaction with participants IT systems.

2.19 Legislation contained in the Utilities Act 2000 enabled the PSA to be replaced by the BSC. NGC as SO is obliged to maintain the Code. Licensees are obliged to conform to it. The Code includes flexible governance arrangements to allow for modifications to the rules, in the light of operational experience. Ofgem is required to approve or reject all modifications to the Code, according to defined criteria.

2.20 The Secretary of State sanctioned the introduction of NETA in March 2001, following advice from the NETA Programme on industry readiness.

Overview of the new electricity trading arrangements

2.21 The new, more market-based, trading arrangements are based on bilateral trading between generators, suppliers, traders and customers. They operate as far as possible like other commodity markets whilst, at the same time, making provision for the electricity system to be kept in physical balance at all times to maintain security and quality of supplies. They include forward and futures markets, which are evolving in response to the requirement of participants, that allow contracts for electricity to be struck up to several years ahead; short-term power exchanges, also evolving in response to the requirements of participants, which give participants the opportunity to 'fine tune' their contract positions in a simple and accessible way; a Balancing Mechanism, which opens at Gate Closure[10] (3 and a half hours before real time), in which the NGC, as SO, accepts offers of and bids for electricity to enable it to balance the transmission system (NGC may also contract ahead for balancing services); and a settlement process for charging participants whose contracted positions do not match their metered volumes of electricity, for the settlement of accepted Balancing Mechanism offers and bids, and for recovering the SO's costs of balancing the system.

[10] Gate Closure is the last point at which Parties can notify their contract position to NETA Central Systems and at which Parties can resubmit their Physical Notifications to NGC. At Gate Closure NGC use the Balancing Mechanism to enable them, amongst other things, to keep the system in electricity balance close to, and in, real time by adjusting levels of generation and demand in the light of the Bids and Offers submitted. From NETA Go-Live until 2 July 2002 Gate Closure was 3½ hours before real time. On 2 May 2002 the Authority accepted BSC Modification P12: 'Reduction of Gate Closure From 3.5 Hours To 1 Hour' and this modification was implemented on 2 July 2002.

2.22 The balancing and settlement rules which are incorporated in the BSC seek to ensure efficient balancing of the system by the SO, whilst encouraging generators and suppliers to contract ahead for most of their requirements in forward, futures and short-term markets. The BSC includes flexible governance arrangements to allow for modification of the rules in the light of operational experience of NETA. In determining whether Modification Proposals should be made, Ofgem must judge them against pre-defined criteria.

2.23 To help assess the likely physical balance of the system, the SO asks participants to notify their expected physical position for each half hour trading period (i.e. their planned generation output and metered demand). The final submission of physical notifications (FPNs) takes place as the Balancing Mechanism opens. These notifications also provide the baseline for bids and offers from generators and from the demand-side.

2.24 A wide range of participants are able to make bids and offers to the SO through the Balancing Mechanism, including generators, suppliers and customers. Participants wishing to make bids and offers are required to sign the BSC and become BSC Parties. However, nobody is obliged to make bids or offers into the Balancing Mechanism.

2.25 The position of all BSC Parties is assessed to determine whether their metered output or consumption of electricity matches their contracted position. If it does not then they will be 'out of balance'. The price paid or charged to 'out of balance' market participants varies depending on whether they are over-contracted ('long') or under-contracted ('short'). In general, generators who are under-contracted (and suppliers who are over-contracted) and 'spill' electricity on to the system, potentially imposing balancing costs on the SO, can expect to receive a lower (System Sell) price for their electricity than if they had resolved their imbalance in forward markets. Suppliers who remain under-contracted as the Balancing Mechanism opens (and generators who under-generate), thereby potentially imposing balancing costs, can similarly expect to be charged a higher (System Buy) price than if they had entered into contracts for their full requirements. These different charges reflect the additional costs incurred by the SO in instructing generators, suppliers or customers to vary their output or consumption at short notice to keep the system (i.e. aggregate generation and consumption) in balance, from moment to moment. The costs of any forward contracts used by the SO to maintain a balance of overall supply and demand are also included in the calculation of imbalance prices.

2.26 As well as achieving an overall physical balance of electricity supply and demand, the SO may also need to accept bids and offers at short notice to maintain the quality of supply and at different locations to overcome transmission constraints. These system costs are recovered from all signatories to the BSC on the basis of their metered generation and consumption. The costs of any forward contracts used by the SO to balance the system are also recovered in this way.

2.27 NGC, as SO, faces commercial incentives to manage the total costs of system operation on behalf of customers. Under these incentives, NGC is set a target level of system operation costs. If NGC manages to beat this target, NGC keeps a proportion of the difference, subject to a cap. If actual costs exceed this target, NGC must pay a proportion of the difference, again subject to a cap (the regulatory framework of NETA is summarised in Appendix 2).

Interim NETA reports

2.28 In August 2001 Ofgem published two reports on experience under NETA during its first few months of operation.[11] One report assessed the performance of NETA as a whole during its first three months, the other considered the position of smaller generators during the first two months, based on an Ofgem survey.

2.29 The three month review of NETA showed the market evolving rapidly as all participants learnt how to operate most effectively under NETA. Forward markets, future markets and power exchanges had emerged, prices generally had fallen. The expected high volatility of initial imbalance cash-out prices had reduced.

2.30 Against this background, the results of the survey of smaller generators over the first two months of NETA showed the prices received by smaller generators for exports had declined significantly, although their position was somewhat more favourable than that of larger generators. Export volumes for smaller generators, and CHP in particular, had fallen substantially. Other than wind power, the performance of smaller generators did not appear significantly less predictable than that of other generators. Limited new consolidation services were available during the first two months of NETA to aggregate the output of smaller generators and thus allow them to compete better in the market; most smaller generators had continued to contract with their local supplier.

[11] "The New Electricity Trading Arrangements – A review of the first three months, Ofgem, August 2001 and Report to the DTI on the review of the initial impact of NETA on smaller generators, Ofgem", August 2001.

3. Emerging markets under NETA

Introduction

3.1 Under NETA the expectation was that new markets would emerge in response to participants' demand – including forwards, futures and short-term markets – and that liquidity and price transparency, which was likely to develop over time, would be greater than for supply contracts under the Pool-based trading arrangements. This chapter explains this in more detail and examines how markets, market liquidity and transparency have developed since the introduction of NETA.

Background

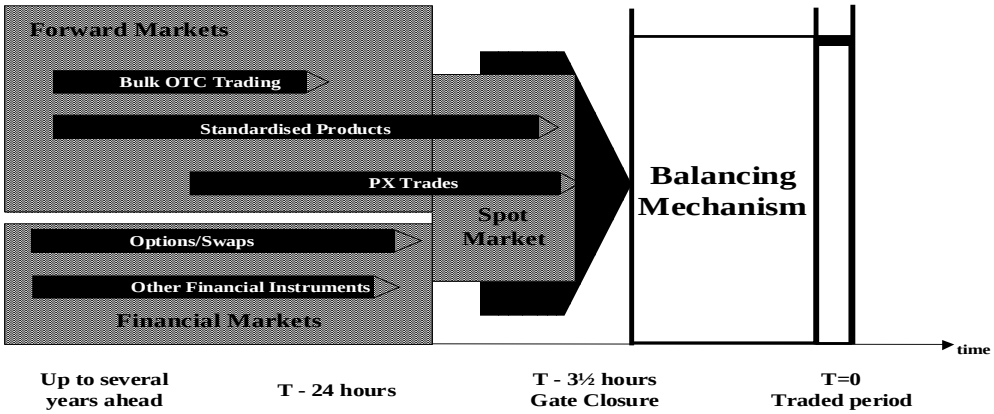
3.2 Under the Pool, electricity purchasers limited their exposure to Pool prices largely by entering into contracts for difference (CfDs) to cover the bulk of their purchases. However in contrast to most Over-the-Counter markets, there were no generally recognised price reporters for CfDs. Thus there was relatively little information available on contract volumes and prices. The Electricity Forward Agreements (EFAs) market was established in October 1991, but liquidity did not develop to the extent it had in other markets (in 1998 it was reported that the volume of EFA contracts was of the order of 10 to 15% of the physical output in England & Wales (or about 30 to 45 TWh).[12]

3.3 In contrast, under NETA the greater contractual freedom (generators and suppliers were no longer to be required to sell and purchase all their electricity through the Pool) and more competitive price setting arrangements (all generators would no longer receive a Pool price set by only a few generators and suppliers would no longer pay one uniform Pool price for their electricity requirements), were expected to lead to forward markets, futures markets and short-term power exchanges – developing in response to participants demand – becoming the main wholesale markets, where the vast majority of electricity would be traded and priced.

3.4 The NETA Programme initially considered whether it might be necessary to procure the establishment of a short-term (24-hour) screen-based power exchange to facilitate fine-tuning of contractual positions. But it was decided that this was unnecessary given the extent of interest in such a venture.

3.5 Figure 3.1 is a schematic diagram showing both the variety of markets that were anticipated might develop under NETA and their relationship in time to the start of the trading period.

Figure 3.1 - Traded markets under NETA



3.6 It was envisaged that market participants would take a range of views on contracting. For example, some might wish to secure output or supplies a year or more in advance of physical delivery, whilst others might prefer to enter into transactions closer to the time when the electricity would be required, and most might opt for some combination of these possibilities. It was also anticipated that some participants might choose to remain uncontracted ahead of Gate Closure and instead sell their power or meet their electricity requirements through the balancing arrangements. However, it was not expected that this would be advantageous on a large scale, due to the risks associated with the uncertainty and potential volatility of Balancing Mechanism and imbalance prices.

3.7 By the time the Balancing Mechanism opened for a trading period – 3½ hours before 'real time' – it was expected that generators' contract positions would generally closely match their anticipated metered generation output and suppliers' contract positions would be close to the anticipated metered demand of their customers.

3.8 Price indicators were expected to develop that would reflect prices over the short-, medium- and longer-term, the latter being an important development in relation to security of supply, to signal the future need for new generation capacity and to encourage greater demand responsiveness.

[12] "Review of Electricity Trading Arrangements, Proposals", July 1998.

3.9 Transparency was expected to occur, in common with other commodity markets, as price reporting developed as a valuable service to market participants. However, since it could take some time for this price transparency to develop, if required, the NETA proposals documents suggested the Regulator could set in place arrangements to publish prices in the newly emerging markets. This has proved not to be necessary.

Experience

Over-the-Counter

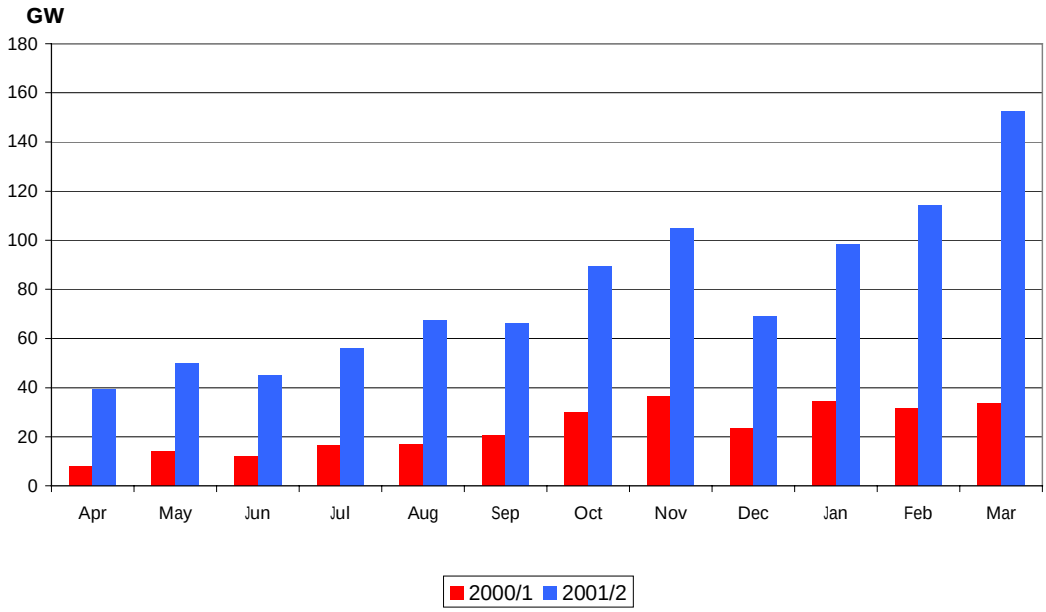
3.10 Over-the-Counter (OTC) transactions are typically conducted bilaterally between parties, either over the telephone or via computer networks connecting the dealers. They can, however, also be facilitated by brokers who act as intermediaries, bringing two parties together in return for a brokerage fee.

3.11 An industry initiative in anticipation of NETA was the development of a generic framework covering energy trading between counterparties, known as the Grid Trade Master Agreement (GTMA). The GTMA has been accepted as the standard set of terms under which the majority of electricity forward trades take place. The GTMA sets out a framework within which counterparties bilaterally trade, confirm, notify and settle energy accounts.

3.12 Over the first year of NETA, there has been growth in both the number of contracts on offer and the volume traded. The total volume traded OTC in the first year of NETA (2001/2) has been reported as over 962GW.[13] Over the course of the previous year (2000/1 – the last year of the Pool), this figure was just under 280GW – implying a more than two fold increase in the first year of NETA. As Figure 3.2 shows, volumes generally grew steadily over the course of the year.

[13] It is not possible to distinguish between increases in transaction volumes and increased reporting of transactions but in either case the greater information that has become available increases the transparency of the market.

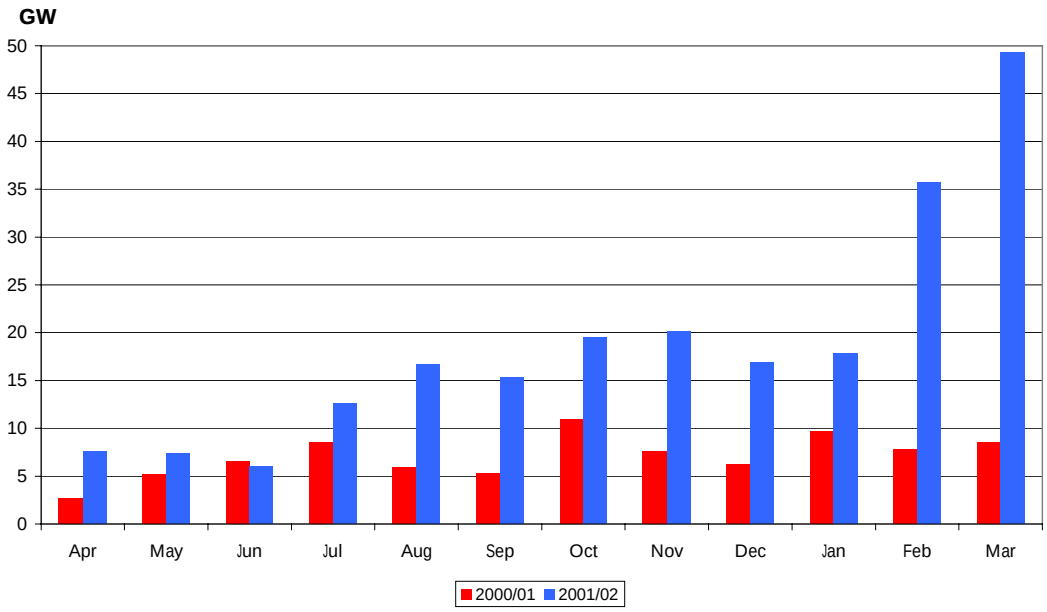
Figure 3.2 – Growth in reported OTC power trades over the first year of NETA



Source: Heren European Daily Electricity Markets (EDEM).

3.13 The year-on-year increase in the total volume traded can be seen across a range of contract types. The greatest change occurred in the day-ahead contracts. For example, under 8GW of day-ahead baseload contracts were traded in February 2001 (see Figure 3.3) and over 52GW in February 2002 – a nearly six fold increase. Over the course of the year, the volume of day-ahead baseload trades increased from 85GW in 2000/1 to 225GW in 2001/2– a more than one and a half fold increase. This trend is also apparent for day-ahead peak products (not shown), for which the volume traded increased from 1.6GW in 2000/1 to 76.5GW in 2001/2.

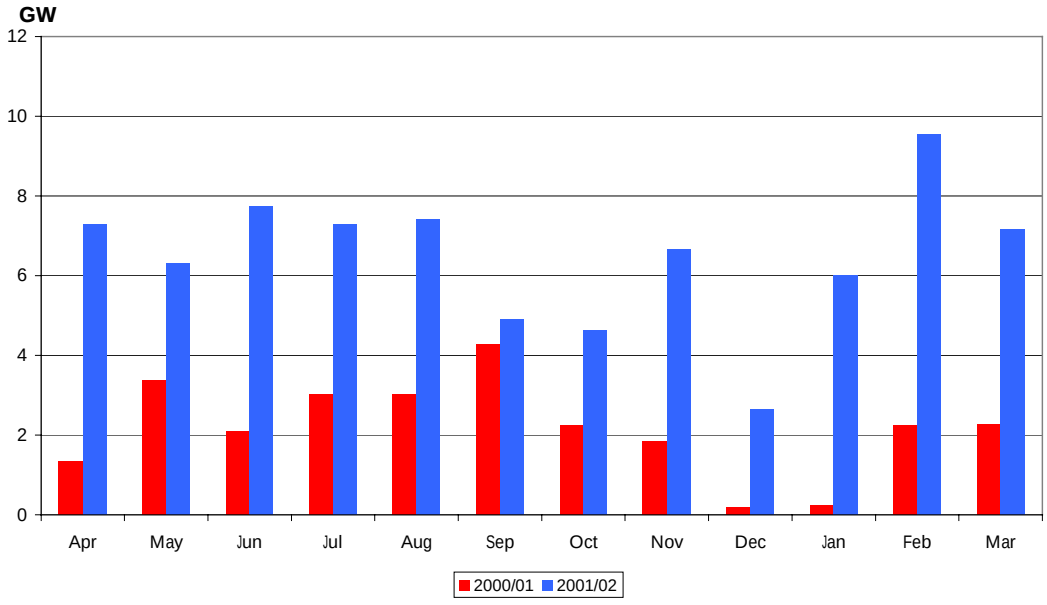
Figure 3.3 – Year-on-year increase in reported day-ahead baseload OTC power trades



Source: Heren European Daily Electricy Markets (EDEM).

3.14 Figure 3.4 shows that the observed increase in traded volume year-on-year was also evident further along the forward curve. The volume of season-ahead trades in 2000/1 was 2.3GW compared to 7.2GW in 2001/2.

Figure 3.4 – Year on year increase in reported season-ahead baseload OTC power trades

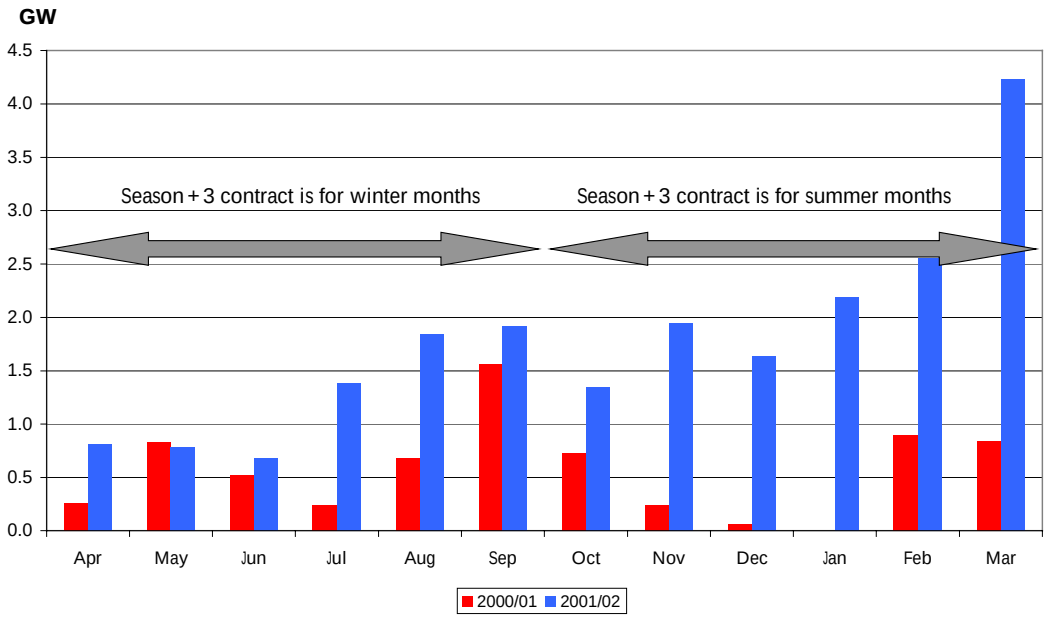


Source: Heren European Daily Electricy Markets (EDEM).

Extension of forward curve

3.15 Figure 3.5 shows that the increase in traded volume year-on-year was also evident further along the forward curve in relation to trades 3 seasons ahead i.e. up to summer 2003. The volume of season-ahead trades in 2000/1 was 6.9GW compared to 21.3GW in 2001/2.

Figure 3.5 – Reported season + 3 baseload OTC power trades



Source: Heren European Daily Electricy Markets (EDEM).
Note: contract volumes are as follows: Apr-Sep 00 - winter 01/02 contract, Oct 00-Mar 01 – summer 02 contract, Apr-Sep 01 – winter 02/03 contract, Oct 01-Mar 02 – summer 03 contract.

3.16 The variety of contracts available has also increased, enabling market participants more closely to match their requirements with available products. Table 3.1 gives the number of different contract types available year-on-year, which have risen from 138 to 341, an increase of 147%.

Table 3.1 – A comparison of both the total number of trades and the number of types of contract offered

Period	Number of contract types	Number of trades
2000/1	138	8445
2001/2	341	26755
% increase	147%	217%

Source: Heren European Daily Electricity Markets (EDEM).

Power exchanges

3.17 Power exchanges offer market participants the opportunity to trade using a screen-based, anonymous, 24 hour trading system. In addition, power exchanges frequently offer additional services to their members such as clearing services[14] and contract notification services. The provision of a clearing service reduces members' market risk through the elimination of counterparty credit risk. The provision of contract notification services by power exchanges enables members to use the exchange for the provision of obligatory contract notifications, under the BSC, from which imbalance positions are calculated.

3.18 Three power exchanges started trading either prior to or concurrently with the introduction of NETA – these were the UK Power Exchange (UKPX), the UK Automated Power Exchange (UKAPX), and the International Petroleum Exchange (IPE).

3.19 The UKPX originally only offered spot contracts[15] on a half-hourly basis (within-day and day-ahead) but, since 6 April 2002 it has also offered EFA block contracts[16] and a whole day product (traded at the day-ahead stage[17]). Whilst a clearing service[18] was introduced in October 2001 for contracts offered along the forward curve, the majority of trading via the UKPX in the first twelve months of NETA involved their spot products. UKPX has more recently extended its clearing service (see paragraph 3.25).

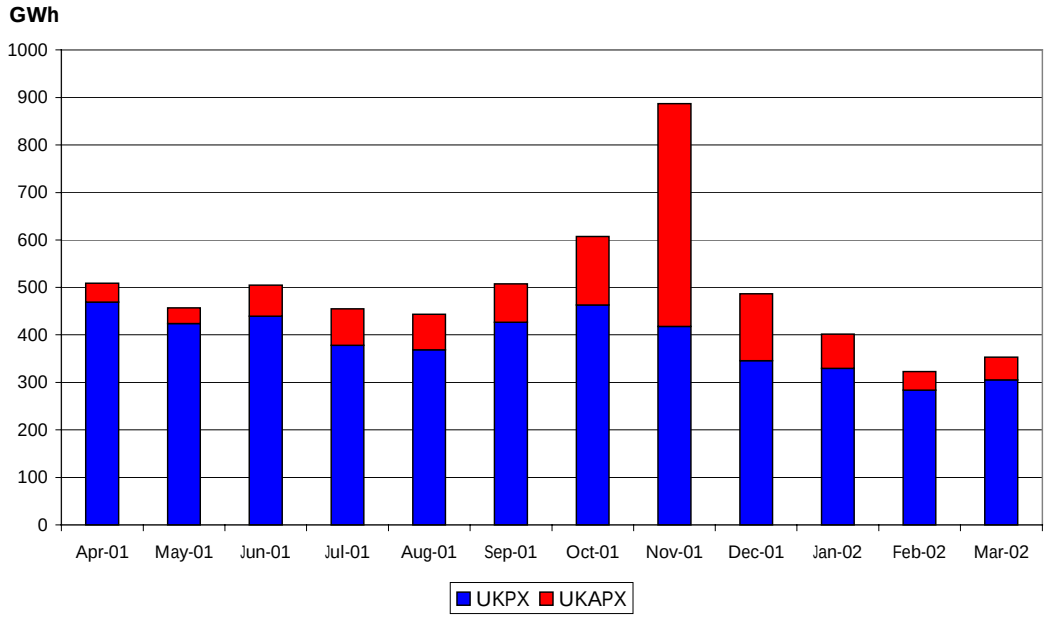
3.20 The UKAPX initially offered contracts for EFA blocks (both within-day and day-ahead contracts). In response to the evolving requirements of market participants, in August 2001 the UKAPX introduced additional products. These include contracts for EFA day peak, next weekend and the balance of the week.

3.21 The IPE ceased trading electricity contracts at the beginning of April 2002 because of a lack of interest in its products, which were predominately longer dated and related to traded calendar rather than EFA days. The product may be re-launched following the merger of IPE and the Intercontinental Exchange (ICE) platforms.

[14] Providing a clearing service involves acting as a central counterparty to member executed transactions and handling the process of registration, guarantees and settlement of transactions.
[15] Market participants can trade electricity spot contracts either OTC, on the power exchanges or the through on-line transaction platforms. There is no single definition of a 'spot contract': in this document, spot contracts are defined as day-ahead contracts plus within-day contracts on the power exchanges.
[16] EFA blocks enable market participants to cover their positions for certain sections of the EFA day, such as the morning or evening peaks. EFA days run from 23:00 on one day to 23:00 on the next day and are divided into six four-hour blocks.
[17] When the day of delivery begins, the contracts is cascaded into EFA blocks and then half hourly contracts.
[18] Providing a clearing service involves acting as a central counterparty to member executed transactions.

3.22 The UKPX and the UKAPX have traded significant volumes of electricity in the short-term markets (in total, 6 TWh was traded on these exchanges in the first year of NETA). Figure 3.6 shows the monthly volumes traded on the UKPX and UKAPX.

Figure 3.6 – UKPX and UKAPX half-hour lot volumes by month



Source: UKPX and UKAPX websites.

3.23 For the majority of the first year of NETA, the UKPX was the largest power exchange by volume traded. Traded volume on the UKPX remained fairly stable for the first six months of 2001/2002 then fell away somewhat (in the latter half of the year). This may have been a result of increased availability of within-day products on the OTC market. Also, with greater experience participants may have been making more accurate and earlier forecasts of their positions.

3.24 During the period October to December 2001, there was a significant increase in the volumes traded on the UKAPX (this appears to have been primarily due to market participants re-contracting to balance their positions over short periods as a result of the collapse of Enron and the closure of EnronOnline). The rise in the attractiveness of the UKAPX's block products was mirrored by a rise in the average daily volume of EFA Block trades reported by Heren for the OTC market from 1.1 GW in April 2001 to 9.4 GW in March 2002 (peaking at 13.7 GW in November 2001).

Online transaction platforms

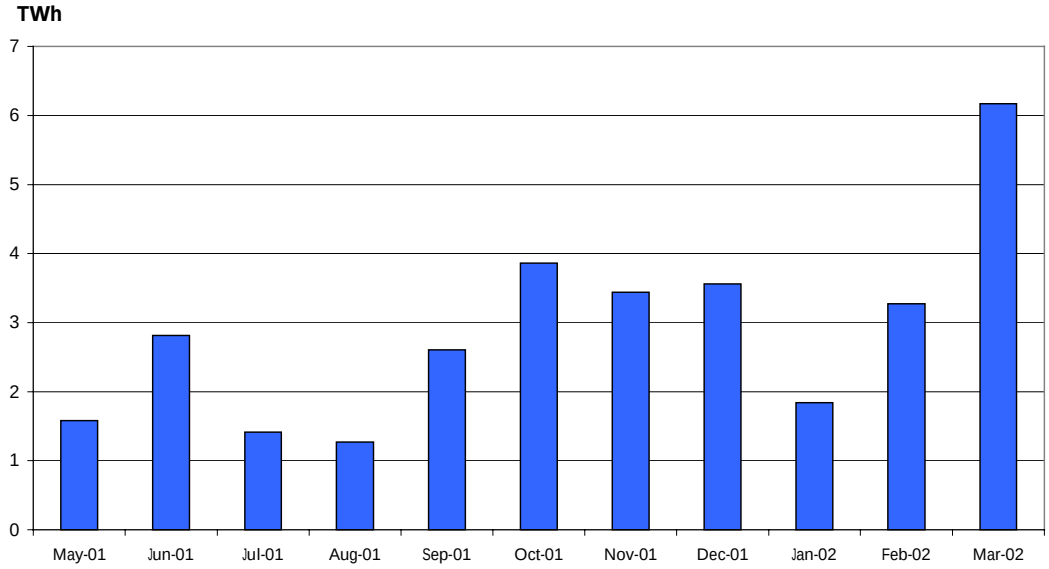
3.25 With the introduction of NETA, a number of brokerage houses added physical power products to the range of financial energy products offered via their internet based platforms (including the Spectron Platform and the ICE Platform) and two on-line electronic markets were introduced (EnronOnline and DynegyDirect). All of these enabled natural gas and refined oil products to be traded as well power products.

3.26 Spectron introduced their online power products in May 2001. A clearing service for contracts traded on the Spectron platform has recently been introduced via a partnership between the UKPX and Spectron Group Ltd. The clearing service is currently restricted to UK gas and power contracts but the intention is to expand it to cover continental power contracts (this development should further increase market liquidity by reducing market risk through the elimination of counterparty credit risk).

3.27 EnronOnline was available from Go-Live and was relatively heavily traded until it ceased operation in November 2001 when Enron went into administration. DynegyDirect was launched in the UK in September 2001 as a real time market, giving traders the opportunity to trade at prices posted by Dynegy or submit their own prices at which to trade with Dynegy. However, Dynegy announced on 20 June 2002 that it was discontinuing DynegyDirect.

3.28 As an example of the liquidity of the online transaction platforms, Figure 3.7 below shows the increase in traded volume on the Spectron platform since May 2001. The volumes traded on the platform show a dip in January 2002 in line with that seen for both power exchange and OTC trades (this may have been due to market participants already having covered their positions for the first winter of NETA). There was then a large rise in traded volumes in March 2002 (which could have been due to new members signing up to the platform to benefit from the introduction of cleared products and also due to a need for additional liquidity in the run up to the traditional April start of the contracting year).

Figure 3.7 – Monthly traded volumes on the Spectron platform



Source: Spectron website.

Participants' contract positions

3.29 Analysis contained in Chapter 6 shows that the majority of all electricity is now being traded in the newly emerging forward, futures and short-term markets, with participants notified contract position at Gate Closure very close to their physical metered positions. Over the first year, the total imbalance volumes of BSC Parties accounted for around 2.7% of demand. For the most part they were contracting in the new market for more than their physical requirements before Gate Closure, to lessen their imbalance exposure, and then selling back power to NGC via the settlement process (see Chapter 6 for more details).

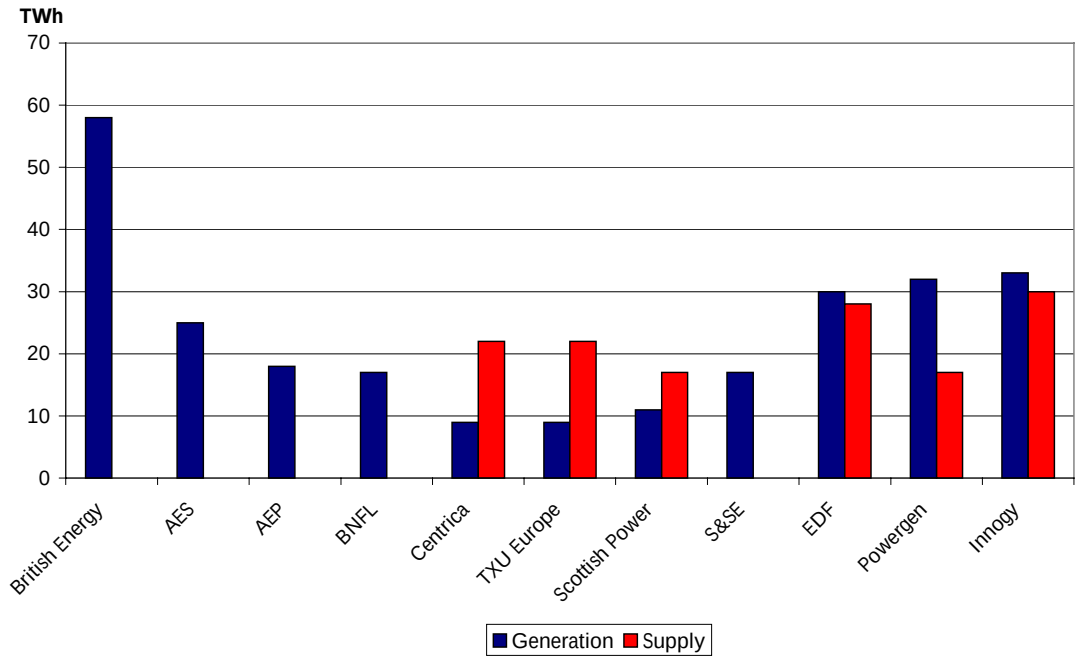
Vertical integration and transparency

3.30 Some concern was expressed the vertical integration between supply and generation in the electricity market would render the new trading arrangements less effective than they might otherwise be, by reducing liquidity and transparency in the bilateral markets due to internalised trading in the vertically integrated companies. A substantial degree of vertical integration raises competition issues when effective competition has not yet fully emerged in generation and supply. However, vertically integrated companies can only avoid trading if load shapes on both generation and supply are the same.

3.31 The proposed market arrangements were designed to provide the same opportunities for all market participants. The market rules do not benefit vertically integrated players at the expense of participants who are not vertically integrated. A consequence of this is that some rules (such as the settlement rules) encourage contracting by all participants including by vertically integrated players. This, in turn, fosters liquidity and transparency.

3.32 Since the start of the NETA process in 1998, there has been a significant degree of vertical integration with most of the major generators consolidating their supply positions and one supplier (Centrica) acquiring generation assets.

Figure 3.8 – Demand & generation volumes by company 2001/2



3.33 It has been argued that this vertical integration has stifled moves towards greater transparency. However, as Figure 3.8 shows, in most instances there is not a good match between a company's generation and demand volumes and this may be exacerbated when generation and demand profiles are taken into account.

3.34 Moreover, whilst vertical integration may reduce the transaction costs associated with hedging a generation and demand position, it does not directly reduce a company's imbalance exposure, since production and consumption imbalances are calculated separately.

3.35 Overall, therefore, Ofgem consider there is little evidence to suggest that vertical integration is adversely affecting transparency.

Price reporters

3.36 Alongside the development of forwards, futures and spot markets, price reporters have entered the market, in response to the requirements of market participants, to provide information specific to these markets and the NETA balancing arrangements. There are three dedicated energy price reporters (Heren, Platts and Petroleum Argus) who provide information to subscribers both on a real-time basis and in the form of regular daily and weekly market reports. All three were established prior to the introduction of NETA each having a long history of price reporting for other energy commodities such as coal, oil and gas. In addition to these specialist energy price reporters, providers of financial market prices and information such as Reuters and Bloomberg have widened their product suites to provide power prices and news to their subscribers.

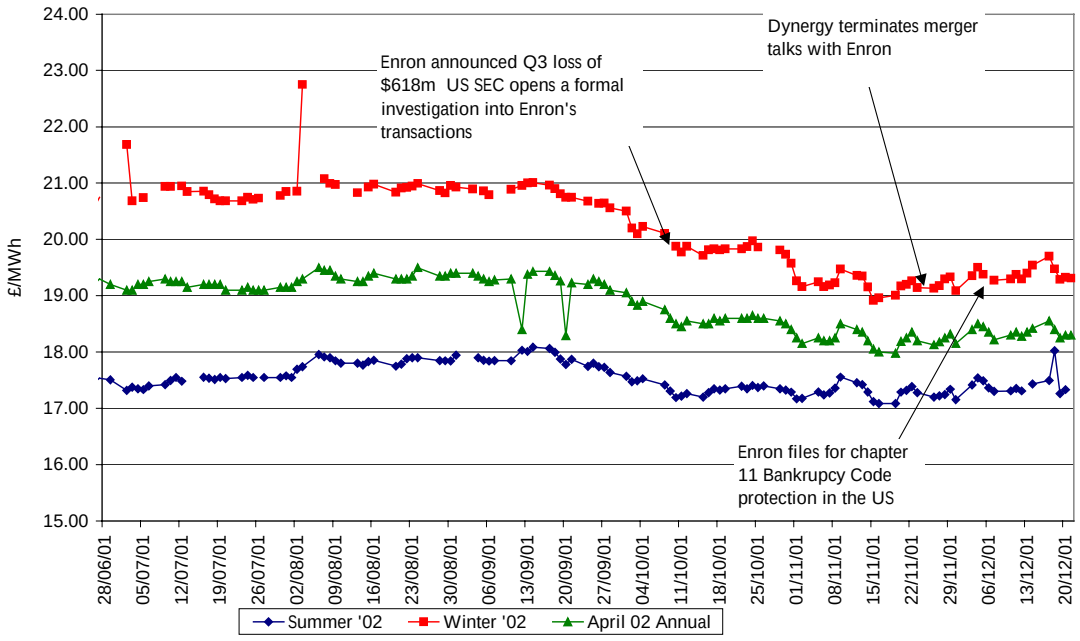
Robustness of NETA markets

3.37 The robustness of the electricity markets under NETA were tested towards the end of 2001 when Enron first began experiencing problems. Initially, Enron's creditworthiness as a counterparty was undermined when it announced a Q3 2001 loss of $618m and the US Securities and Exchange Commission opened a formal investigation into its transactions. Subsequently, it was forced to exit the market and file for Chapter 11 Bankruptcy Code protection in the United States on 2 December 2001. Enron Europe's activities were placed into administration on 29 November 2001.[19]

3.38 Figure 3.9 suggests there was a limited reaction in the forward power markets to the decline and exit of Enron. Furthermore there was only a temporary rise in spot prices around 2 December 2001. By contrast, continental European markets reacted sharply to the exit of Enron and prices surged. For example, spot prices in the Netherlands and Germany increased by over 70% on 2 December 2001 and spot prices in France increased by nearly 60%.

[19] Data from Enron's annual and interim reports shows that Enron's UK traded volume was 53 million MWh in 1999 and 113 million MWh in 2000. Enron's European traded volume in Q1 2001 was 36 million MWh and in Q2 2001 this figure was 73 million MWh.

Figure 3.9 – Seasonal and annual baseload prices and the exit of Enron from the market



Source: Platt's price assessments, prices are in nominal terms.

Summary

3.39 The analysis suggests that, over the first year of NETA operation, new markets have emerged, liquidity has increased and more price information has become available, much in line with pre-NETA expectations.

3.40 Forwards, futures and short-term markets have evolved, in response to demand. There are at present three main ways in which participants may enter into contracts with each other: via direct bi-lateral contracts through OTC trades, through power exchanges and using on-line trading platforms.

3.41 Market liquidity developed considerably over the first year of NETA. For example, the volume of OTC trades has increased by over 200% from Go-Live.

3.42 Contracts are being struck and reported over timescales ranging from within-day up to several years ahead. The forward curve now extends to winter 2004. The latter was an anticipated development under NETA, and important in relation to security of supply, since it can signal the future need for new generation capacity and demand responsiveness.

3.43 Virtually all electricity in England & Wales was traded in the newly emerging markets over the first year of NETA.

3.44 Price information has become richer over the year with price reporters having entered the market to meet participants' requirements, thereby providing price transparency.

3.45 The new markets proved robust against the collapse of a major market participant, when Enron went into administration in late 2001.

4. Wholesale electricity prices

Introduction

4.1 The reform of trading arrangements was one important aspect of a wider Government and regulatory policy framework[20] - including the opening up of the domestic retail market to competition and plant divestment by incumbent generators - to introduce greater competition into electricity markets.

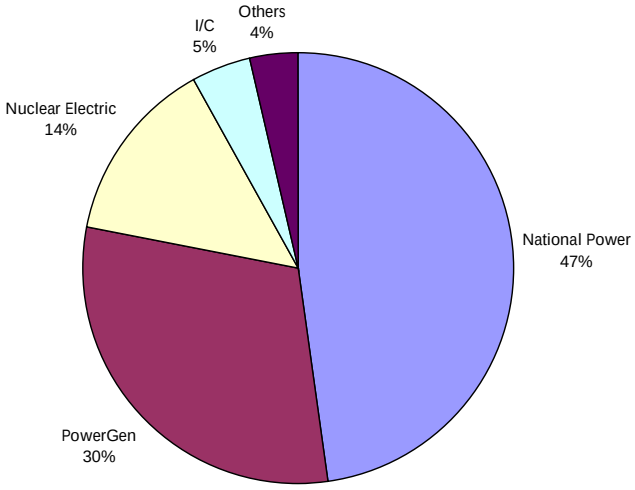
4.2 It was envisaged that the contractual freedom and bilateral pricing associated with newly emerging markets should ensure that prices better track costs as generators seek out purchasers for their power, suppliers and customers seek the most competitive terms from generators, and traders enter the markets. This chapter explains the trend in wholesale prices before and since the reform of trading arrangements was first agreed.

Background

4.3 At privatisation in 1990 National Power and Powergen together represented around 75% of the generation market in England & Wales, and Nuclear Electric represented about 14% (as shown in Figure 4.1). In total, 8 generators were selling electricity through the England & Wales electricity Pool.

[20] Conclusions on the Review of Energy Sources for Power Generation and Government response to fourth and fifth Reports of the Trade and Industry Committee, October 1998.

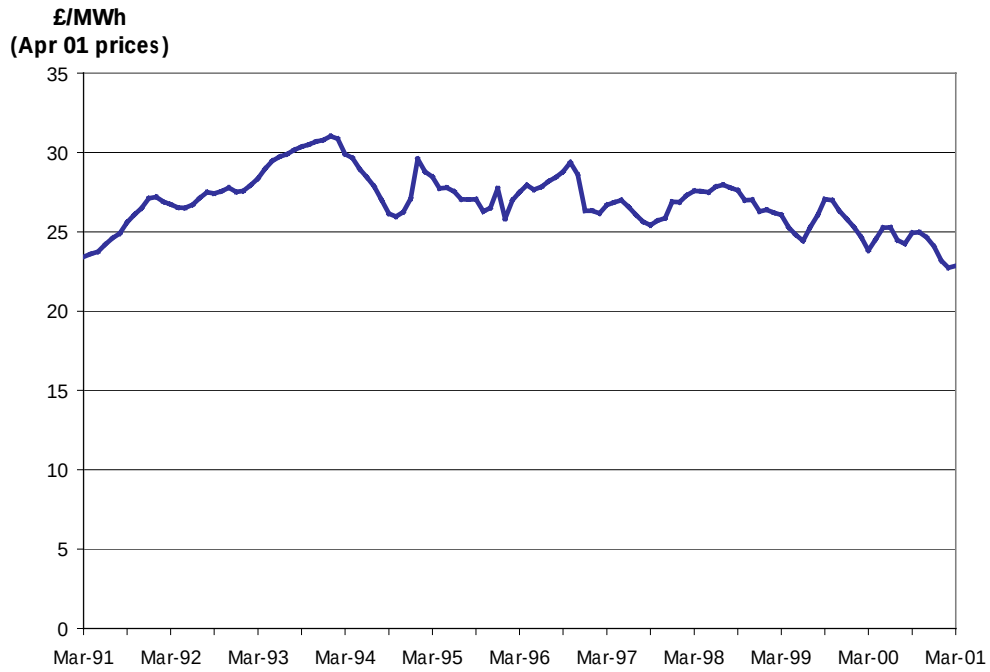
Figure 4.1 – Market share 1990/1



4.4 During the 1990's there was a substantial increase in the number of companies generating wholesale electricity and an accompanying fall in generator concentration. By 1999/2000 National Power and Powergen's combined market share was reduced to around 29%, and the number of generators selling into the Pool had increased to 38. This was the result of a combination of factors, including plant divestment by incumbent generators, new entry based on the construction of gas fired capacity, increased output from the nuclear stations and the subsequent division of Nuclear Electric into two companies (British Energy and Magnox Electric).

4.5 However, on a twelve month rolling average basis in real terms, Pool prices remained around £25/MWh (as shown in Figure 4.2) throughout the period of its operation. These prices were well above new entry cost levels, which most commentators estimated to be in the range of £17-20/MWh at a 90% load factor.

Figure 4.2 – 12 month moving average Pool prices



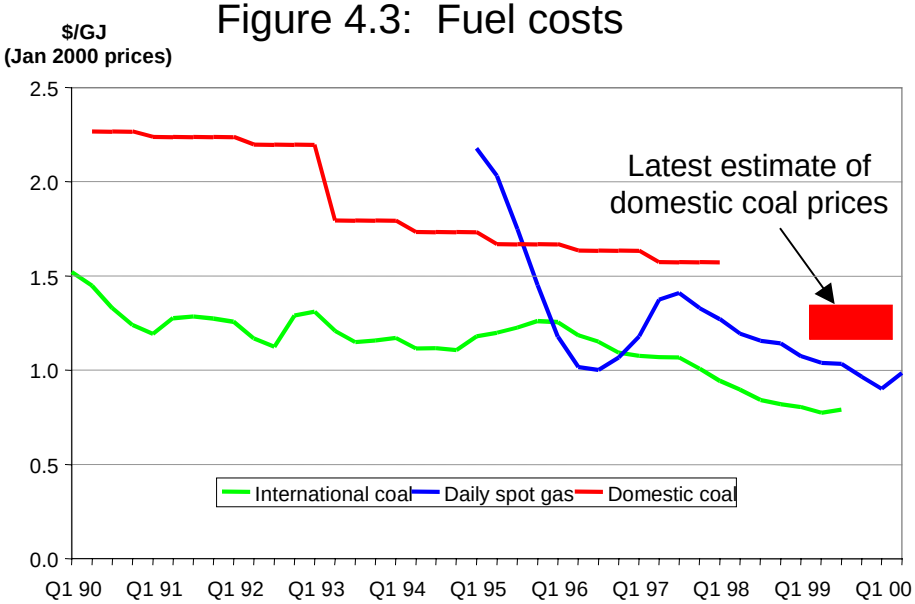
Source: Pool data.

4.6 As shown in Figures 4.3 – 4.6, neither input costs nor supply and demand fundamentals can explain why Pool prices remained high. Overall costs of generation fell by around 40-50% over the period in which the Pool was in operation.

4.7 Fuel costs had declined substantially (Figure 4.3), the average generation plant conversion efficiency had risen (Figure 4.4) and the capital costs of new combined cycle gas turbine (CCGT) plant had declined (Figure 4.5). Other costs also fell, for example transmission charges reduced by 10% in real terms and labour productivity increased.

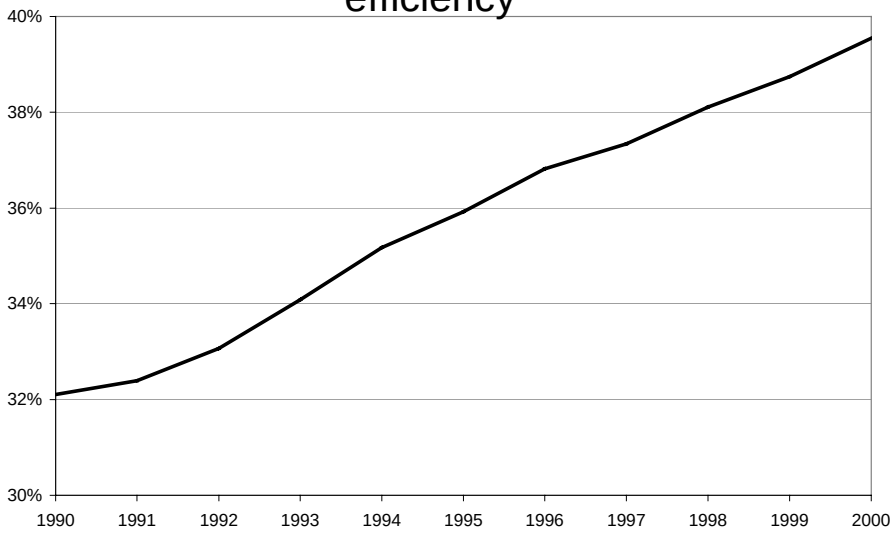
4.8 As to supply and demand fundamentals, according to NGC figures, the generation plant capacity margin (the margin between peak winter demand and total capacity potentially available at that time), fell back from the historically high (28.5%) margin at privatisation to around 15% in the mid 1990's but rose again to around 22% in 1999/2000 and to around 25% in 2000/01 (see Figure 4.6).

Figure 4.3: Fuel costs



Sources: Spot gas prices: 12 month rolling average of daily prices from British Spot Gas Markets; International Coal: European Commission average price of steam coal imports; Domestic coal: RJB Prospectus & press reports

Figure 4.4: Average plant efficiency



Source: NGC Seven Year Statements on generating capacity, CEGB statistics and press reports

Figure 4.5: CCGT capital costs

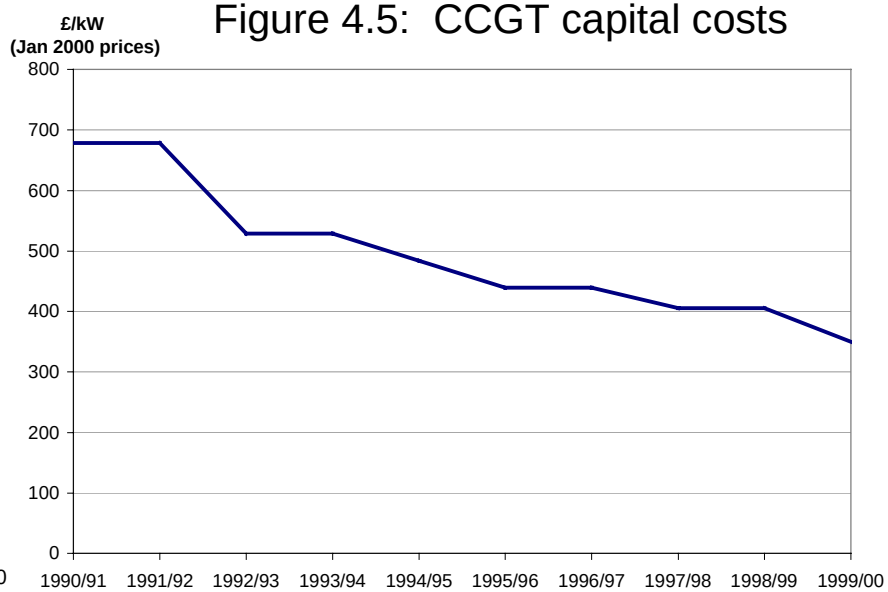
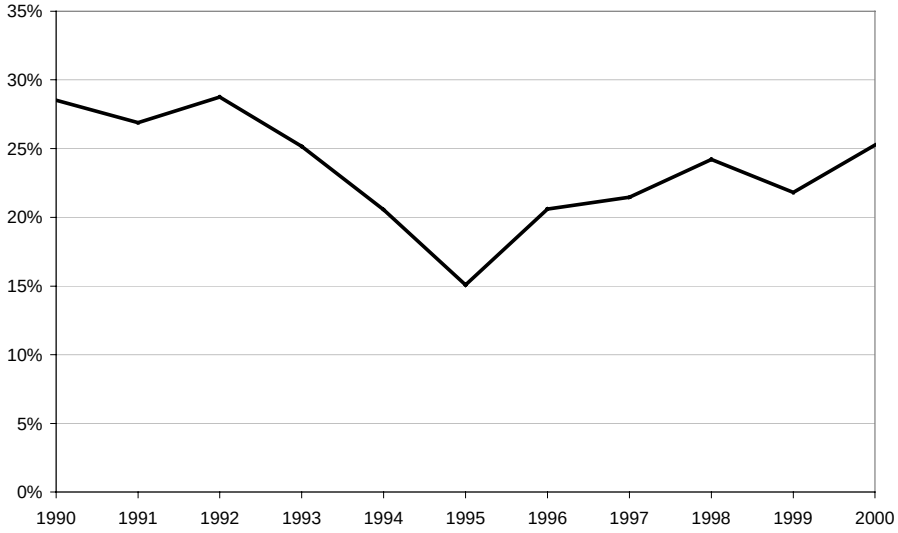


Figure 4.6: Capacity margin

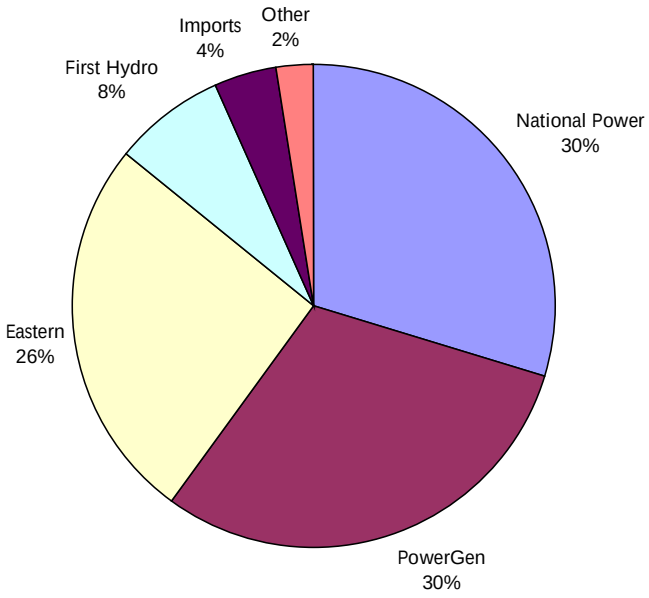


Source: Press reports

4.9 Of particular importance to the fact that Pool prices did not reflect the increasingly competitive generation market conditions, by more closely reflecting input costs and the plant capacity margin, is that many of the generators operating in the market did not actively participate in setting Pool prices. Most new entry CCGT operators had signed long-term power contracts with suppliers and did not compete at the margin.

4.10 As a result, price setting remained dominated by a few generators. Figure 4.7 shows that in 1998/9 National Power and Powergen combined, set Pool prices approximately 60% of the time, whilst Eastern Electricity - which had purchased divested plant from the incumbent generators – set prices for about 26% of the time.

Figure 4.7 – 1998/99 SMP setting shares



Source: Pool data.

4.11 It was because Pool prices did not reflect the more competitive conditions in the market, that it was considered particularly important for the new trading arrangements to allow market participants to negotiate their own prices rather than being subject to the uniform Pool price. In that way also the demand-side

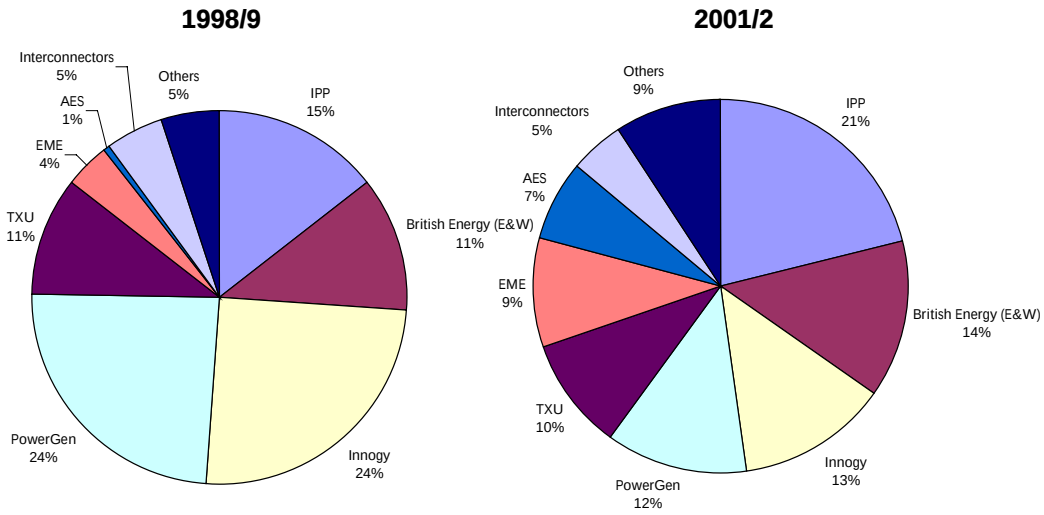
of the market would be incorporated into price setting on an equivalent footing to generation.

Market developments between the review of the trading arrangements and the end of the first year of NETA (1998/9 to 2001/2)

4.12 Anticipation of NETA appears to have been a clear influence on the downward trend in forward contract prices from 1998 (see below). However, other factors, including further developments in the generation market, and a stable plant margin are also likely to have played a part. Over this period fuel prices have either remained broadly constant (coal) or increased (gas) in real terms.

4.13 Figure 4.8 shows that the generation market structure has continued to evolve. For example, Powergen and Innogy (formerly National Power) together represented around 25% of capacity in 2001/2, half their combined market share in 1998/9. Over the same period, the capacity share of TXU (formerly Eastern) and Magnox Electric has remained broadly constant whilst that of British Energy has increased from 11% to 14%. There have been a number of new entrants to the market (for example, EdF) and the proportion of independent power plant (IPPs) has increased. Overall, the plant capacity margin increased from 24.2% to 25.6%.

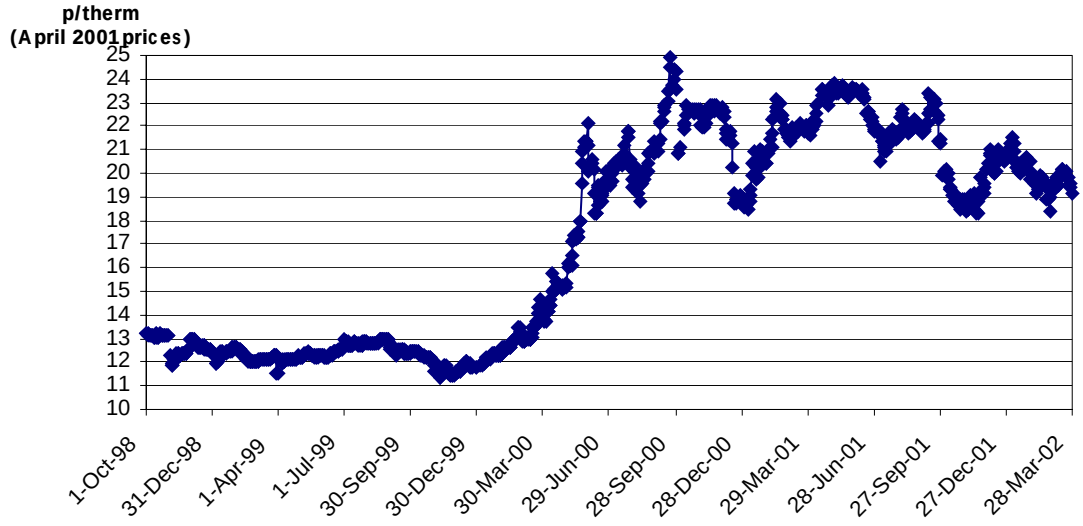
Figure 4.8 – Capacity market shares in 1998/9 and 2001/2



Source: NGC Seven Year Statement, 1998 and 2002.

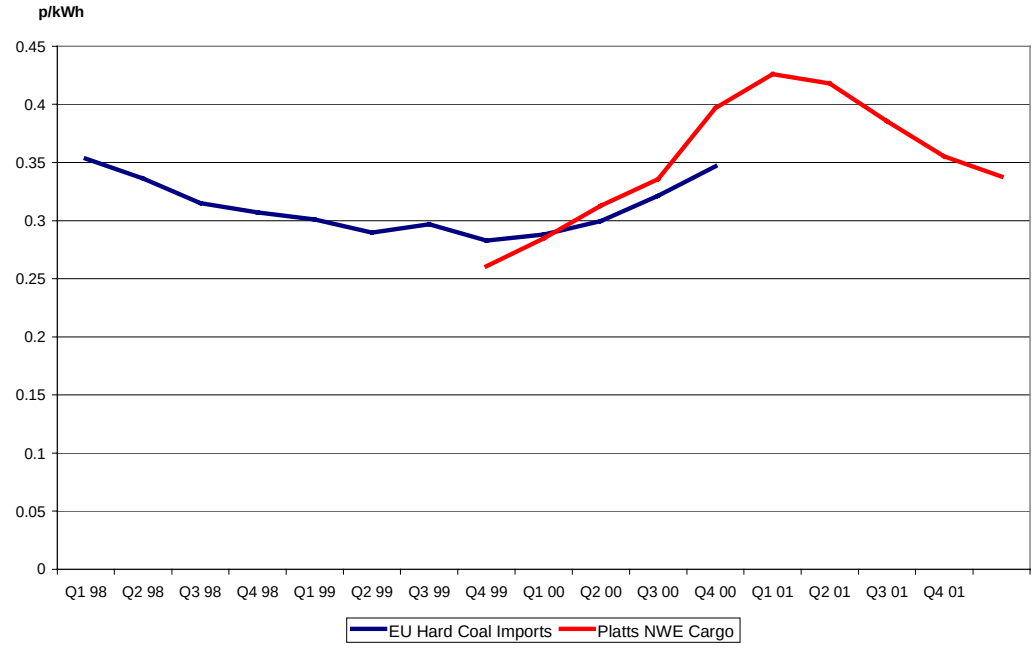
4.14 Between October 1998/9 and 2001/2 annual year-ahead gas prices rose by 50% in real terms (Figure 4.9). This rise in gas prices was influenced by the commissioning of the Bacton –Zeebrugge interconnector in October 1998, which both linked the GB gas market to the oil-linked continental gas prices and provided an additional source of demand, particularly throughout the summer months when the GB gas prices traditionally fell as a result of lower demand. In comparison, coal prices have, despite a rise in prices at the end of 2000, remained broadly constant in real terms since 1998 (Figure 4.10).

Figure 4.9 – GB annual contract gas prices



Source: Platts annual price assessments.

Figure 4.10 – International coal prices since 1998



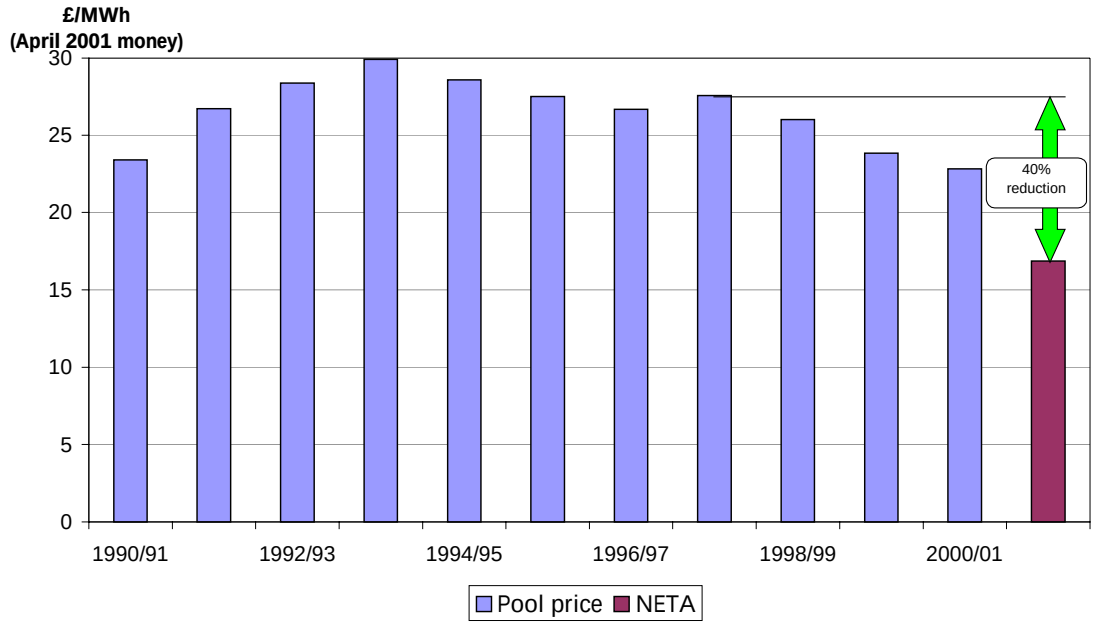
Source: NW E Cargo: Platts' assessments, European hard coal imports: European Commission.

Experience

Long-term spot price trends since NETA was proposed

4.15 Figure 4.11 shows that whilst Pool prices began to decline after NETA was proposed, the sharpest drop in annual average spot prices occurred during the first year of NETA operation. Overall, spot prices have fallen by around 40% between 1997/8 and 2001/2.

Figure 4.11 – Long-term spot price trends



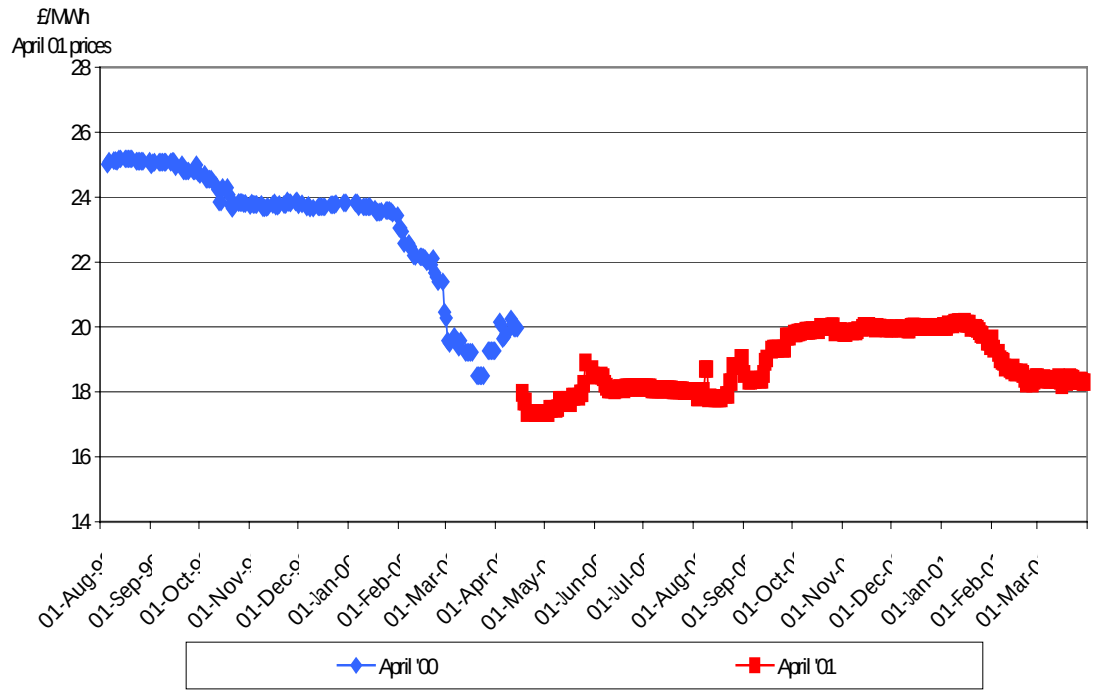
Source: Pool prices are PPP[21] and NETA prices are UKPX spot prices.

Forward prices during the development and implementation of NETA

4.16 While Pool prices remained relatively high until the Pool was replaced by NETA, forward prices began to fall at around the same time as the reform of trading arrangements was proposed in 1998 and fell further during the first year of NETA operation. Figure 4.12 shows that in the period during which NETA was being developed and implemented (1999-2001) the prices for OTC annual baseload contracts[22] fell by approximately 27% in real terms (August 1999 to March 2001, April 01 prices).

[21] They have not been adjusted to account for the move from station gate to NBP.
[22] The contracts are named April '00,etc. because the contracts begin delivery in April.

Figure 4.12 – Annual baseload contract prices: August 1999 – March 2001

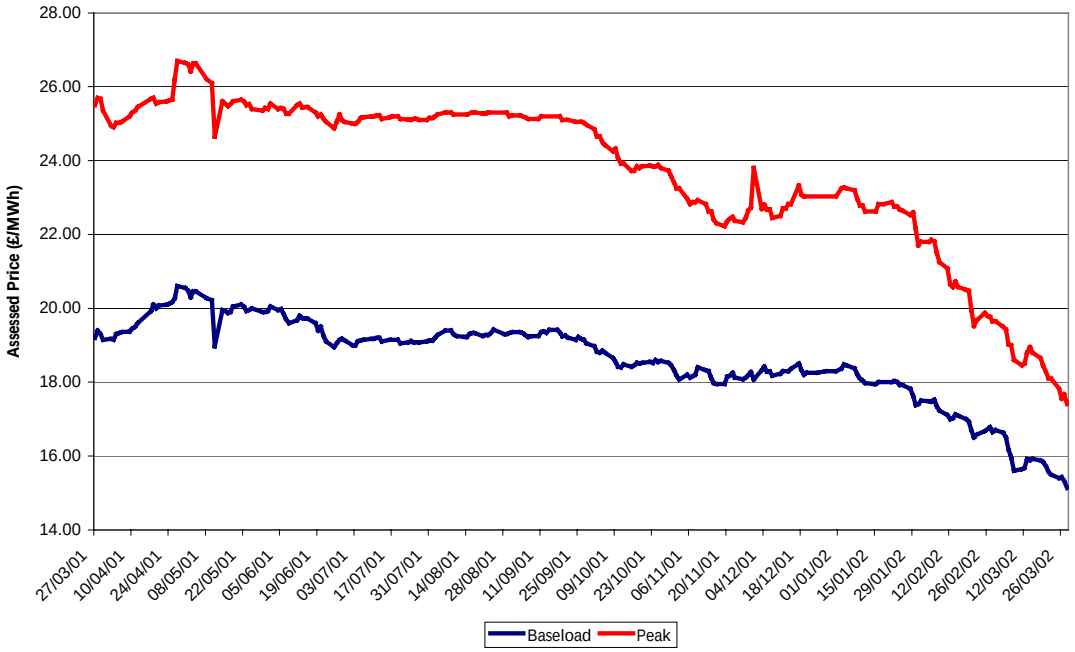


Source: Platts price assessments.

Forward prices during the first year of NETA

4.17 The trend of falling wholesale electricity prices has continued throughout the first year of NETA. Figure 4.13 shows average annual OTC contract prices, both baseload and peak, over the course of the first year of NETA. Between April 2001 and March 2002, baseload prices fell by 20% and peak prices by 27%. The effect was to narrow the differential between peak and baseload prices of 53% (from £5.74/MWh to £2.71/MWh) indicating that prices, on average, become flatter as well as lower.

Figure 4.13 – OTC annual contract prices under NETA – baseload and peak[23]



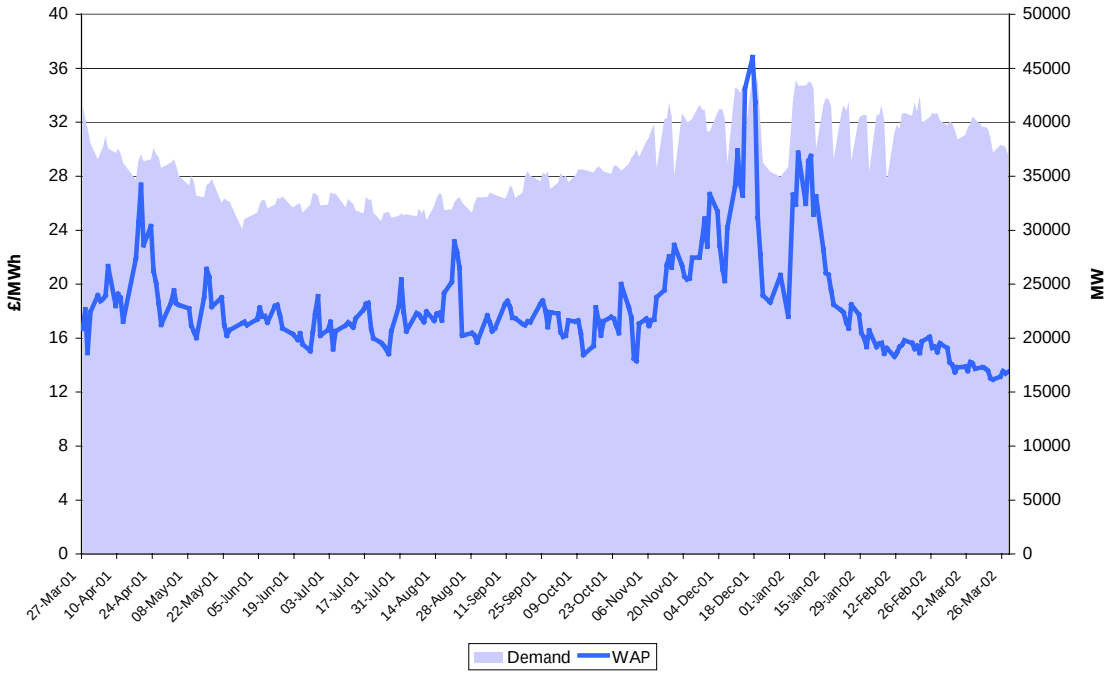
Source: Platts UK GTMA Baseload Indices, nominal prices.

Spot prices during the first year of NETA

4.18 Figure 4.14 below shows the average price (weighted by the volume of each trade) of all OTC day-ahead baseload trades reported by Heren and the daily average system demand.

[23] It should be noted that, with the introduction of NETA, generators for the first time have become responsible for paying for a proportion of the costs of balancing the system and transmission losses. For approximately a six-week period between February 2001 and April 2001, contracts were traded both at the station gate (i.e. excluding these costs which were passed through to the supplier) and entry paid (i.e. including these costs). The difference in price between the two contracts was typically around £1/MWh. The values in Figure 4.3 are presented on a station gate basis (as they refer to the period prior to NETA) whist those in Figure 3.15 are presented on an entry paid basis and hence appear higher.

Figure 4.14 – Spot OTC baseload prices and daily electricity demand



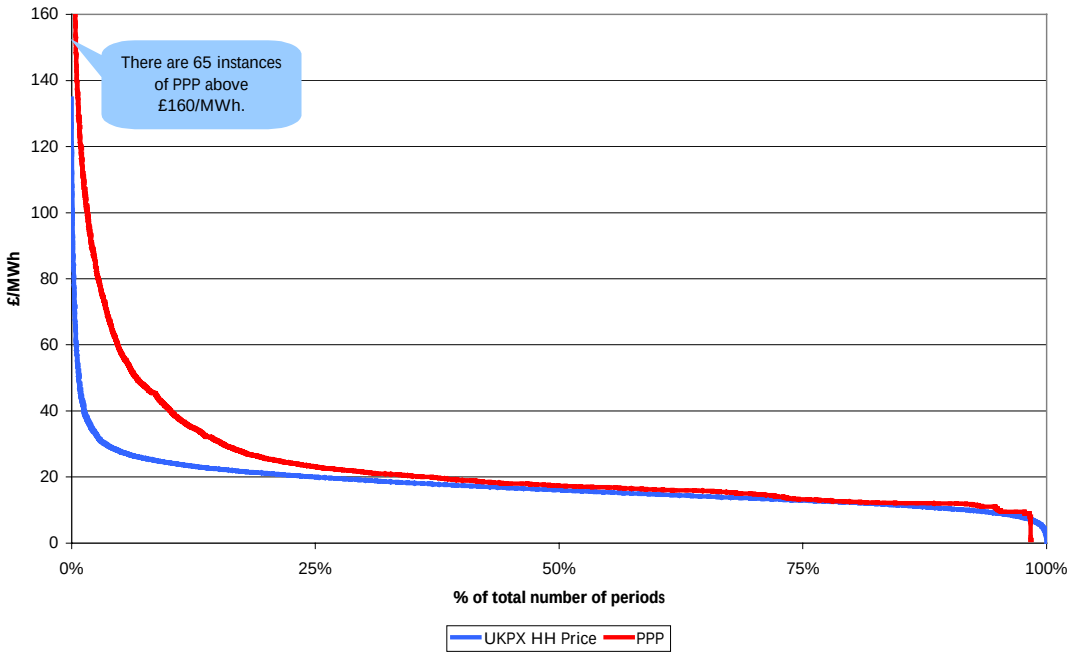
Source: Heren EDEM reported power trade data. Methodology is based on taking the daily WAP and averaging this for a month, prices are in nominal terms.

4.19 Taking monthly averages, between April 2001 and October 2001, the price fell by 17% to £16.93/MWh from £20.49/MWh. Prices between November 2001 and January 2002 rose and the highest monthly average price occurred in December (£25.17/MWh). By March 2002, (probably reflecting warmer than seasonal temperatures) prices fell to £13.83/MWh. Over the course of the year, OTC spot prices declined by 32%.

4.20 Figure 4.15 compares the Pool Purchase Price (PPP) for 2000/2001 and UKPX prices for 2001/2002.[24] The price duration curves indicate the percentage of the year that prices exceeded any given value. They show that peak prices on the UKPX have been considerably lower than the equivalent Pool prices. More generally the shallowness of the UKPX curve shows that there have been considerably fewer instances of high prices than was the case under the Pool.

[24] To provide comparable data, the PPP values have been increased by £1/MWh to present them on an 'entry paid' basis equivalent to the UKPX prices although the entry charges were zero under the Pool.

Figure 4.15 – PPP and UKPX price duration curves

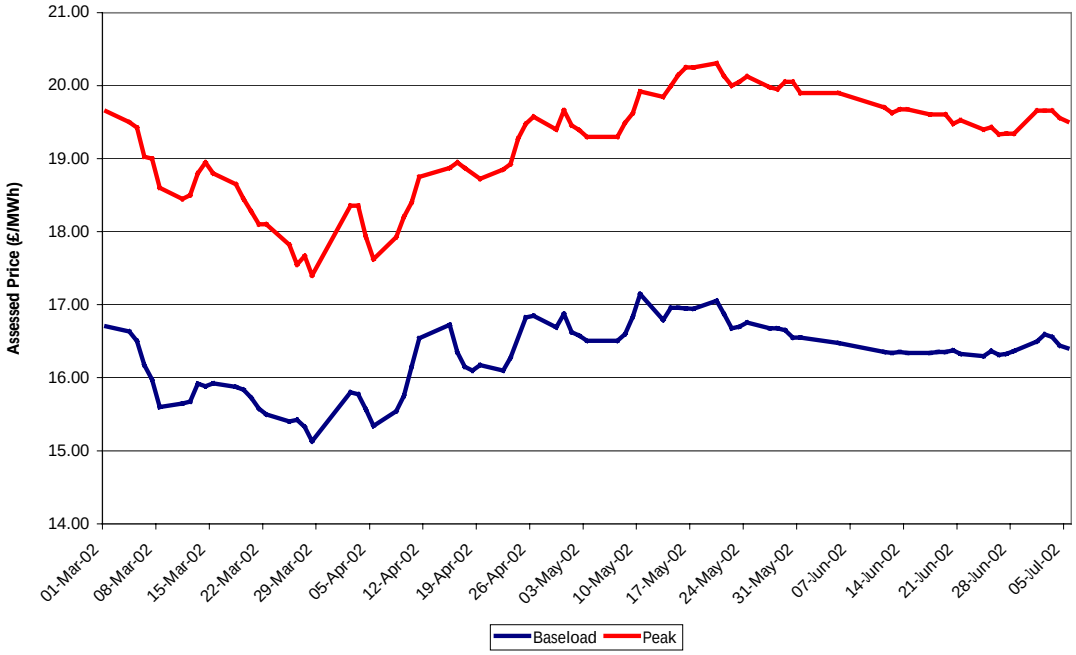


Source: ESIS and UKPX website, nominal prices.

Update since March 2002

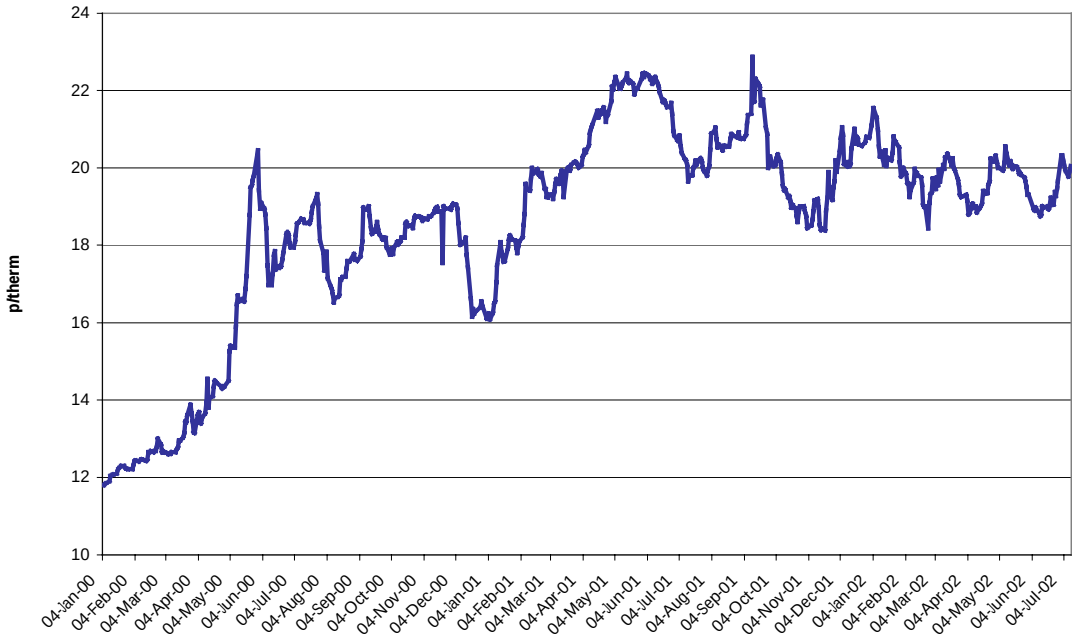
4.21 Since March baseload prices have increased by 6% and peak prices have increased by 11% (see Figure 4.16). This is likely to be related to the fact that, as of 1 April 2002 a total of 2.7 GW of plant were mothballed, (0.5 GW of which were returned to the system in July 2002) and gas prices rose by 5% to 20p/th between March and July 2002 (Figure 4.17).

Figure 4.16 – Year ahead annual baseload and peak power prices



Source: Platts (European Power Daily), nominal prices.

Figure 4.17 – Annual (year ahead) NBP gas prices

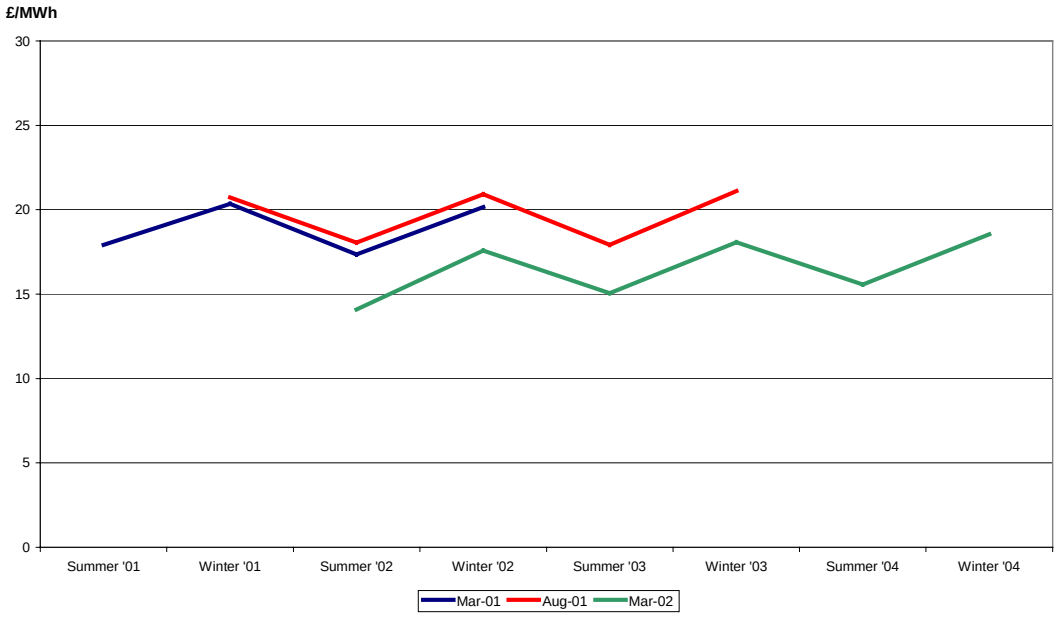


Source: Heren (European Spot Gas Markets), nominal prices.

4.22 A number of power plants are commissioning or under development, with approximately 1500 MW of new plant anticipated to be online by the end of

2002 and a further 3.7 GW of plant planned to be online during 2004 (see Appendix 3 for further details). If there are no further withdrawals or additions to capacity, this would leave the plant margin at around 27%[25] in 2003/4. Forward prices up to winter 2004 suggest that the market does not feel that there will be a tightening of the supply/demand balance over this period.

Figure 4.18 - Electricity baseload forward curve



Source: Heren European Daily Electricity Markets, nominal prices.

Summary

4.23 Before NETA was introduced the expectation was that the more competitive trading arrangements, interacting with more competitive generation and supply markets, and against a background of falling generation input costs, could result in substantial reductions in wholesale prices, relative to Pool price levels of around £25/MWh. These price reductions have occurred.

4.24 Over the period from the time that the reforms to the trading arrangements were proposed in 1998 until 2001/02, spot baseload prices have fallen by around 40% in real terms.

[25] This plant margin is calculated from NGC's 'Consents' view of plant supply and NGC's 'NGC Base' forecast of demand, NGC Seven Year Statement 2002 Table 5.4 - Plant Margins without Closure Assumptions (%).

4.25 Over the first year of NETA annual baseload prices fell by 20% and peak prices by 27%. Spot prices also showed similar declines, with prices on the UKPX down by 32% over the same period.

5. Balancing arrangements

Introduction

5.1 The new trading arrangements are intended to operate as far as possible like other commodity markets. But it was recognised that special provisions needed to be maintained to ensure the electricity system remained physically balanced between supply and demand at all times, since this is necessary to ensure quality and security of supplies. The task of operating the system to ensure overall electricity supply and demand is kept in balance ('electricity balancing') and also to ensure quality of supply (such as frequency and voltage control) and overcome constraints on the transmission system ('system balancing'), falls to NGC as SO in England & Wales.

5.2 The Balancing Mechanism provides a basis whereby NGC, as SO, can accept offers of electricity (generation increases and demand reductions) and bids for electricity (generation reductions and demand increases) at very short notice. NGC may also contract in advance (sometimes up to a year or more ahead) for some balancing services such as reserve, frequency control and voltage support. Such contracts, together with its actions in the Balancing Mechanism, enables it to keep the system in physical balance.

5.3 The purpose of this chapter is to provide an overview of the balancing arrangements under the Pool and NETA, and analyse the experience to date under NETA.

Background

5.4 Under the Pool, NGC used a combination of contracts for balancing services (contracted balancing services) and within-day adjustments to the day-ahead schedule to ensure that generation and demand were balanced and the security and reliability of supplies were maintained. Whilst the timescales and other technical specifications of the various balancing services for which NGC contracts vary, in essence they all involve either offers of additional electricity (or demand reductions) or bids to remove electricity from the system (or increase demand).

5.5 It was often argued that these within-day balancing arrangements did not adequately reward flexible plant, since NGC made adjustments to the day-ahead schedule on the basis of the day-ahead offers submitted by generators, who could not adjust them in order to take account of changing market circumstances. In addition, there were no financial penalties for generators who failed to adjust their output in accordance with NGC's instructions. The participation of the demand-side in the balancing arrangements was generally limited, although NGC did sign balancing contracts with some large customers. Overall, NGC's electricity balancing role was significant under the Pool, since it forecast expected demand and purchased for balancing services to cover a 24-hour period.

5.6 Under NETA, as under the Pool, NGC is able either to contract ahead or purchase its balancing requirements close to real time through the Balancing Mechanism, which opens at Gate Closure. Subject to commercial incentives to encourage efficient balancing which are set by Ofgem and incorporated in NGC's licence (discussed in Chapter 7) and NGC's licence obligation to operate the transmission system in an economic, efficient and co-ordinated manner, NGC is free to choose how to balance the system.

5.7 To help assess the likely physical balance of the system, NGC asks participants to notify their expected metered generation output and expected metered demand for each half hour trading period. The final submission of physical notifications (FPNs) takes place as the Balancing Mechanism opens. These notifications also provide the baseline for Balancing Mechanism bids and offers from generators and the demand-side.

5.8 A key difference between the Pool and NETA is that now NGC's electricity balancing role has been reduced to that of residual energy balancer, with most balancing being undertaken by participants themselves before Gate Closure. This is because the new trading arrangements price electricity closer to real time through the use of on the day markets, rather than at a day ahead auction as under the Pool. Gate Closure was set at Go-Live as close as feasible to 'real time', to enable as much trading as possible to take place in the new forwards, futures and spot markets. It was also anticipated that NGC's residual electricity balancing role would further decline over time as participants learnt with

experience to refine the balancing of their own positions and as Gate Closure moved closer to real time.

5.9 The movement towards real time pricing enhances the value of plant that can respond flexibly to changing circumstances, and thereby help NGC to maintain system balance under the new trading arrangements. Part-loaded thermal units (fired by coal, gas or fuel oil), open cycle gas turbines (fired either by gas oil or gas) and pumped storage units are all capable of adjusting their output rapidly. Acknowledging the value to the system of these different types of plant was expected to help to secure their continued availability and to help to achieve diverse supplies of electricity.

5.10 As noted above, in addition to ensuring that generation and demand balance, the SO also has to ensure that the transmission system remains within its operating limits, to maintain quality of supplies, and that the pattern of generation and demand is consistent with any transmission constraints. This system balancing role was expected to remain substantive.

The Balancing Mechanism

Overview

5.11 Bids and offers can be submitted to the Balancing Mechanism by BSC Parties,[26] although they are not obliged to do so. A bid or offer specifies the price that the BSC Party wishes to be paid (or is willing to pay) to move away from their FPN and the volume by which they are prepared to move. Bids and offers apply to individual half-hour settlement periods so BSC Parties can vary the bids and offers they submit (price and volume) across the course of a day as well as between days. Bids and offers are financially firm on both BSC Parties and NGC, that is to say BSC Parties are exposed to imbalance prices if they fail to deliver an accepted bid or offer and NGC has to pay BSC Parties compensation if it accepts a bid/offer and then decides it does not require it.

5.12 NGC accepts a bid or offer by issuing a Bid-Offer Acceptance (BOA). In each BOA, NGC indicates the profile of output or consumption that it wishes to be followed. The need for NGC to accept bids or offers is driven by factors such as:

[26] This, therefore, includes for example generators, suppliers and customers.

- whether the System is essentially in balance at Gate Closure or not;
- any plant failures that occur after Gate Closure;
- unexpected changes in the general level of demand after Gate Closure (usually driven by unexpected weather conditions); and
- significant changes to the expected profile of demand within a half-hour.

Experience

5.13 NGC has made use of a range of balancing services to assist it in balancing the system, including:

- contracted balancing services such as frequency response, reserve, reactive power and black start.[27] These are typically in option contract format;
- forward energy contracts (ahead of Gate Closure, NGC can buy and sell electricity like any other market participant, subject to relevant licence conditions including that it does so to assist in balancing the system rather than for speculative reasons); and
- offers and bids in the Balancing Mechanism.

5.14 Below, we discuss how NGC has used each of these tools under NETA.

Contracted balancing services

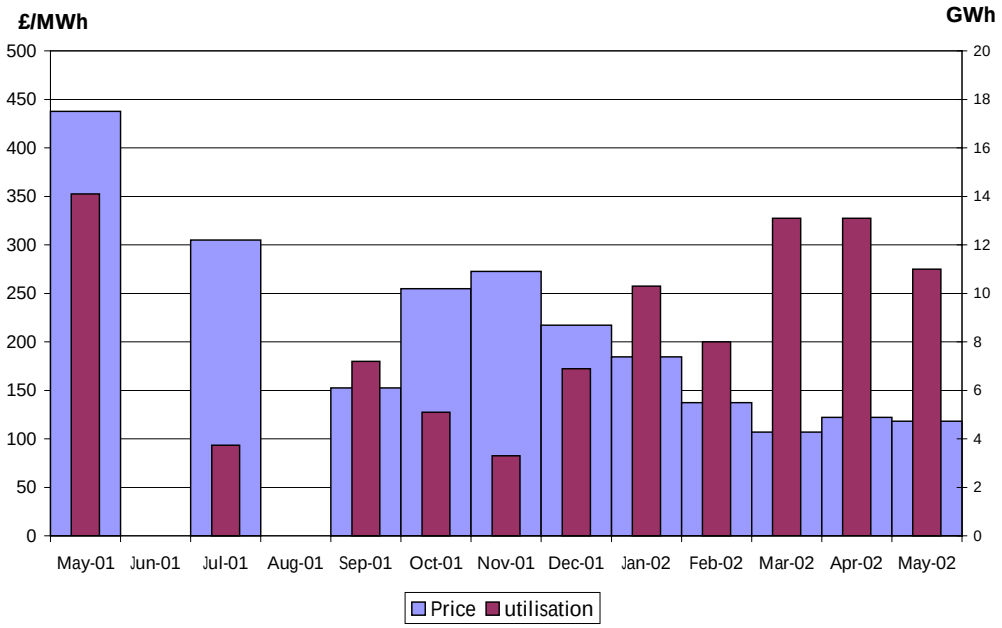
5.15 The types of contracted balancing services procured by the SO and arrangements for their procurement have generally not changed substantially with the introduction of NETA. However, NGC's use of contracted balancing services has generally declined and it is developing some new types of contracts and changed the procurement arrangements for some services.

5.16 The most notable change to procurement arrangements is for Fast Reserve, which provides NGC with additional electricity within 2 minutes at a rate of not less than 250 MW/min for a period of not less than 15 minutes. There are a limited number of participants that have the dynamic parameters to provide Fast Reserve. In the first few months of NETA, NGC sourced Fast Reserve directly via offer acceptances in the Balancing Mechanism, which resulted in limited

[27] These services are described in Appendix 4.

competition and high costs for the service. NGC subsequently initiated a tender process for the provision of Fast Reserve on a firm basis for each calendar month starting for October 2001. Figure 5.1 shows that the tendering process has resulted in increased competition and lower costs. The graph shows, on a monthly basis, the volume of Fast Reserve utilised by NGC and the average price it paid for that utilisation, as discussed in Chapter 10, this is partly due to participation from the demand-side.

Figure 5.1 - Fast reserve – volumes used and average prices



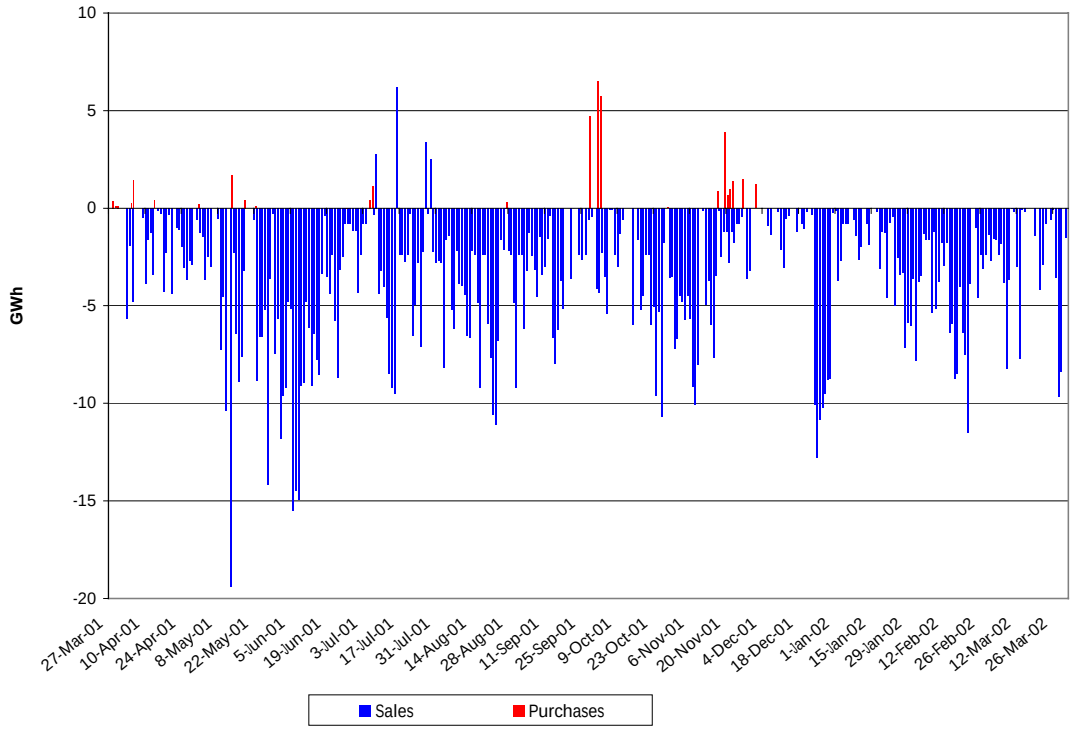
5.17 NGC's use of other contracted balancing services, notably standing reserve and reactive power, has reduced since the introduction of NETA. It contracted for 23% less standing reserve in 2001/2 than in 2000/1 and its use of reactive power was down by 7%.

5.18 NGC is continuing to develop new types of balancing services to help it to balance the system. For example, as discussed in Chapter 10 NGC is introducing radio tele-switching contracts, to enable suppliers to use the demand of their non-half hourly metered customers to provide balancing services.

Forward energy contracts

5.19 During the first year of NETA, a total of 3,293 forward energy contracts were undertaken by NGC through both power exchanges and OTC. Of these trades, 96 per cent were for sales of electricity, as can be seen from Figure 5.2. The reason NGC has been selling electricity is that overall participants had contracted for somewhat more than their metered requirements and thus at Gate Closure generation was expected to exceed demand.

Figure 5.2 – Total daily volumes of NGC's forward actions

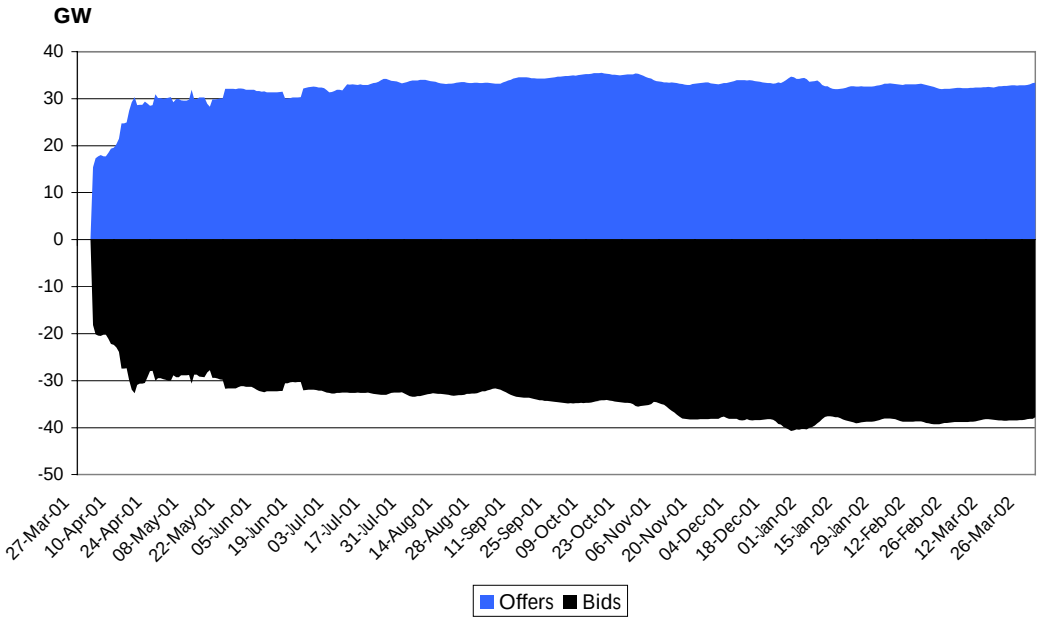


Offers and bids in the Balancing Mechanism

Volumes of bids and offers submitted

5.20 After an initial rapid increase, the volume of bids and offers submitted to the Balancing Mechanism has remained relatively constant during the first year of NETA, as shown in Figure 5.3.

Figure 5.3 – 7-day moving average of total bids and offers submitted per settlement period



5.21 These volumes typically include a number of "sleeper" offers and bids (highly priced offers and very negative bids which are designed only to be accepted in exceptional circumstances) and overstate the volume of offers and bids that NGC is likely to consider using under normal circumstances. Figures 5.4 and 5.5 show the bids and offers submitted for an individual settlement period (Period 37 on 17 July 2002), stacked in ascending price order. It can clearly be seen that significant volumes of 'sleeper' bids and offers have been submitted.

Figure 5.4 – Illustrative offer stack showing sleeper offers

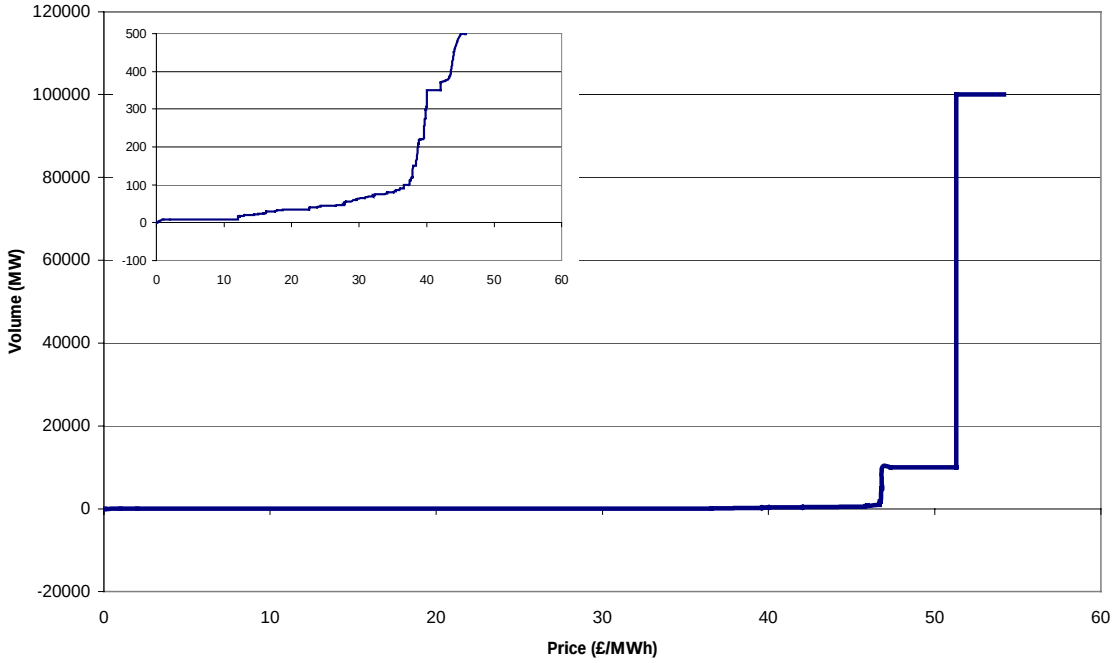
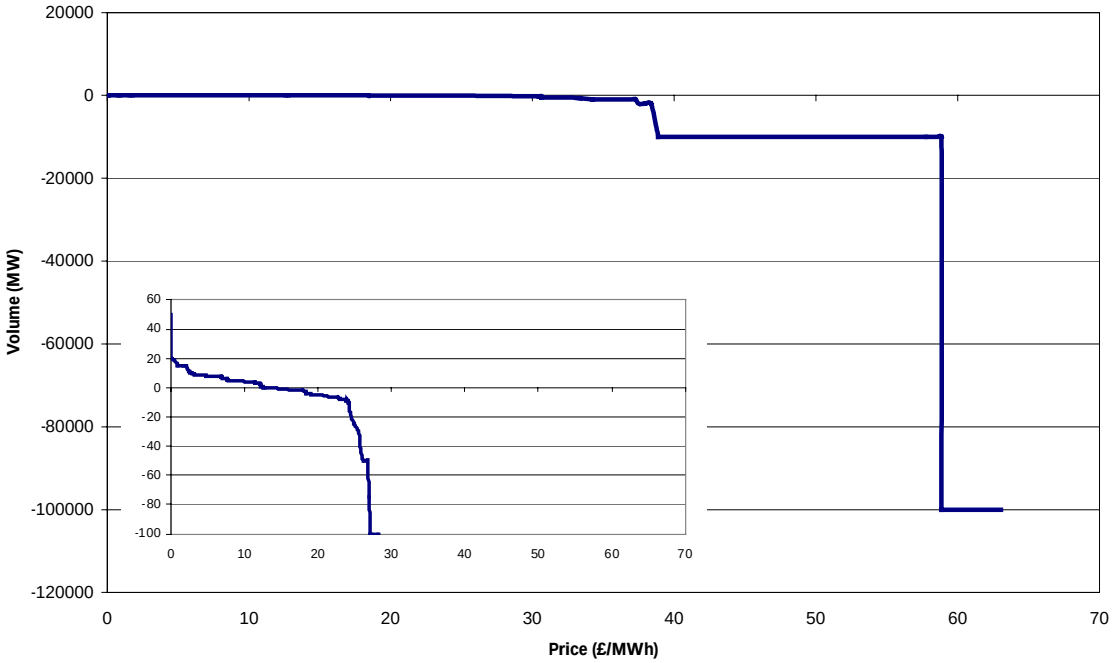


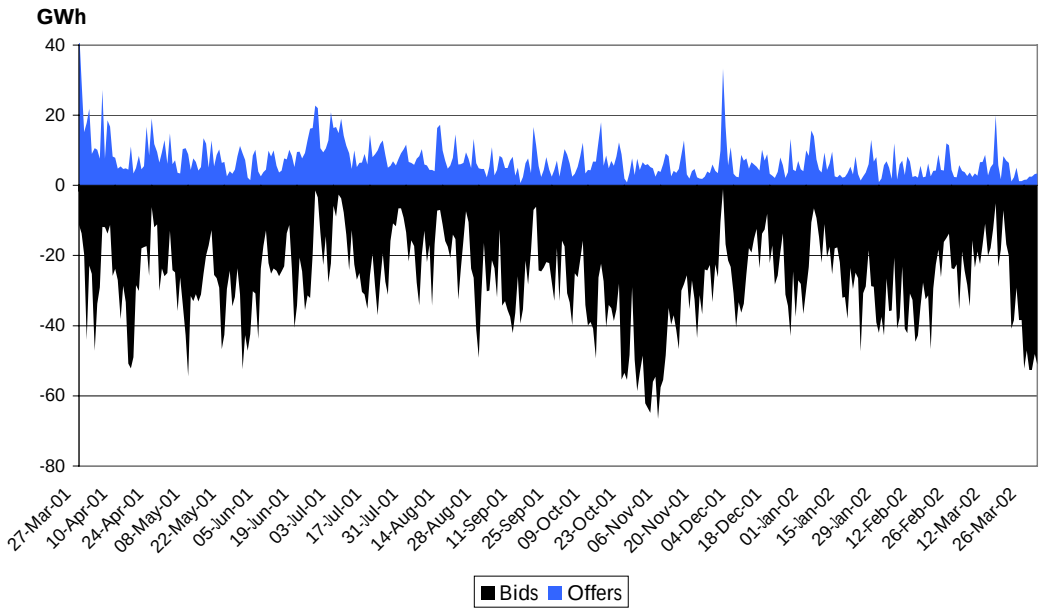
Figure 5.5 – Illustrative bid stack showing sleeper bids



Volumes of bids and offers accepted

5.22 Figure 5.6 shows the daily volume of Bid-Offer acceptances in the year following Go-Live. It indicates that NGC has accepted almost four times (by volume) more bids than offers as a result of the system being predominantly long at Gate Closure i.e. the sum of generation final physical notifications exceeding expected demand.

Figure 5.6 – Total daily volumes of Bid-Offer Acceptances

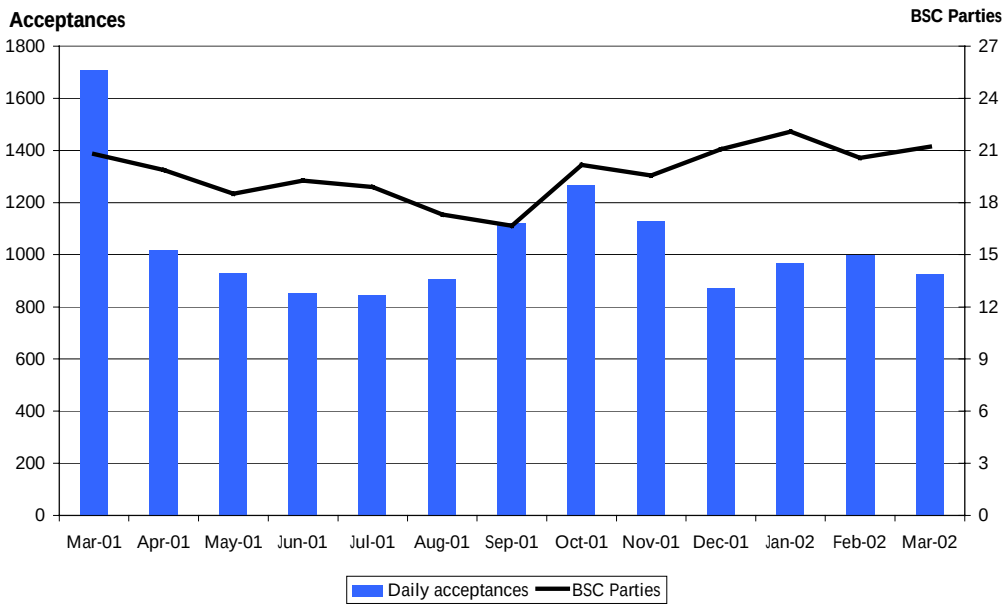


5.23 It has generally been more costly for NGC to buy extra electricity to meet unexpected demand close to real time, than for it to sell electricity to prevent over generation. Since imbalance prices are based on NGC's costs, this means that the imbalance prices faced by participants have been higher for system buy prices than for system sell prices. It has been suggested therefore that the reason that the system has generally been slightly long at Gate Closure is that suppliers have chosen to over-contract and generators to over-produce to avoid the risk of exposure to the System Buy Price, in the event that their demand is higher than expected or their plant fails. This strategy enables them to pay the (generally lower) system sell price for imbalances.

5.24 Figure 5.7 shows the average number of BOAs in the Balancing Mechanism between Go-Live and the end of March 2002. As expected, the number of BOAs was high in the first few days of NETA as participants and NGC became

accustomed to the new arrangements. Since then, the number of BOAs has generally stabilised at around 800-1000 per day. The number did, however, increase in the autumn 'shoulder' months when demand is particularly difficult to predict and plants returning from maintenance can experience delays or problems in returning to service. Whilst over time acceptances have reduced and stabilised, the number of companies participating in the Balancing Mechanism has increased. On average, in excess of 20 different BSC Parties per day have been issued with BOA instructions over the first year of NETA.

Figure 5.7 – Daily number of BOAs and average number of BSC Parties with BOAs per settlement period[28]



Accepted bid-offer prices

5.25 BSC Parties whose Balancing Mechanism bids or offers are accepted are remunerated on a 'pay-as-bid' basis. Over the year since Go-Live, the average of all accepted bid prices (to remove electricity from the system) has been £7.6/MWh whilst the average accepted offer prices (to increase electricity generation or reduce demand) has been £51.1/MWh.

[28] Data for March 2001 covers the period from 27 March 2001 up to and including 31 March 2001.

5.26 Table 5.1 provides further information on accepted bid and offer prices, presenting the data by fuel type and technology and ranked by decreasing offer price.

Table 5.1 – Average accepted bid and offer prices

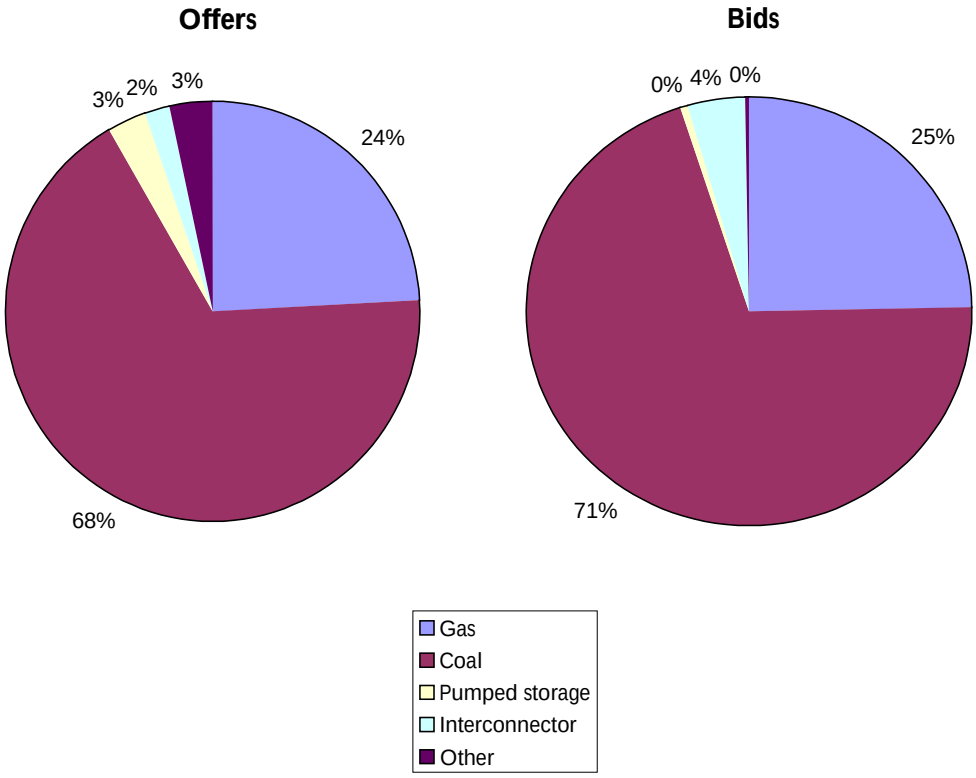
Fuel Type	Average offer price (£/MWh)	Average bid price (£/MWh)
Pumped storage plant	369.05	-66.63
Demand-side bidders	253.81	0.00
Oil	239.46	16.56
Auxiliary OCGT at coal stations	162.57	51.18
OCGT	125.62	127.05
CHP	91.76	59.61
Interconnector	66.48	9.56
Coal	27.74	7.75
CCGT	24.68	3.45
Nuclear – PWR	8.00	0.00
Nuclear – AGR	5.74	8.95

5.27 Table 5.1 shows that there has been a wide range of bid and offer prices accepted. This is, at least in part, a reflection of the different technical characteristics of the various plant types i.e. how flexible they are, and their varying marginal costs. The most expensive accepted offers have come from the most flexible plant (pumped storage) whilst the lowest accepted offers have been from the least flexible plant (nuclear).

5.28 Open cycle gas turbines have been willing to pay the most to have their bids accepted (£127/MWh), reflecting the high fuel costs they avoid by not generating. At the other extreme, the pumped storage plant have had bids accepted for which NGC has had to pay (as indicated by the negative prices).

5.29 Figure 5.8 shows the proportion (by volume) of accepted bids and offers that have come from different types of plant.

Figure 5.8 – Shares (by volume) of accepted bids and offers by fuel type



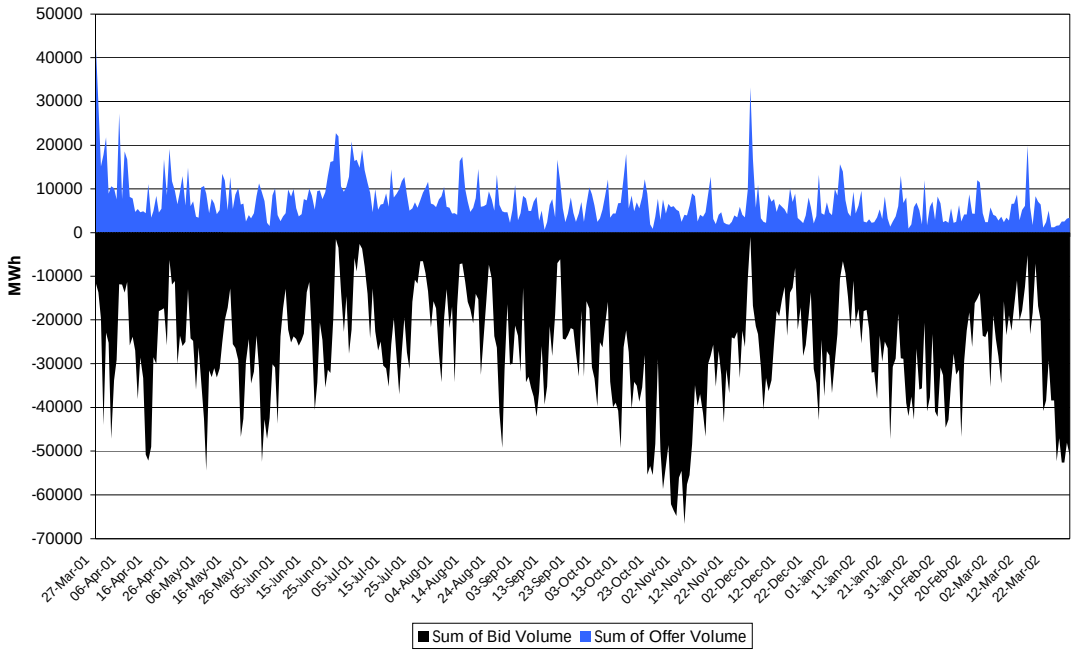
5.30 It is evident that coal plants have had by far the most bids and offers accepted. However, in relation to their capacity market share, the pumped storage stations have also had a high level of bids and offers accepted. This confirms the expectation when NETA was being developed that the new trading arrangements would better reveal the value of flexibility. Also around 35% of both accepted bids and offers have been provided by gas-fired plant. This is in contrast to the situation under the Pool, where these type of plant typically operated at full output for most of the year. Over the course of the first year of NETA SBP prices have risen as competition has increased for a lower volume of offer acceptances – in March 2002 NGC accepted 141 GW of offers in comparison to 505 in April 2001.

Overall balancing costs

5.31 Figure 5.9 summarises the volume of NGC's accepted bids and offers over the first year of NETA. In total, the gross volume of NGC's actions has been around 2% of demand. Overall, with more generation notified at Gate Closure compared with expected demand, NGC's net actions have been to accept offers

to remove electricity from the system equivalent over the year to around 1% of demand.

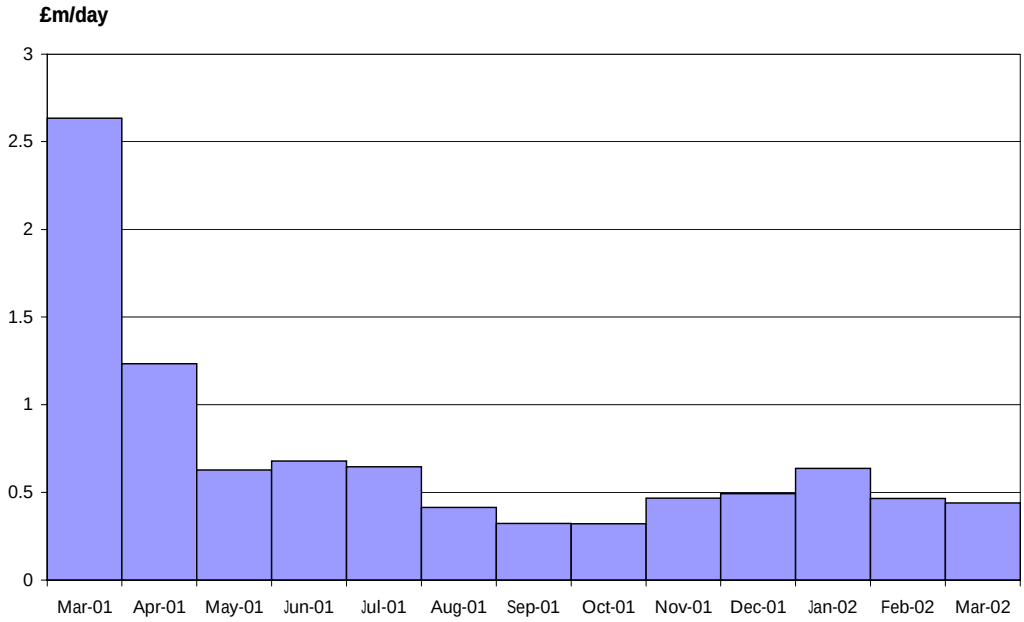
Figure 5.9 – Total daily volume of Balancing Mechanism bids and offers



5.32 The costs that NGC incurred in balancing the system declined rapidly over the course of the first year of NETA, as shown in Figure 5.10. This decline in costs can be explained in part by the 67% reduction[29] in the average price of energy purchased by the SO and the 370%[30] increase in the average price it has been paid for energy sold by the SO. In addition, the financial incentives that NGC received via its SO incentive scheme (see Chapter 6) may have also played a part.

[29] This is comparing monthly averages for April 2001 and March 2002.
[30] This is comparing monthly averages for April 2001 and March 2002.

Figure 5.10 – NGC's balancing costs over the first year of NETA operation



Source: NGC.

Summary

5.33 Overall, the balancing arrangements have worked well over the course of the first year of NETA. The quality and security of supply has been maintained.

5.34 There has been widespread market participation and increasing competition in the provision of balancing services, both via contracted balancing services and in the Balancing Mechanism, with significant demand participation emerging. Flexible plant have been better rewarded than under the Pool as evidenced by its share of accepted bids and offers.

5.35 NGC has developed its approach to balancing the system by changing the procurement mechanisms for some services as well as developing new ones. The combination of more participation and NGC actions has enabled NGC to reduce the overall costs of balancing significantly during the course of the year.

6. Imbalance Settlement

Introduction

6.1 This chapter provides details of the experience of imbalance settlement under NETA, including how participants have managed their exposure to imbalance prices. It additionally highlights the split between electricity and system balancing as needing further development, to help ensure that imbalance prices reflect only electricity balancing costs.

Background

6.2 The settlement process under the Pooling and Settlement Agreement provided for 'gross' settlement of payments to generators from suppliers, since virtually all electricity had to be traded through the Pool. Thus the settlement process covered payments/charges associated with the day-ahead auction of electricity, as well as payments/charges for the additional within-day balancing which NGC as SO was required to carry out.

6.3 By contrast, under NETA most settlement for wholesale electricity generation purchases are dealt with in the financial process associated with the forward, futures and spot markets. Only the close to real time balancing that NGC now carries out under NETA is settled through the Balancing and Settlement Code process.

6.4 Imbalance cash-out prices are designed to target the costs of balancing the system onto the parties on whose behalf the SO has taken balancing actions. Electricity covered by bilateral contracts, by definition, has been or will be paid for and so the settlement of electricity imbalances resolves into measuring and charging for differences between participants' metered volumes and their notified contract positions at Gate Closure. This ensures that any electricity not covered by contracts is paid for or charged an appropriate price. To ensure appropriate charging for metered consumption and payment to generators for metered output, imbalance settlement is the only aspect of NETA that is compulsory for all BSC parties. Imbalance cash-out prices are, by definition, cost reflective in that they reflect the prices paid by NGC in resolving imbalances over short timescales. Buyers of imbalance electricity through the

settlement process pay a price calculated as the volume weighted average of the offers accepted in the Balancing Mechanism (i.e. the average price at which electricity is bought for the system). This imbalance cash-out price is referred to as the System Buy Price (SBP). Sellers of imbalance electricity via the settlement process are paid the volume weighted average of accepted Balancing Mechanism bids (i.e. the average price at which the system sells electricity). This imbalance cash-out price is referred to as System Sell Price (SSP).

6.5 Parties contract positions are notified to the central systems on an ex-ante basis, before the half-hour settlement period. For the purpose of imbalance settlement the contract notifications of parties when the Balancing Mechanism for that period opens (i.e. at Gate Closure) is compared to participants' metered output. If a participant is out of balance i.e. their contracted volumes and metered output do not match then they are exposed to imbalance prices.

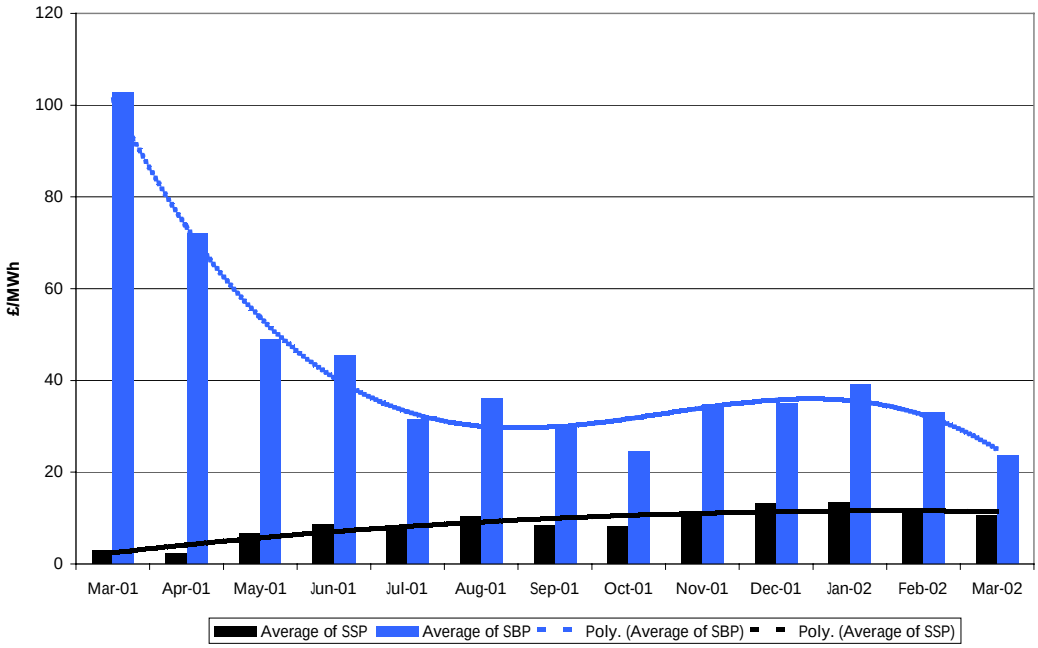
6.6 Ofgem/DTI agreed that it would be desirable to remove transmission constraints and other transmission system costs from electricity imbalance prices. Ofgem/DTI worked with NGC to ensure that there was a tagging system of transmission related trades from Go-Live to achieve this. However, it was recognised that further work would be needed in this area, including reforming the transmission access and losses regime.

Experience

Imbalance prices

6.7 As expected, imbalance prices during the initial period of NETA were very volatile and the differential between SBP and SSP was high, as NGC and participants adjusted to the new arrangements. Over the year, the spread of imbalance prices has decreased. Figure 6.1 shows the average SSP and SBP since Go-Live.

Figure 6.1 – Average SSP and SBP since Go-Live[31]

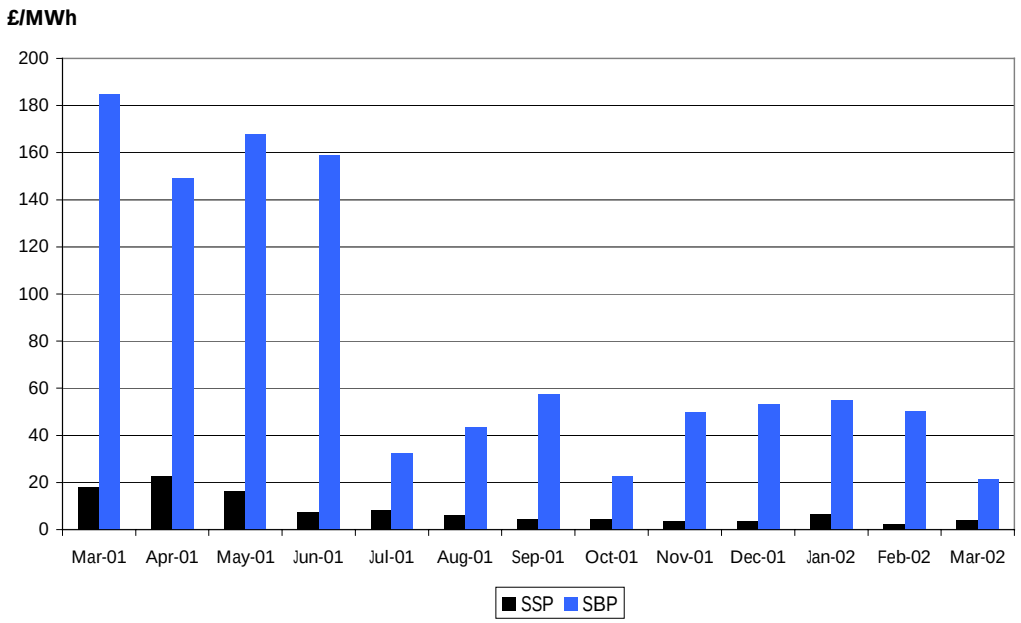


6.8 During the first full month of NETA (April 2001), the average spread in imbalance prices was £70/MWh, the average spread from July 2001 to March 2002 has fallen to £22/MWh. The spread has declined as result of both SSP rising and SBP falling, of these effects the fall in SBP has been more significant in absolute terms. However, in percentage terms SSP has changed more markedly: since, between April 2001 and March 2002, it has increased by over 370% whilst SBP has fallen by 67%.

6.9 In addition to the spread in imbalance prices having declined, the volatility of imbalance prices has also fallen, as shown in Figure 6.2.

[31] In all the graphs in this chapter, data for March 2001 only covers the period from Go-Live (27 March) to 31 March.

Figure 6.2 – Volatility of SSP and SBP since Go-Live



6.10 During the period March to June 2001 the volatility of SBP was nearly three times higher than any volatilities that have subsequently been seen. There is some evidence of a seasonal pattern, as might be expected, with the volatilities of both SSP and SBP increasing in January 2002.

6.11 Table 6.1 shows the distribution of imbalance prices over different times of day.

Table 6.1 – Price distribution by time of day[32]

Segment	Average of SSP (£/MWh)	StdDev of SSP (£/MWh)	Average of SBP (£/MWh)	StdDev of SBP (£/MWh)
Off-Peak	4.92	11.64	28.05	99.24
Peak	12.49	5.30	42.61	94.08
Shoulder	10.21	10.28	45.30	78.85

6.12 The figures show that the average SBP during shoulder periods is higher than during peak periods, reflecting that NGC may have to call upon expensive offers at short notice to balance demand and supply when demand is changing rapidly. Off-peak imbalance prices have been lower than peak or shoulder imbalance

[32] Off-Peak is classed as Settlement Periods 47 to 14 (i.e. from 23:01 to 07:00), Peak is classed as Settlement Periods 23 to 38 (i.e. from 11:01 to 19:00) and Shoulder is classed as Settlement Periods 15 to 22 (i.e. 07:01 to 11:00) and 39 to 46 (i.e. 19:01 to 23:00).

prices, but they have also been the most volatile set of prices with some negative SSPs occurring, particularly in the early stages of NETA.

Approved Modifications to imbalance price calculations

6.13 The calculation of imbalance prices has been amended by the approval of several modifications over the course of the year. For the most part, the modifications have sought to refine the definition of electricity balancing actions (actions to match overall demand and supply), which are used to feed into imbalance prices. As discussed above, it is not Ofgem's intention that the costs of actions required for system balancing i.e. actions for overcoming transmission constraints and maintaining the quality and security of supplies should be included in imbalance prices.

6.14 NGC has, on occasion, needed to take very short-term system balancing actions with little warning to address quality of supply on its transmission system, by calling upon highly flexible plant to meet a rapid change in system demand or generation. Until August 2001 actions were counted as electricity balancing costs and were incorporated into the calculation of SBP imbalance prices. They resulted in spikes in SBP when few other offers have been accepted during a Settlement Period.

6.15 On 22 August 2001, Ofgem approved BSC Modification Proposal P18A[33], which included as system balancing actions BOAs that are of short duration (less than 15 minutes). The impact of this modification, which was implemented on 25 September 2001, has been to improve on the separation of system balancing actions from electricity balancing actions. Figures 6.3 and 6.4 below show the impact of P18A on the calculation of SBP and SSP respectively.

[33] BSC Modification Proposal P18A became effective on 25 September 2001.

Figure 6.3 – Average daily SBP with P18A and without P18A[34]

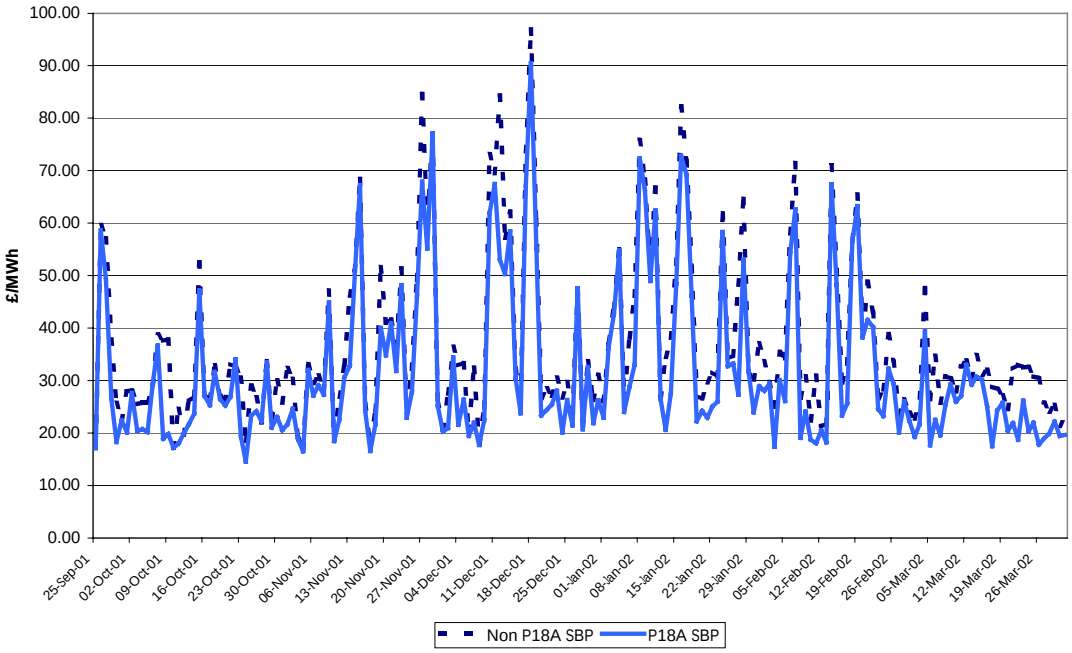
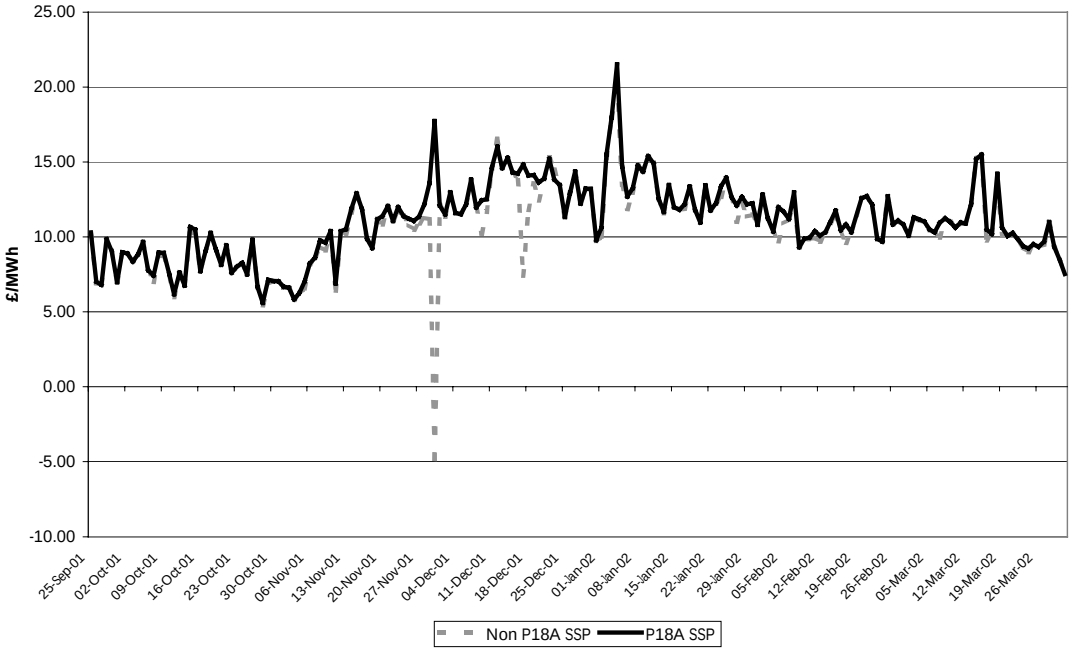


Figure 6.4 – Average daily SSP with P18A and without P18A[35]



6.16 Both graphs show that through the exclusion from electricity imbalance prices of acceptances with a duration of less than 15 minutes, which are accepted for system balancing reasons, electricity imbalance prices have become more

[34] Source: ELEXON.
[35] Source: ELEXON.

reflective of electricity balancing actions. As shown in Table 6.2, since 25 September 2001, this modification has reduced SBP by more than 40% in 9% of settlement periods, with the maximum reduction being 99%.

Table 6.2 – Impact of Modification P18A on SBP between 28 September 2001 and 31 March 2002

Percentage reduction in prices	Percentage of periods in which prices reduced by this amount
20%	9%
40%	9%
60%	4%
80%	2%

Cost reflectivity of imbalance prices

6.17 The DTI asked Ofgem to comment in this review on progress in *"further improving the effectiveness of NETA and ensuring imbalance prices are genuinely cost reflective"*.[36] As noted above, imbalance prices are cost-reflective in the sense that they are based on the prices of the balancing actions that NGC takes. However, concerns have been raised that imbalance prices do not appropriately target the costs of electricity balancing in that they also include some system balancing costs. This criticism has been particularly levelled at the calculation of the imbalance price for participants who are out of balance in the opposite direction to the overall system balance e.g. are short when the system is long because fewer electricity balancing actions are likely to be taken in this direction. As just discussed, a number of modifications have been made to the calculation of imbalance prices that have been designed to address this issue and the reduction in the spread of imbalance prices over the course of the first year of NETA suggest that these have been, to some extent, successful. Although high SBPs can still occur at times when the system overall is long, their frequency has been reduced.

6.18 Ofgem considers that there are still issues that need to be addressed. We note that two further proposals (P74 "Single cost-reflective cash-out price" and P78 "Revised definitions of SBP and SSP") for changes to the calculation of imbalance prices are currently going through the modification process. These

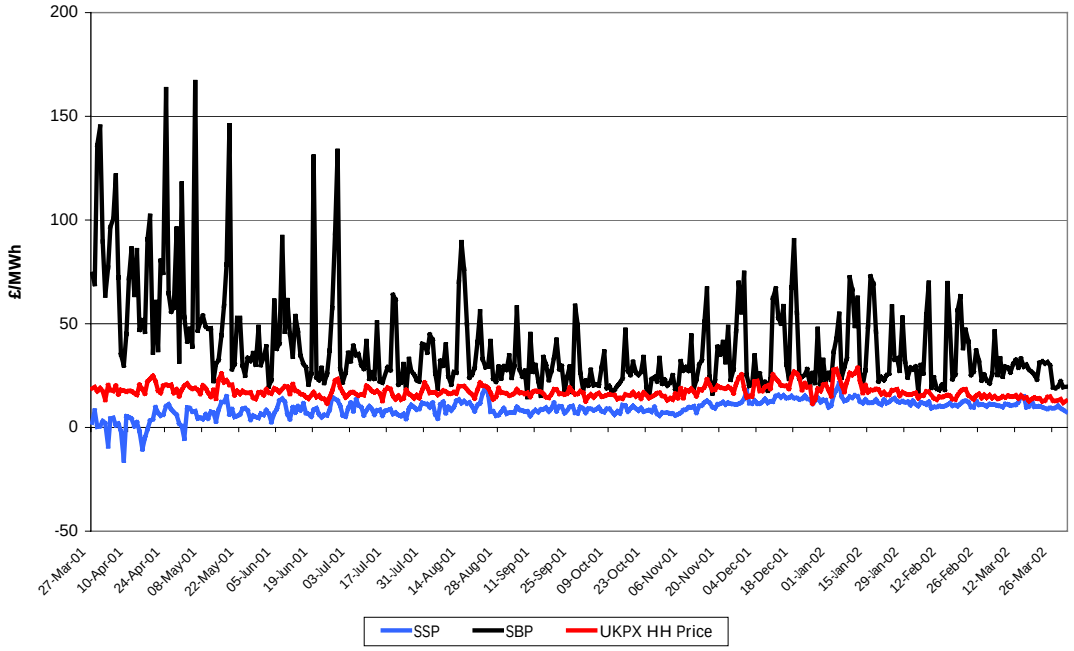
modifications represent different approaches to the calculation of imbalance prices for participants who are out of balance in the opposite direction to the overall system balance. Ofgem will carefully consider these modifications in the light of the relevant criteria and its statutory duties when they come for approval. Since these proposals are still "live", Ofgem considers that it would be inappropriate to comment further on them or any other possible changes the calculation of imbalance prices.

Market price and electricity imbalance prices

6.19 During the development of NETA, it was anticipated that the close to real time system buy prices would be higher than forward, futures and spot market prices as a result of NGC having to take actions over relatively short timescales. It was also expected that SSP would be lower than the prices struck further ahead of real time since the value of spill (electricity provided in excess of a contracted volumes) is likely to be less than that of electricity provided under contract. Figure 6.5 shows that the difference between close to real times imbalance prices and market prices struck earlier is particularly evident in relation to the difference between market prices and SBP.

[36] Government's response to the consultation on NETA and smaller generators in November 2001, April 2002.

Figure 6.5 – Average daily imbalance prices in comparison to average daily day-ahead and within-day prices

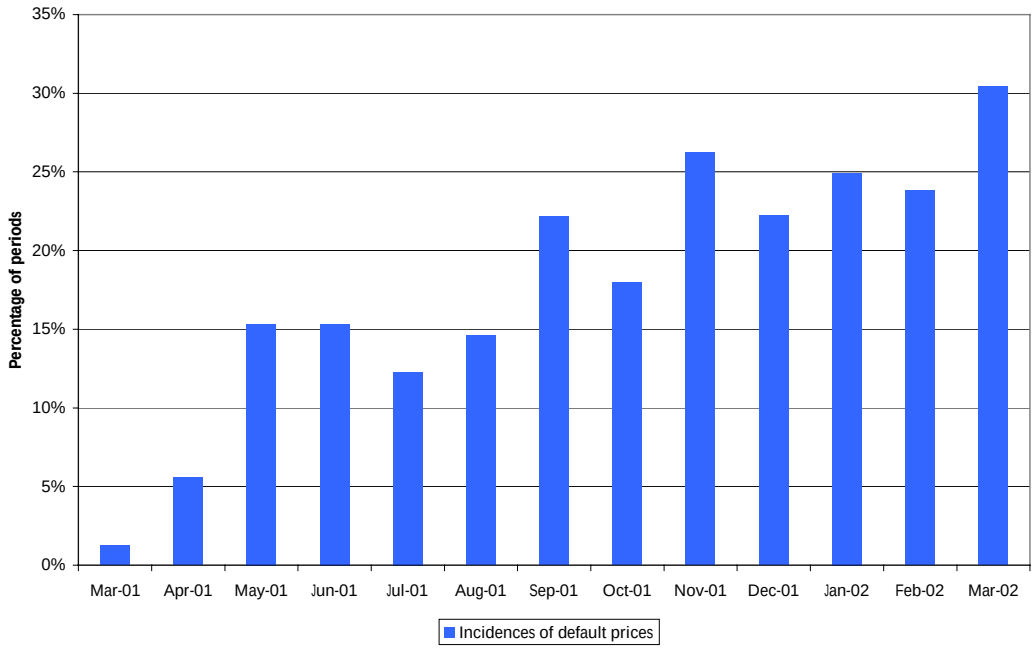


6.20 The graph shows that, as expected, SBP has been predominantly above the price that which could have been obtained for electricity on the UKPX, and that SSP has been lower.

Default pricing

6.21 There may be occasions when there are no relevant accepted bids and/or offers or relevant contracts from which to calculate an imbalance price. In these circumstances default prices apply. The default SBP price is based on the lowest-priced offer not accepted and the default SSP on the highest-priced bid not accepted. When there are no unaccepted offers, the SBP defaults to the SSP, and when there are no unaccepted bids the SSP defaults to the SBP. Figure 6.6 shows the percentage of settlement periods in which default prices have been invoked.

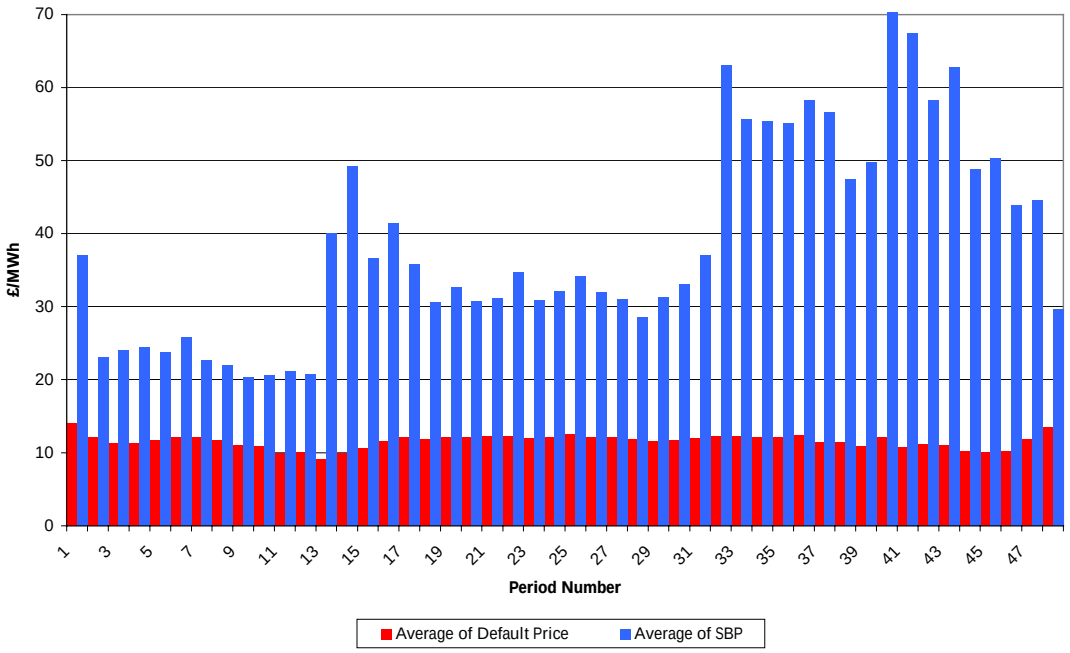
Figure 6.6 – The percentage of settlement periods per month in which default prices have applied



6.22 The chart shows that default prices have, on average, applied in around 18% of periods. Default SBPs have been very much more prevalent than default SSPs (only 72 default SSPs have occurred during the first year of NETA) as might be expected given that the system has typically been long at Gate Closure so that NGC has been accepting more bids than offers. The rise in the incidence of default prices reflects the impact of the various BSC modifications related to imbalance prices (discussed above), which have typically resulted in more balancing actions being treated as system balancing actions and hence excluded from the imbalance price calculations.

6.23 Figure 6.7 below, compares the average non-default SBP with the average default SBP for each Settlement Period across the day.

Figure 6.7 – The difference between average SBP and average default SBP between Settlement Periods



6.24 The chart shows that default SBP values are, on average, significantly lower than non-default SBPs. Ofgem has noted the concerns of a number of industry participants with respect to the current calculation of electricity imbalance prices associated with the default price setting rules, and welcomes the attempts of industry participants to consider whether it is appropriate for the default rules to be modified. Details of these Modification Proposals can be found in Appendix 5. Ofgem will consider the findings of the relevant Modification Reports against the Applicable BSC objectives when the modifications are presented to Ofgem for approval or rejection later this year.

Participants' imbalance positions

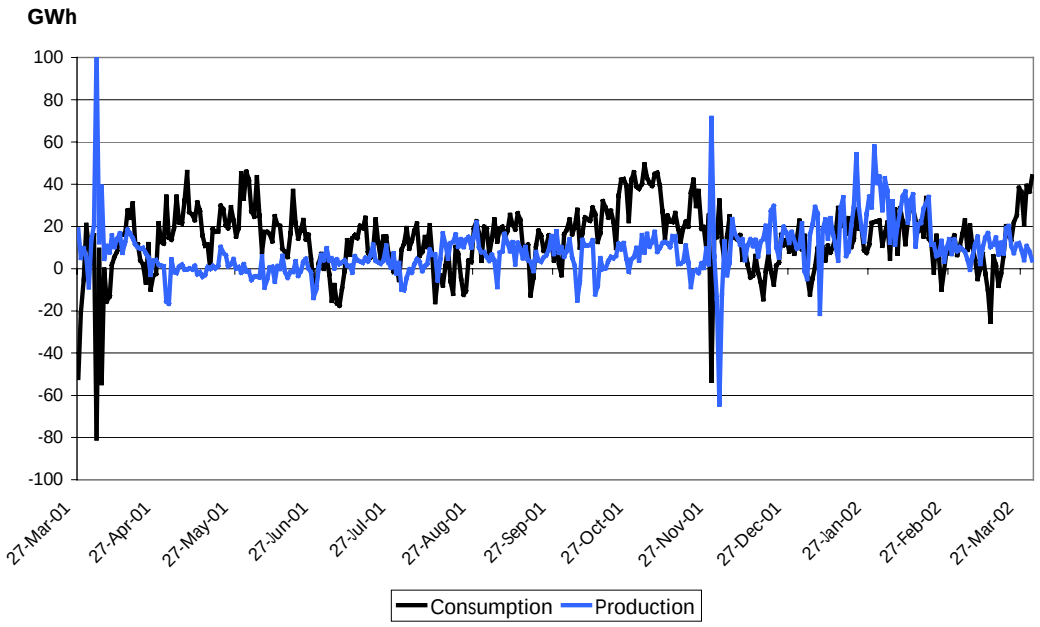
Managing the risk of imbalance exposure

6.25 As has been discussed previously, it has generally been much more expensive for NGC to call on additional flexible generation or demand reduction, that it has been for NGC to ask for bids from generators to remove generation from the system. During the first year of NETA, market participants have been keen to avoid imbalance exposure to the SBP. Consequently, suppliers have typically chosen to be over-contracted and generators have often chosen to part-load

some of their other plant so that they can increase their output to cover any unforeseen outages in their plant that might leave them short of energy.

6.26 For most of the year, generators' imbalances (production imbalances) have been lower than suppliers' imbalances (consumption imbalances). Figure 6.8 shows the total daily imbalance volumes by production and consumption. In total, imbalance volumes over the first year have averaged around 2.7% of demand.

Figure 6.8 – Total daily imbalance volumes



Costs of imbalance exposure

6.27 Because of their balancing strategies (see above), the majority of market participants have not been exposed to SBP over the first year of NETA. Instead the average cost to participants of imbalance exposure has been the difference between the price of wholesale electricity before Gate Closure and the system sell price. The average day-ahead baseload price assessment[37] has been £17.78/MWh over the first year of NETA, while the average SSP has been £9.20/MWh. This means that, on average, participants' imbalance costs have effectively been £8.58/MWh (17.78-9.2), assuming that potential imbalance costs have not been included in forward prices. Based on the 2.7% imbalance volume discussed above, it can be estimated that this additional cost would be

[37] Platt's European Power Daily.

equivalent to a participant paying approximately an additional 0.23p/kWh for each unit of output. Chapter 4 shows that on average wholesale prices have fallen by 20% over the first year of NETA operation, from £19.99/MWh in April 2001 to £13.62/MWh in March 2002. Taking into effect the rise in SSP over the same period, suggests that, on the same basis as the previous calculation, average imbalance exposures have reduced by 84% from 0.48p/kWh to 0.08p/kWh.

Self despatch

6.28 One of the features of NETA is that generators now self-despatch, unlike the Pool where all large generators were centrally despatched by NGC. Based on the contracts they have signed, generators decide at what levels to run their plant and face the risk of exposure to imbalance prices if they fail to meet their contractual commitments. This risk of exposure to electricity imbalance prices has incentivised generators to improve their plant availability. In the first year of NETA availabilities increased on average by 7.6% in comparison to the last year of the Pool.[38]

Meeting reserve requirements

6.29 Under the Pool, in order to ensure short term security of supply NGC purchased generation reserve. NGC's reserve requirements were met in part by NGC requiring some plant to part load[39] at the day-ahead stage, as well as within-day NGC also contracted ahead for standing reserve.

6.30 Under NETA, with closer to real time balancing, some reserve previously held by NGC is held directly by participants. The effect of this is that NGC needs to purchase less reserve. The monthly average level of 'free' reserve held by participants over the first year of NETA, together with the average level of the SBP is shown in Table 6.2 below.

Table 6.2 – Monthly average level of free reserve[40] and monthly average SBP

[38] Pool data based on Genset Metered Availability and NETA data is based on sum of Maximum Export Limit.
[39] Part loading is running a generating unit at less than its full output.
[40] The volume of free reserve on the system, as defined by ELEXON, is calculated as MIN{Maximum Export Limit, volume of offers submitted)} – Final Physical Notification. Plant with a zero Final Physical Notification are excluded from this calculation.

Month	Free Reserve (GW)	SBP (£/MWh)
April 2001	4.7	72.05
May 2001	4.4	48.97
June 2001	4.1	45.50
July 2001	4.2	31.57
August 2001	3.4	36.05
September 2001	3.8	29.68
October 2001	4.4	24.50
November 2001	4.6	34.81
December 2001	4.8	34.87
January 2002	4.8	39.14
February 2002	4.0	33.08
March 2002	3.6	23.64

Source:Elexon.

6.31 The data suggests that the level of free reserve held on the system is correlated with participants' expectations of the level of SBP and indicates that generators may be part-loading plant to manage their imbalance exposure, or in order to be able to benefit from providing balancing services through the acceptance of offers in the Balancing Mechanism.

6.32 In choosing to part-load their plant, generators balance the opportunity costs of not operating at full output against the opportunity of selling into the Balancing Mechanism and against the costs of having to buy electricity in the very short-term markets to cover plant failures or forecasting errors.

6.33 The closest equivalent under the Pool to this free reserve is the scheduled reserve that NGC used to hold. This varied by time of day and season but was typically between 1GW and 2GW so that the level of free reserve has increased by between 2GW and 4GW.

6.34 The implementation on 2 July 2002 of BSC Modification Proposal P12: "Reduction of Gate Closure from 3.5 Hours to 1 Hour" allows all market participants to trade out any potential imbalances that may arise from plant failures much closer to real time. It should also have the effect of reducing the level of part-loaded plant on the system at Gate Closure, since the probability of

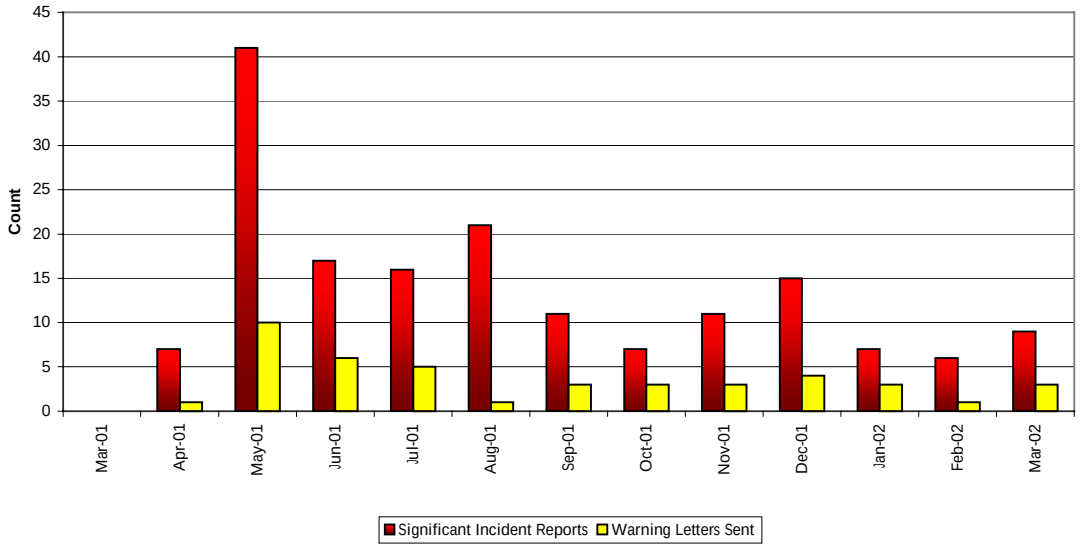
a plant failure (or forecasting error) declines the closer to real time that Gate Closure occurs.

FPN following

Final Physical Notification performance

6.35 An important aspect of the balancing arrangements is that licensees are required under the Grid Code to follow their FPNs. A failure to follow the Grid Code may place a licensee in breach of its licence. During the first year of NETA, NGC has investigated 284 instances where generators have failed to follow their FPNs, requested 168 Significant Incident Reports (SIRs)[41] from generators and sent a total of 43 letters to generators reminding them of their Grid Code obligations. Figure 6.9 shows the number of SIRs requested and warning letters sent out by NGC over the first year of NETA.

Figure 6.9 – Number of SIRs requested and warning letters sent by NGC[42]



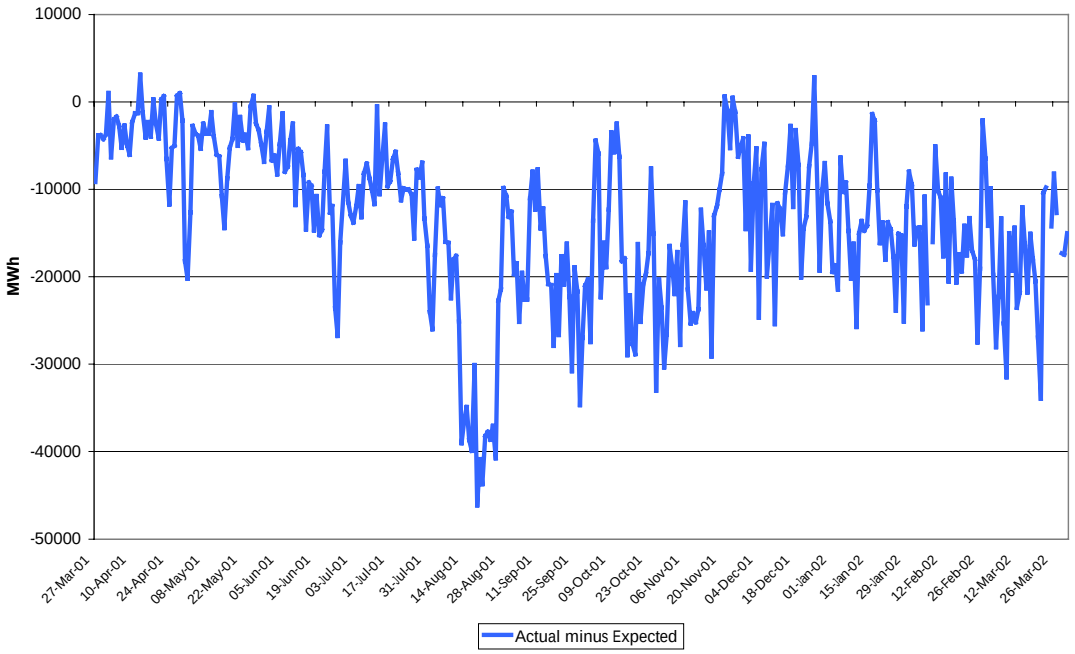
6.36 The chart shows that that the number of SIRs requested per month has fallen during the first year of NETA from a high of 41 in May 2001 down to between five and ten over the last three months of the year. The reduction in NGC's requests for SIRs indicates that the performance of market participants in this

[41] Significant Incident Reports are reports on incidents that NGC or Users consider has had or may have had a significant effect on the System, and NGC requires the user to report that event in writing. Where SIRs are upheld, warning letters are issued and legal action can be taken.
[42] Source: NGC.

area has improved as NETA has progressed. The number of warning letters issued has been below five per month since August 2001.

6.37 Figure 6.10 shows the daily total deviation away from FPNs. In the case of generation, the trend over the first year of NETA was for generators to under-generate relative to their FPNs, corresponding to negative values on the chart. Over the course of the year, the total deviation between FPNs and metered volumes has been around 6TWh or 1.5% of total generation.

Figure 6.10 - Daily total deviation of metered volumes from FPNs (adjusted for BOAs)[43]



Note: FPNs have been adjusted to take account of BOAs.

[43] Source: ELEXON.

Central Systems availability

6.38 Table 6.3 below shows, for the first year of NETA, the number of outages, both planned and unplanned, for the various central IT systems run by the central services providers and the percentage of time that they were available.

Table 6.3 – NETA central systems availability[44]

System	No. of Outages		Availability %
	Planned	Unplanned	
BMRA	12	30	99.20
ECVAA	8	31	99.94
CRA	0	0	100
CDCA	0	0	100
SAA	0	0	100
SVAA	0	0	100

6.39 The functions of the agents listed in Table 6.3 and their systems are as follows:

- BMRA (Balancing Mechanism Reporting Agent): responsible for posting Balancing Mechanism data on the dedicated Balancing Mechanism website;
- ECVAA (Energy Contract Volume Aggregation Agent): responsible for receiving, checking and aggregating contract notifications from market participants;
- CRA (Central Registration Agent): responsible for registering BSC Parties and their accounts, meter points, BM Units etc;
- CDCA (Central Data Collection Agent): responsible for collecting metered volumes for all meter points registered with the CRA i.e. half-hourly meters, and all Grid Supply Points;
- SAA (Settlement Administration Agent): responsible for calculating payments and charges for all Balancing Mechanism actions and imbalance positions; and

[44] Source: ELEXON's Annual BSC Report 2001/2002.

- SVAA (Supplier Volume Aggregation Agent): responsible for calculating metered volumes by energy account and Grid Supply Point Group i.e. data for non-half hourly metered customers and generators.

6.40 The NETA Central Systems have generally performed well. However, the ECVAA and BMRA systems have been relatively less resilient, although the number of unplanned outages of these systems has reduced more recently. (For further details of the performance of NETA Central Systems in the first year of NETA see Appendix 8.)

Summary

6.41 The spread between electricity imbalance prices has decreased since Go-Live. This can be attributed to increasing experience of operation under the new trading arrangements, improvements in demand forecasting and modifications that have refined the separation of electricity balancing actions, which feed into imbalance prices from system balancing actions.

6.42 Participants have employed various strategies to avoid risk of exposure to electricity imbalance prices including, over-contracting, under-generating and part-loading of plant.

7. System Operator incentive scheme

Introduction

7.1 At Go-Live Ofgem put in place a new system operator incentive scheme to operate initially for 1 year, which took into account NGC's revised balancing role under NETA.

Background

7.2 Under the SO incentive scheme, NGC manages the costs of system operation. This can ultimately benefit customers in two ways. Firstly the costs of system operation are likely to by reduced year on year and secondly, some of the risk associated with higher balancing costs are transferred from customers to NGC.

7.3 SO incentive schemes under the Pool delivered substantial benefits to consumers. Between 1994 (when the first incentive scheme was introduced) and 2001, NGC reduced the external costs[45] of balancing the system by more than £400m.

7.4 Prior to the introduction of NETA, Ofgem consulted and implemented a new incentive scheme to run for one year from 1 April 2002.

7.5 Ofgem considered that a single incentive scheme on NGC as SO covering its electricity and system balancing roles should be implemented with the new trading arrangements. The form of the incentive scheme continued to be a sliding scale or profit sharing approach and incentivised costs were targeted against a suitable dynamic reference price.

7.6 Under the incentive scheme, NGC is given a specific incentive target that represents a reasonable estimate of the balancing costs (incentivised balancing costs) throughout the duration of the incentive scheme. If NGC's costs are below the target, it keeps a proportion (the upside sharing factor) of the reduction in costs as an incentive payment. Conversely if the balancing costs are above the target, NGC is charged a proportion (the downside sharing factor)

[45] NGC's SO costs can be divided into internal and external costs. NGC's internal costs include the costs of its control centre, systems and staff. External costs cover the costs of balancing service contracts and electricity purchases and sales for balancing purposes.

of the costs in excess of the target. A cap on payments and a collar on losses limit NGC's overall gains and losses.

7.7 The incentive scheme on external costs for 2001/2 is shown in the table 7.1 below.

Table 7.1 – 2001/2 SO external cost incentive scheme

Dead band	£481m - £511m
Upside sharing factor	40%
Downside sharing factor	12%
Cap	£46m
Collar	-£15.3

Experience

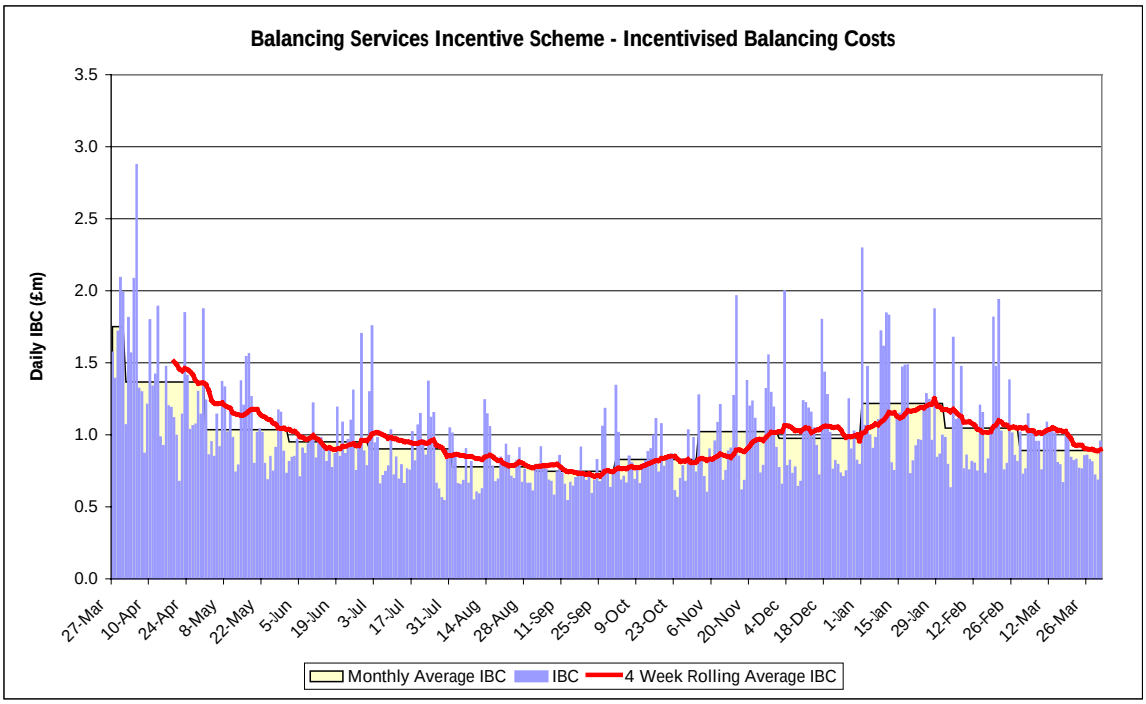
NGC's performance against external SO incentive scheme

Incentivised Balancing Costs

7.8 The Incentivised Balancing Costs (IBC) value for the entire period of the incentive scheme is the crucial determinant in the ultimate incentive payment received by NGC. A breakdown of the main components of IBC is provided in Appendix 7. Figure 7.1 shows daily, monthly and 4-week rolling average IBC[46] values from Go-Live up until 31 March 2002.

[46] The IBC data are based on the most recent settlement/reconciliation run.

Figure 7.1 – Incentivised balancing costs

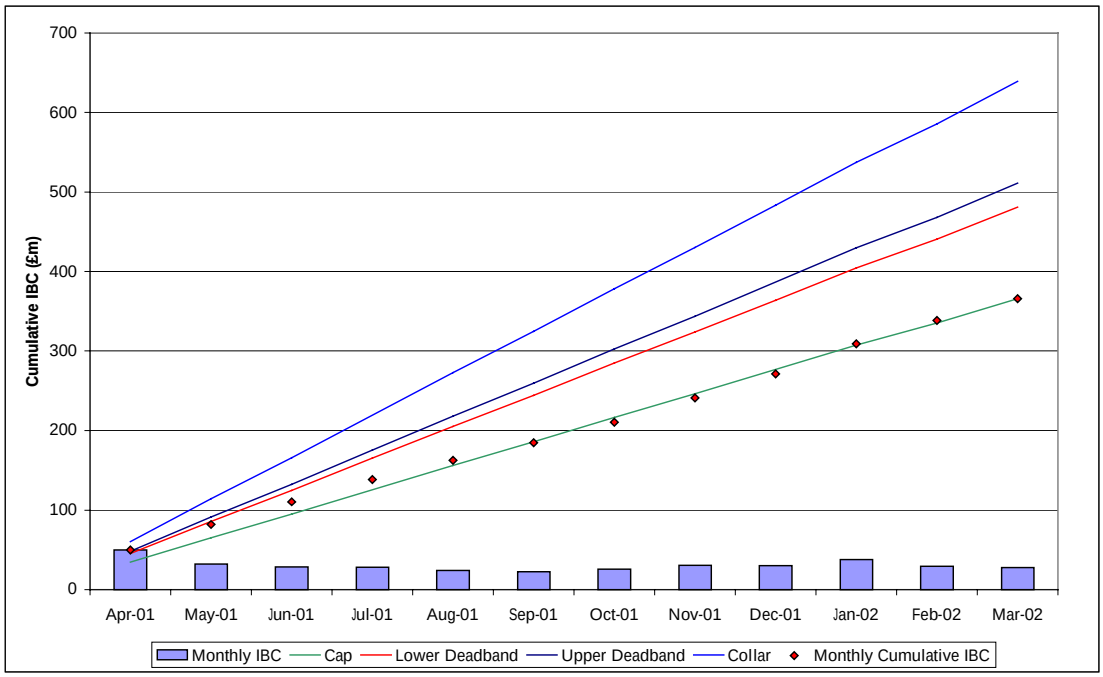


7.9 IBC values showed a general reduction in the first 6 months of NETA, with the monthly average falling from £1.37m per day in April 2001 to £0.75m per day in September 2001. This reduction over the summer months is partly caused by seasonality, with demand lower over the summer than during the winter months, balancing costs also tend to be lower during the summer. IBC increased in the autumn and winter months, with the monthly average reaching £1.22m in January 2002, which was the highest since April 2001. IBC over the incentive scheme stands at approximately £366m.

7.10 Figure 7.2 shows actual cumulative IBC against a linear monthly pro-rata version of the incentive scheme.[47]

[47] The monthly cap, collar and deadband values presented in Figure 4.19 are calculated based on the annual figures divided by the number of days per month, so no account is given to seasonal profiling.

Figure 7.2 – Cumulative IBC against the incentive scheme[48]



7.11 The cumulative figure of approximately £366m at the end of March 2002 is equal to the corresponding cumulative cap figure. Therefore, NGC reached the end of the initial one year incentive period post-NETA at the upper end of the reward scale and has received the maximum cap payment of £46m.

7.12 The first twelve months of NETA showed that NGC made good progress in substantially reducing the overall level of SO costs since Go-Live. This is likely, at least in part, to reflect NGC's improved understanding of operating the system under NETA and improved performance in response to the incentives, along with other initiatives to increase competition in the provision of balancing services. This suggests that the incentives are having their intended effect as NGC is reducing the costs of operating the system under NETA, to the benefit of customers.

Update

7.13 A new incentive scheme was introduced in April 2002 for one year. The scheme substantially rolled over the existing scheme with a number of

[48] Data for March 2001 is added to data for April 2001 in this graph.

adjustments to sharpen and improve the incentives on NGC. The table below sets out the new incentive scheme.

Incentive scheme target	£460m
Upside sharing factor	60%
Downside sharing factor	50%
Cap	£60m
Collar	-£45m

7.14 As shown in the table, NGC now faces a more challenging target. There are higher potential rewards and higher downside risk in order to strengthen NGC's incentive to reduce balancing costs. The new incentive scheme is additionally more symmetrical as between the balance of risk and reward to NGC.

7.15 Chapter 12 discusses future developments in relation to NGC's SO incentive scheme from April 2003 onwards.

Summary

7.16 In the first year of NETA, NGC made good progress in substantially reducing the overall level of SO costs since Go-Live. This is likely, at least in part, to reflect NGC's improved understanding of operating the System under NETA and improved performance in response to the SO incentive schemes.

7.17 NGC's performance under its incentive scheme covering the first year of NETA, enabled Ofgem to tighten NGC's system operator cost target by £30m for the second year of NETA operation.

8. Retail price trends

Introduction

8.1 This chapter provides an overview of the trends in retail electricity prices since the review of electricity trading arrangements was announced in 1998. It considers separately the prices available to larger customers, further split into customers with a demand greater than 100 kW and those whose demand is greater than 1 MW, and domestic customers. We also compare the domestic prices offered by incumbent suppliers within their own former PES areas and their competitors.

Background

8.2 In our July 1999 document,[49] Ofgem stated that whilst we could not be precise about the likely impact of NETA and accompanying measures on final electricity prices, *"the evidence indicates that the figure of a 10% reduction put forward in the Government's October 1998 White Paper [was] a realistic one"*. This was supported by the view that Pool prices were approximately 25% above new entry costs.

8.3 Retail prices are composed of the following elements associated with the supply chain:

- Transmission and distribution charges (including some of the costs of metering);
- Wholesale and supply costs, which cover:
  - Wholesale electricity costs, and
  - Supply business costs (billing, meter reading etc.) and margins; and
- Environmental and energy efficiency levies.

[49] The new electricity trading arrangementa, Volume 1, July 1999.

8.4 The proportion of a customer's bill that is directly attributable to electricity purchase costs varies by customer class, reflecting their load profiles and the varying environmental levies to which they are exposed (for example, domestic customers do not pay the Climate Change Levy). For the largest customers (1 MW+ demand), wholesale and supply costs dominate their bills but the relative significance of such costs decreases with customer size. For example, in 1998 wholesale and supply costs accounted for 75% of a typical 1 MW+ customer's bill but only around 62% of a domestic customer's bill. The reform of the *wholesale* trading arrangements was therefore expected to have a greater impact for industrial and commercial customers than for domestic customers, since wholesale costs amounted for a greater proportion of their bills.

8.5 Since 1998, transmission and distribution costs have fallen significantly, as a result of the new price controls that have come into effect. For example, the transmission and distribution costs included in a domestic customer's bill during 2001/2 was 2.0 p/kWh (in 1998 prices) compared to 2.8 p/kWh in 1998/99. In contrast, the environmental levies faced by industrial and commercial customers have increased. In 1998, the environmental levy was the Fossil Fuel Levy (0.08 p/kWh) but from 1 April 2002 this was set to zero and the Climate Change Levy (0.41 p/kWh in 1998 prices) was put in place for non-domestic customers[50].

8.6 Current domestic bills also include environmental contributions. The Energy Efficiency Standard of Performance was set in 1998 at a level estimated (by DEFRA) to cost suppliers £1.00 for each customer.

Industrial and commercial markets

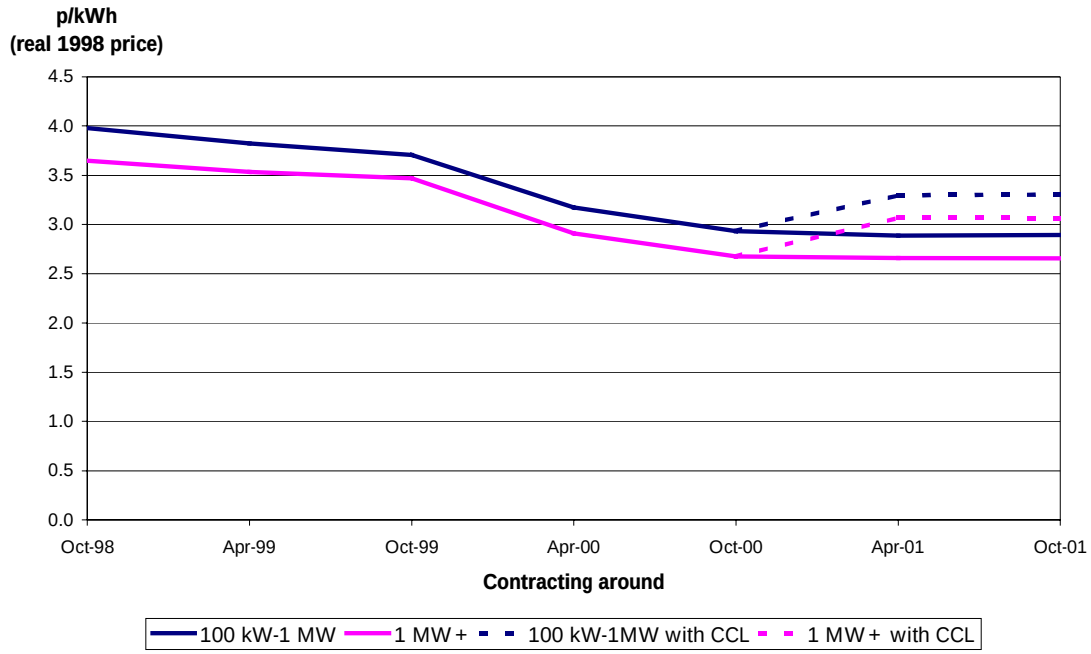
8.7 Most industrial and commercial contracts are re-negotiated each year, with the main contracting rounds occurring in April and October. All these customers have been able to choose their suppliers since at least 1994 and the largest industrial customers have been able to choose their suppliers since 1990.

8.8 Figure 8.1 shows how the average price paid by industrial and commercial customers has changed over the course of the contracting rounds since the new

[50] However, almost all intensive, non-domestic electricity users are subject to negotiated agreements that exempt them from 80% of the Climate Change Levy.

trading arrangements were proposed in 1998 until the last contracting round in the first year of NETA's operation i.e. October 2001.

Figure 8.1 – Average industrial and commercial electricity prices



Source: Energy Information Centre.

8.9 By October 2001, even allowing for the Climate Change Levy (CCL) prices for 1 MW+ customers had fallen in real terms by 16% from their level in October 1998 whilst those for 100 kW to 1 MW customers had fallen by nearly 17%. Excluding the CCL, prices for both sets of customers have fallen by 27% over the same period.

8.10 Around 200 of the largest demand sites (out of the approximately 5000 1 MW+ customers) acted as demand-side bidders under the Pool and hence avoided capacity payments. In 1998/99, these amounted to 0.1 p/kWh.[51] These customers will, therefore, have seen a smaller reduction in their electricity bills, of the order of 14% (as opposed to 16%).

8.11 In terms of considering what impact NETA may have had on retail prices, it is, as discussed above, appropriate to concentrate on the wholesale & supply cost element of customers' bills. The fall in these costs has been much more

substantial, as can be seen from Tables 8.1 and 8.2. These tables show how annual wholesale & supply costs have changed over time, broken down both by customer size and by load factor. The wholesale costs of lower load factor customers are greater than those for higher load factor customers since they typically consume a greater proportion of their electricity in peak hours and the reduction in peak wholesale prices has been somewhat greater than the reduction in baseload prices.

Table 8.1 – Changes in the wholesale & supply cost component of the bills of 1 MW + customers (real 1998 p/kWh)[52]

	Load factor			
	0-35%	35-60%	60-100%	Average
Apr-98	3.35	3.01	2.80	3.09
Apr-99	3.26	2.80	2.71	2.81
Apr-00	2.62	2.43	2.23	2.44
Apr-01	2.27	2.14	1.98	2.12
Reduction	**32%**	**29%**	**29%**	**31%**

Source: John Hall Associates.

Table 8.2 – Changes in the wholesale & supply cost component of the bills of 100 kW-1 MW customers (real 1998 p/kWh)

	Load Factor			
	0-35%	35-60%	60-100%	Average
Apr-98	3.27	3.04	2.84	3.09
Apr-99	3.26	2.92	2.76	3.12
Apr-00	2.80	2.49	2.38	2.67
Apr-01	2.28	2.29	2.34	2.29
Reduction	**30%**	**25%**	**18%**	**26%**

Source: John Hall Associates.

8.12 Wholesale & supply costs for most industrial and commercial customers have fallen by between 25% and 30% in real terms, which is a significant proportion of the 40% fall in wholesale prices over the period April 1998 to April 2001.

[51] In 1999/00 and 2000/01, capacity payments were higher, averaging 0.36 p/kWh (in 1998 prices), so the year on year price reductions seen by demand-side bidders will have been lower than this number suggests.
[52] Load factors are a measure of the variability in a customer's energy use.

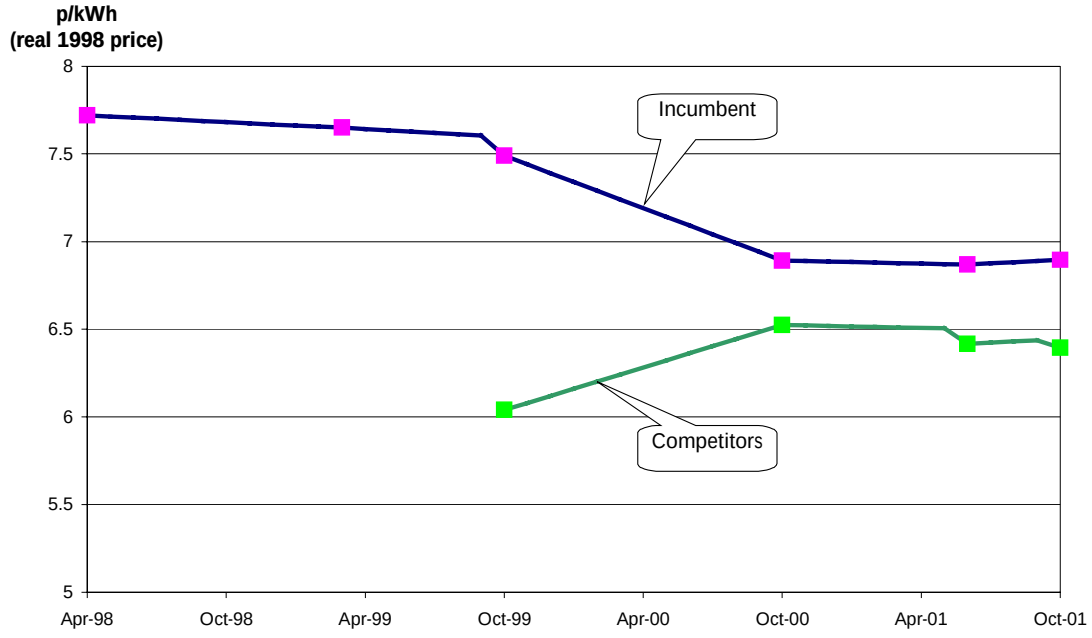
Domestic market

Incumbent prices

8.13 Domestic retail markets are not characterised by annual contracting rounds, instead customers can choose to change suppliers at any time by giving a maximum of 28 days notice. Domestic retail competition was introduced in stages during 1998/99 but since then all customers have been free to choose their supplier.

8.14 As an example of the types of changes that domestic customers have seen since the review of trading arrangements began, Figure 8.2 shows how the average price for a standard credit tariff (not paid by direct debit) charged by incumbent suppliers has changed since October 1998. By "incumbent supplier", we mean former Public Electricity Suppliers supplying customers within their distribution region. The average price for this tariff has fallen over 8% in real terms over the period April 1998 to October 2001.

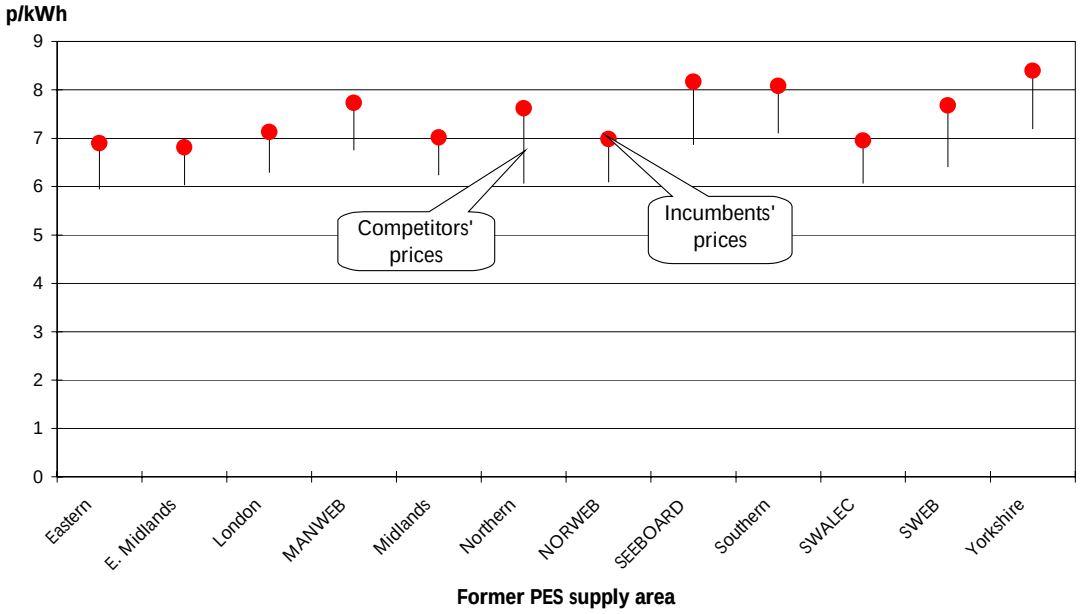
Figure 8.2 – Average prices for domestic customers on a standard credit tariffs (payment not by direct debit)



Competitors' prices

8.15 Domestic customers can obtain further savings by switching supplier. For example, Figure 8.3 shows that, on the basis of the price comparison data provided by energywatch, incumbent suppliers were always the most expensive choice for a standard tariff in October 2001.

Figure 8.3 – Comparison of prices offered by incumbents and their competitors, October 2001



8.16 Comparing the prices charged by incumbent suppliers in April 1998 (when retail competition was only just being introduced) with the cheapest out-of-area prices in April 2002, shows that domestic customers on average across the country could have seen a reduction of over 17%. The savings available in October 2001 were always greater than 2% and ranged up to 24%.

Ofgem's views

8.17 Until recently, suppliers have typically set their domestic tariffs once a year, and contracted on the expectation that the volume and profile of electricity required by their customers will change only slowly. Consequently, some suppliers have entered into longer term contracts with generators to cover the anticipated demand of their domestic customers. It is possible that it is the effect of these

longer term contracts that is reducing the speed at which domestic prices have responded to changes in wholesale prices.

8.18 Domestic suppliers' practices of smoothing prices over time also means domestic customers have not seen the volatility in wholesale gas costs of recent years reflected in their bills. Since most domestic suppliers supply both electricity and gas, the need to absorb fluctuations in gas margins may have been reflected in electricity pricing policies.

8.19 Moreover, suppliers have not reflected reductions in wholesale electricity prices equally in all their tariffs. Pricing strategies have focused benefits on attracting new customers and on encouraging customers to pay by direct debit (which reduces the billing costs for suppliers). It is likely that this, in part, explains why customers who have chosen not to switch electricity suppliers are paying significantly more than those who have switched to competitors. Nonetheless, even customers who have not switched away have seen benefits.

8.20 According to the 2001 MORI survey 79% of customers who switch supplier do so because alternative suppliers offer cheaper prices. 76% of customers switching supplier state that they are satisfied with their new supplier, with 79% of those explicitly stating that they are satisfied with the savings they have made relative to their expectations (including expectations informed by companies' sales agents) prior to switching.

Update since March 2002

8.21 In the October 2002 contracting round for industrial and commercial customers, prices in real terms are down by 10 - 11% compared to October 2001. On average, prices for domestic customers have declined by between 1% (incumbent suppliers) and 2% (competitors' prices) between June 2001 and June 2002.

8.22 These decreases are despite the fact that all customers' bills have been affected by the introduction of the Renewables Obligation on 1 April 2002. This has added 0.1 p/kWh to industrial and commercial bills and £1.50 to £3 (for average customers, 0.5% to1%) to domestic bills. We understand that suppliers started

to amend contracts to account for this new obligation towards the end of the 2001/2.

8.23 The Energy Efficiency Commitment has also increased from 1 April 2002, to an indicative spend of £3.60 per household per fuel per year to 2005. This means that, for 20 million households using both electricity and gas it will add £7.20 to their bills from 2002/3 to 2005/6, and for the remaining 5 million households using only a single fuel (electricity or gas), it will add £3.60. It is up to suppliers how they pass this charge on (in line with usage, or as a lump sum, for example). It seems probable that suppliers have been taking account for some time of this forthcoming increase in their pricing.

Summary

8.24 Retail prices for all customers have fallen significantly in real terms since 1998. As Ofgem expected, the fall in prices has been most pronounced for industrial and commercial customers.

8.25 The data on domestic prices indicate that there are still substantial savings available for customers who have not switched away from their incumbent supplier. Ofgem will continue to work with energywatch and other consumer organisations to help ensure customer are aware of their choices.

8.26 Ofgem will continue to monitor retail markets and use its powers under the Gas Act 1986, the Electricity Act 1989, the Competition Act 1998 and all other relevant legislation to protect the interest of customers and promote effective competition in this area.

9. Smaller generators including combined heat & power and renewables

Introduction

9.1 This chapter provides a background on the operation of smaller generators[53] under the Pool and how this was expected to change with the introduction of NETA. It also provides the results of the questionnaire that Ofgem conducted on smaller generators over the first year of NETA, and compares them to the outcome of the smaller generators' review conducted after the first two months following Go-Live (the August review). It summarises modifications that have occurred to the BSC to assist smaller generators, and provides an update on developments since March 2002, including Government initiatives, which provide additional support to smaller generators.

Background

9.2 All licensed generators were required to join the Pool, but licence-exempt smaller generators were able to choose between joining the Pool and contracting their output to a local supplier (one within the same Grid Supply Point Group), when the output from the generator was deemed to offset the consumption of the local supplier. This offsetting allowed the supplier to reduce its transmission charges – so called 'embedded benefits', which are discussed later in this chapter. Virtually all smaller generators chose the non-pooled option.

CHP and renewables and the development of NETA

9.3 One of the main purposes of NETA was to bring about a more competitive wholesale market and one which values the relative benefits that different types of plant brings to the electricity system. The new trading arrangements, in moving electricity trading closer to real time through the use of on-the-day markets rather than a day-ahead auction under the Pool, enhances the value of

[53] For simplicity and consistency with Ofgem's review of the initial impact of NETA on smaller generators (the August Review), in this chapter we use the term smaller generators to mean licence exempt or exemptable generators (LEGs). These generators are normally embedded in a distribution network. Within this category, there are a number of different technology types. These include, but are not limited to, Combined Heat & Power (CHP) plants, and renewables such as hydro and wind.

plant that is predictable and can respond flexibly to changing circumstances, relative to less predictable and less flexible plant.

9.4 With regard to CHP and renewables, it was anticipated that some existing schemes would either benefit directly from the move to competitive prices expected from the new arrangements, since they were net importers of power, or, because of their stability and predictability of output, would be able to accommodate the new trading arrangements within their present commercial operations. Schemes which may have been less well positioned due to the unpredictability of their output would be able to contract with other parties, such as existing local suppliers or new 'consolidators', who would be able to aggregate the output and manage the unpredictability on behalf of such participants.

9.5 The DTI, in its environmental assessment of NETA,[54] recognised that *'lower prices plus increased risks for some types of plant will reduce the incentive to invest'* in new CHP although it considered that the aggregation rules should allow some risk to be offset. The assessment also stated that the Government was considering the treatment of CHP under the Climate Change Levy (CCL).

9.6 As for renewables, the environmental assessment stated that renewable *'plant with predictable output should be able to achieve competitive prices and if flexible as well, (it) would receive additional rewards'.* But it acknowledged that '*inflexible plant will face new risks with wind expected to be most affected'*. Like CHP, the assessment explained that the Government would consider the treatment of renewables under the CCL. It additionally stated that a replacement for the NFFO scheme was being considered.

9.7 Ofgem/DTI considered that after experience of the new trading arrangements Gate Closure should be able to be moved closer to real time. It was considered that by moving Gate Closure in this way CHP and renewable generators would be better able to manage their risks.

9.8 Prior to the implementation of NETA, the NETA Programme set up a Specials Expert Group (SpEG) which considered issues relevant to smaller generators. As a result of this work, various elements were introduced to the trading arrangements to provide smaller generators with a range of trading options.

[54] Included in the Ofgem/DTI NETA Conclusions Document, October 1999.

Broadly, smaller generators had three trading options available at Go-Live, including continuing to contract with a local supplier (and thereby avoiding direct participation in the Balancing and Settlement arrangements) or participating in the Balancing Mechanism and imbalance process either directly or indirectly through another BSC Party. Further details of these options are given in Appendix 9.

Review of the initial impact of NETA on smaller generators

9.9 In the run up to the implementation of NETA on 27 March 2001, smaller generators and their representative organisations said that they would be particularly, and more adversely, affected than other generators by the new arrangements and on 21 February 2001, Peter Hain, the then Minister of State for Energy and Competitiveness in Europe, requested that Ofgem undertake a review of the impact of the first two months of NETA on smaller generators.

9.10 In the August Review, Ofgem reported to the DTI on its review of the initial impact of NETA on smaller generators. Ofgem considered that the position of smaller generators during the first two months of NETA needed to be seen in the context of the performance of NETA as a whole, since some (but not all) of the features affecting smaller generators were common to all generators.

9.11 Against this background the results of the analysis of smaller generators showed:

- as expected, very few smaller generators had chosen to become BSC Parties. This was comparable to the position under the Pool, when only a small proportion of smaller generators traded via the Pool;
- for those smaller generators where there was comparable data, the prices received for exports covering the first two months of NETA were substantially below the same period in 2000 – typically 17%. This was somewhat more favourable than the overall position on generation prices;
- the output of smaller generators fell substantially, with export volumes reduced by 44% compared to the same period in 2000. For CHP plant the decrease was 61%. On the basis of comparable data provided, the total costs facing smaller generators increased by 16% with fuel costs rising by 14%;

- other than wind power generation, the performance of smaller generators did not appear to be significantly less predictable than that of other generators. The data confirmed that wind power was unpredictable; and
- there was widespread comment from smaller generators on the limited consolidation services that were available during the first two months of NETA, a period during which a number of those offering such services did not regard the services as fully operational. It was clear that consolidation services had not developed to the extent that would appear feasible.

The Consolidation Working Group

9.12 The DTI, in its response to Ofgem's August Review, proposed the establishment of a Consolidation Working Group (CWG) made up of smaller generators, NGC, BSC participants, Ofgem, the DTI and the Department of the Environment, Food and Rural Affairs (DEFRA).

9.13 The CWG published their final report to the DTI on 7 February 2002. The major findings of this report were that:

- a major obstacle to the development of consolidation services was the inability of small generators to sell fixed volumes of energy without becoming a party to the BSC; and
- obtaining embedded benefits was of significant commercial importance to embedded generators whether their output is sold to the regional electricity supplier or any other supplier. There were concerns over the negotiating position of smaller generators and independent consolidators relative to local regional suppliers in some areas.

9.14 The first of these findings, the inability of smaller generators to sell fixed volumes of energy without becoming a party to the BSC, was subsequently addressed through a BSC Modification Proposal (P67), as shown in Table 9.1. The second is discussed in paragraph 9.35 below.

Update since February 2002

Modifications to the BSC that assist smaller generators

9.15 During the first year of NETA the following Modifications Proposals to the BSC were designed to address particular issues identified by smaller generators. The table below lists the relevant Modifications Proposals and outlines the issue that each addresses. Fuller details of these Modifications Proposals are given in Appendix 9.

Table 9.1 - BSC Modifications Proposals designed to assist smaller generators

Modification Proposal	Issue addressed
P7 Allocation of supplier demand to the same BM Unit in a GSP Group for all suppliers in the same company	This allows smaller generators more choice as to who they could contract with, including with more than one company.
P67 Facilitation of further consolidation options for licence-exempt generators	This allows for meters to be split between predicatable (fixed) and unpredictable allocations of electricity
P55 BSC conflicts with consolidation of embedded generation in Central Volume Allocation	This allows for consolidators who do not hold supply licences to act on behalf of smaller generators who did not have a meter registered with the central registration service

Cost reflectivity of imbalance prices

9.16 Several smaller generators have expressed concerns regarding the method used to calculate imbalance prices. As discussed in Chapter 6, the intention of the imbalance settlement regime under NETA is to expose market participants who are out of electricity balance to the costs they impose on the system. As a consequence, Ofgem is committed to ensuring that electricity imbalance prices should, as far as possible, reflect the costs of electricity balancing.

9.17 As a result of experiences during the first few months of NETA, several BSC Modifications Proposals and changes to the BSAD Methodology Statement have been approved by Ofgem and implemented that have improved the cost-

reflectivity of imbalance prices.[55] Chapter 5 also mentions a number of recent proposals for changes to the calculation of imbalance prices that are currently being progressed through the BSC Modification Process.

Imbalance prices in smaller generators' contracts

9.18 Suppliers net off embedded generation from their expected metered demand. Since suppliers have tended to slightly over contract at Gate Closure, compared with their expected metered consumption, they will generally be exposed to system sell prices on their imbalances. Therefore it is the case that to the extent that smaller generators are indirectly exposed to imbalance prices, the exposure is likely to have been to the System Sell Price rather than the System Buy Price.

9.19 Certain types of smaller generator, in particular wind farms, may be less able to manage their imbalances than other generators since they are less able accurately to predict their output. Typically, it will not be the wind farm itself but the supplier to whom it chooses to sell its output who is exposed to electricity imbalances arising from any fluctuation in the generation. It has been argued that this causes many suppliers to discount the value of intermittent sources of electricity and that this discounting may be overestimating the true cost to suppliers of intermittent generation.

9.20 Analysis was carried out by Ofgem based on actual output data from five English wind farms over the period of September 2001 to November 2001 and actual imbalance prices. Assuming that current output is used as a forecast for output four hours ahead,[56] we calculated that their average exposure to imbalance costs amounted to £4.70/MWh. Further analysis showed that this cost would be reduced by 37% (to £2.95/MWh) if the output from these five plants were consolidated together. A further reduction of 38%, to £1.82/MWh could be achieved if the forecast period was reduced to 1.5 hours. As such the reduction in Gate Closure from 3.5 hours to 1 hour should reduce average exposure to imbalance costs.

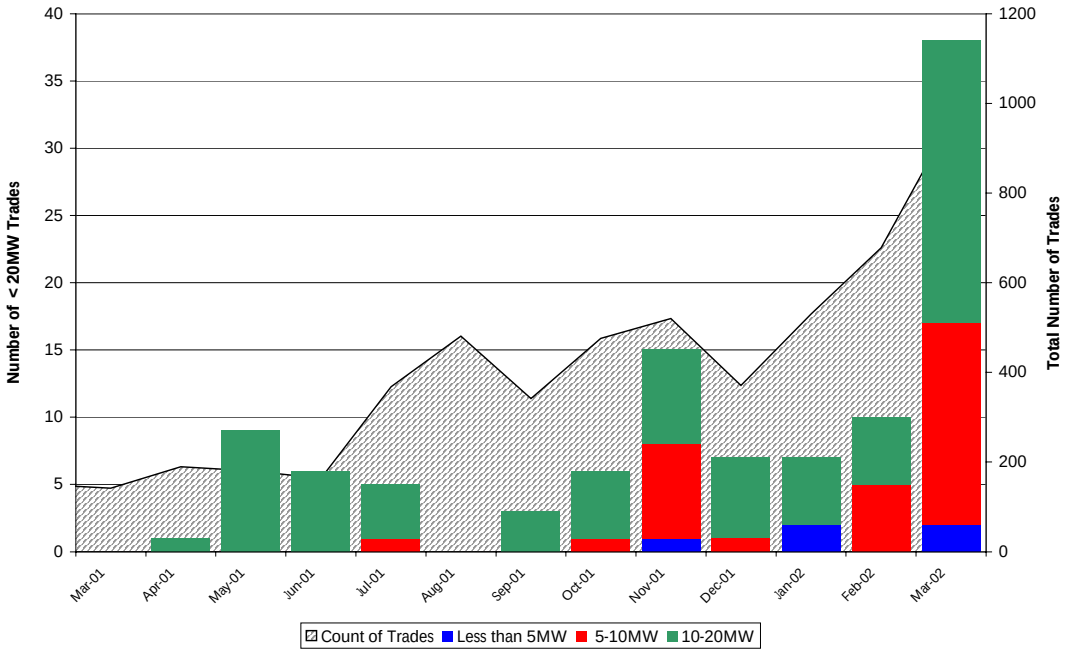
[55] BSC Modification Proposals P10 and P18. Details of these modifications can be found in Appendix 5.
[56] Several studies have suggested that for forecast periods of less than 6 hours, the current output level is the best predictor of wind farm output.

Small volume transactions

9.21 The responses to Ofgem's smaller generators survey (discussed below) suggest few smaller generators choose to directly trade in the forwards, futures and spot markets. However, some of those who wish to consider this option have argued that they are disadvantaged because there is little liquidity in small volume contracts and consequently it is hard for them to hedge their output.

9.22 In respect of the size of contracts, we note that for both the UKAPX and the UKPX the default contract size is 1MW so that many smaller generators can, if they choose, trade on these exchanges. In addition to exchange based trading, a limited number of OTC trades for small volumes have been reported, as shown in Figure 9.1. Since the autumn of 2001, the number of small trades has increased, particularly those in the 5-20 MW range.

Figure 9.1 - Number of small OTC trades reported by Heren since NETA Go-Live



Ofgem's smaller generators survey

9.23 In May 2002, Ofgem conducted a further survey of smaller generators in order to gather information on the effect of the new trading arrangements after one year's operation.

Sample size and responses to the questionnaire

9.24 Survey questionnaires were sent out to 171 small generators and interested parties, including those who were contacted as part of Ofgem's August Review (a copy of the questionnaire can be found in Appendix 10). In total, Ofgem received 76 responses from a variety of smaller generators encompassing a number of different generation technologies, plant sizes and organisational structures. Fifty-one responses had usable comparable data on prices for the first year of NETA and the previous year. Other respondents provided incomplete information, which has been used where applicable and comparable. This compares with 106 responses, 40 with usable data, for Ofgem's August Review.

9.25 Table 9.2 below provides a summary of the respondents by capacity and generation type.

Table 9.2 - Export capacity of survey respondents (MW)

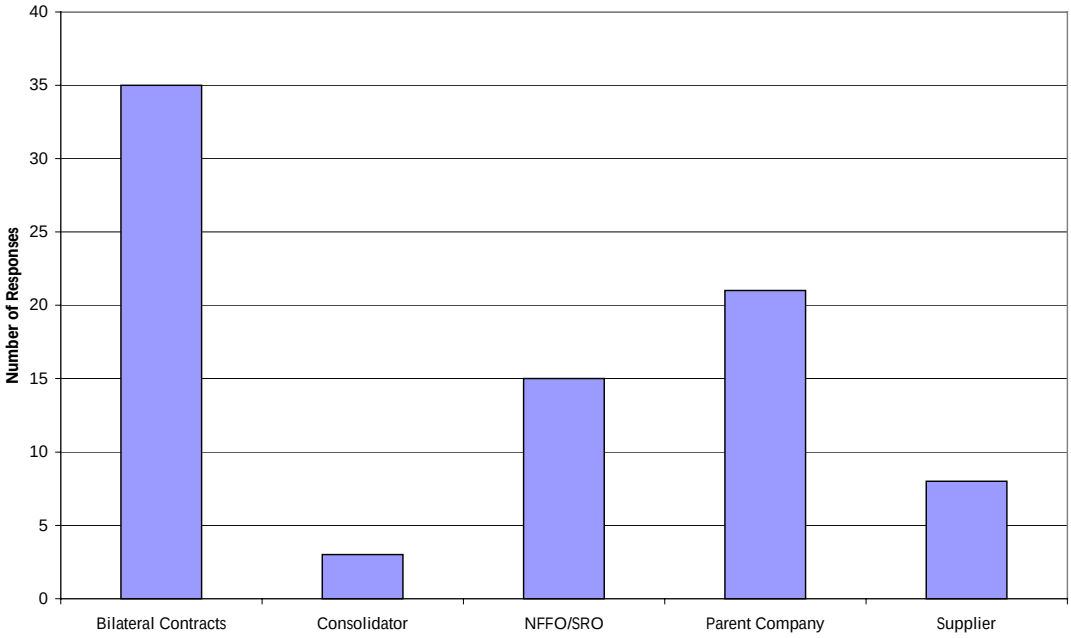
Generation type	Minimum	Average	Maximum	No. of respondents
CHP	1.00	26.70	70.00	17
Hydro	0.01	5.17	20.00	9
Other	0.27	2.12	6.67	8
Renewable	4.50	14.18	40.00	10
Wind	0.09	7.06	30.90	18

9.26 As was the case for the August Review, the relatively small number of returned questionnaires containing comparable data for 2000 and 2001 means that the findings of the survey must be treated with caution.

Trading options

9.27 The vast majority of respondents have continued to participate in the market through selling their electricity locally rather than participating in the Balancing and Settlement Arrangements. Only four respondents had registered with the BSC central systems. Figure 9.2 indicates the methods by which the respondents had chosen to sell their output.

Figure 9.2 - Methods of selling smaller generator output



9.28 Nearly half of the respondents indicated they sold their output via direct bilateral contracts, while three made use of an independent consolidator. Thirty-three respondents (50% of those who answered this question) had held discussions with independent consolidators, but had not pursued the option, with the majority stating that independent consolidators did not offer better terms than their local supplier. Fifteen of the respondents were still benefiting from NFFO contracts.[57]

Prices

9.29 Table 9.3 shows the prices reported by smaller generators responding to the survey have varied significantly. On average, reported prices received over the first year of NETA operation were £20.62/MWh, as compared with £23.2/MWh in relation to the first two months of NETA operation (an 11% reduction). However, Chapter 4 showed that generally baseload electricity prices had fallen by 20% over the first year of NETA operation. This conclusion is consistent with the results of the August Review, which indicated that the prices for smaller generators had fallen somewhat less than general market prices during the first two months of NETA.

[57] Non Fossil Fuel Obligation (NFFO) contracts in England and Wales and the Scottish Renewables Obligation (SRO) were long-term contracts between generators and former Public Electricity Suppliers (PESs)

Table 9.3- Indicated annual average price for electricity exports

	Minimum price (£/MWh)	Average price[58] (£/MWh)	Maximum price (£/MWh)	Number of responses
By trading option				
Bilateral Contracts	16.00	18.24	26.68	23
Consolidator	16.54	16.54	36.00	2
NFFO/SRO	33.00	50.76	77.50	11
Parent Company	16.00	18.90	30.43	21
Supplier	17.83	17.85	20.00	3
By technology				
CHP	16.00	18.49	30.43	21
Hydro	20.00	28.10	28.75	7
Other	17.83	17.90	19.53	8
Renewables	16.54	26.51	48.40	10
Wind	16.00	37.70	77.50	14
Overall	**16.00**	**20.62**	**77.50**	

9.30 It should be noted that some of these prices include some sharing of embedded benefits with suppliers and Government assistance (e.g. NFFO contracts) that other generators do not receive. NFFO and SRO contracts have continued to provide significant support for some smaller generators who received between £33/MWh and £78/MWh, averaging at £50.76/MWh.

9.31 The average price received by CHP respondents (£18.5/MWh) was somewhat less than the average for all respondents (£20.6/MWh). But the income that a CHP scheme receives for exporting power to the transmission system is only one

that guaranteed a revenue stream to the renewable generators for a fixed period of time. Although the NFFO/SRO remain in place the levy associated with these contracts is presently set at zero.

[58] The average values have been calculated as volume-weighted averages using station output data to provide the volume weighting.

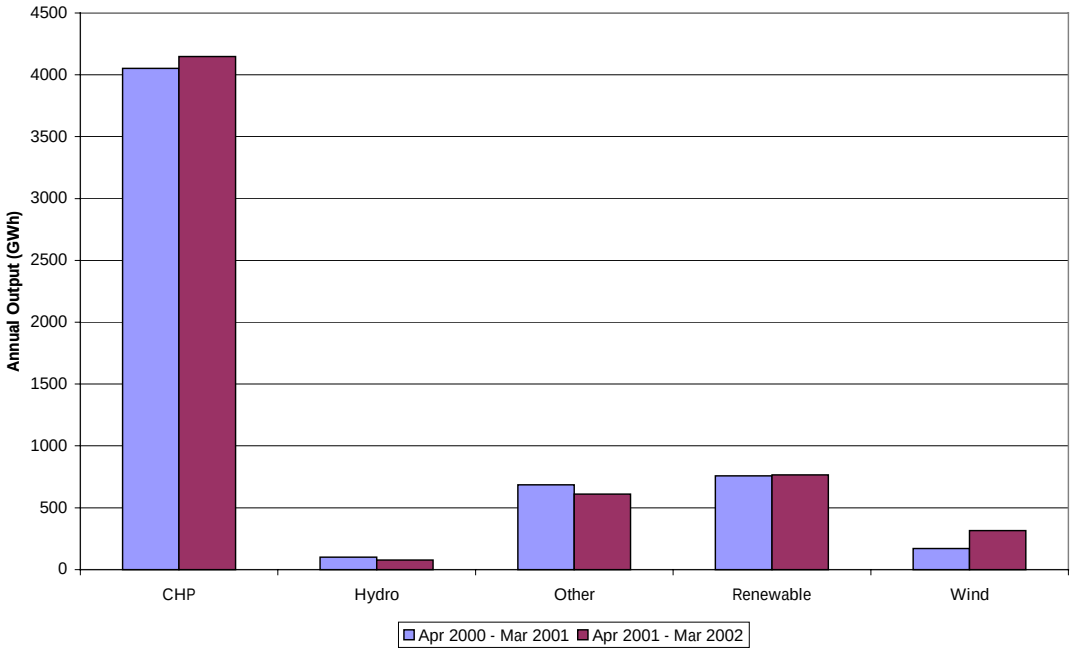
of its sources of revenue, since it will also be paid for the on-site services it provides.[59]

9.32 The survey showed that 35% of respondents had electricity sales contracts that explicitly took account of imbalance prices.

Output

9.33 Figure 9.3 provides the survey details of output, which suggests that for respondents annual output does not appear to have changed significantly with the introduction of NETA. Overall output is up by 2.5%. This is in marked contrast to the results of the two month NETA survey reported in the August Review. That Review indicated that output had reduced by 44% over the first 2 months of NETA in comparison to the same period under the Pool.

Figure 9.3 - Generation under NETA and the Pool



9.34 Some of this difference in outcomes could be associated with the decline in gas prices. Spot gas prices during the first two months of NETA averaged 23.0

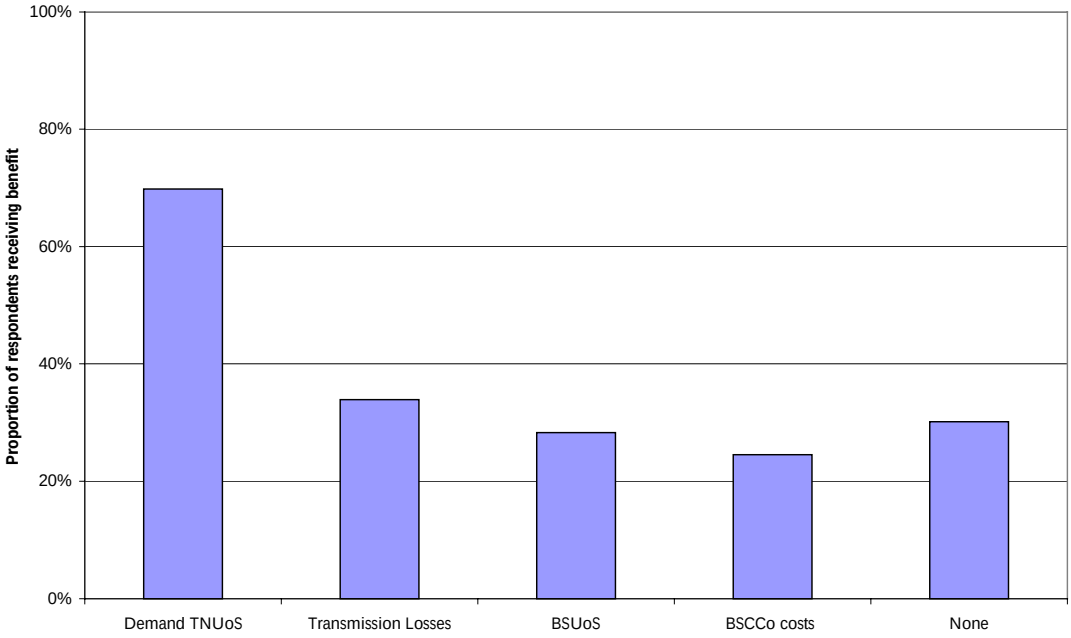
[59] In some instances, the benefit will be in reduced costs for services, such as the provision of cooling water, rather than in direct revenues. A CHP scheme provides heat (usually steam) and electricity to a consumer (or consumers) situated on the same site. The proportion of a CHP scheme's revenues that come from electricity exports is very site specific since it depends on the balance between heat requirements, on-site load and electricity export capabilities. These, in turn, depend on the (normally) industrial process requiring the heat and electricity.

p/therm, whereas for the remaining ten months of the first year of NETA they averaged 19.5 p/therm, a fall of 15%.

Smaller generators share of embedded benefits

9.35 Three quarters of respondents to the survey who sold their electricity to a local supplier/consolidator, thereby enabling the supplier to reduce transmission related charges, indicated that they received some share of embedded benefits in their contracts with suppliers/consolidators. Full details of embedded benefits are given in Appendix 9.

Figure 9.4 - Smaller generators' share of embedded benefits[60]



Update since March 2002

Survey results

9.36 The results of the Ofgem survey suggested that the terms of the electricity sales contracts negotiated by respondents had, from their perspective, improved in recent months. Of the 14 respondents who commented on this issue, nine indicated an improvement in contracts struck from April 2002 as compared to the previous year, while only one believed there to have been a decline.

Government initiatives

9.37 As from 1 April 2002, qualifying renewable generators without NFFO/SRO contracts have been able to benefit from Renewables Obligation Certificates (ROCs). As from that date, electricity suppliers are required to contract a pre-determined percentage of their customers' demand from renewable generators (3% for 2002/03) or pay a buy-out price of £30/MWh. The buy-out price has been set at £30/MWh until 1 April 2003 and will be adjusted in line with inflation thereafter. A shortage in the supply of renewable generation in relation

[60] TNUoS (Transmission Network Use of System) Charges relate to charges for using NGC's transmission network and fund its TO activity; BSUoS (Balancing Services Use of System) Charges recover the costs of NGC's SO activity;

to suppliers' demand has resulted in ROCs[61] being traded during April- July 2002 at between £35/MWh and £45/MWh. Forecast prices for ROCs for the period to 2006/07 have been quoted at £60/MWh.[62]

9.38 Renewable generators and some CHP schemes[63] can also benefit from CCL exemptions on their sales of electricity. Compared to electricity sold by other generators, the CCL increases the price that exempt generators can charge for their electricity by up to £4.30/MWh.

9.39 As Table 9.4 shows, the combination of the CCL and ROCs can significantly increase the price that smaller generators can receive for their electricity.

Table 9.4 - Illustrative prices for renewables and good quality CHP schemes (£/MWh)

	Renewables (£/MWh)	**Good Quality CHP schemes (£/MWh)**
Minimum reported price from Ofgem survey	16	16
ROC benefit (average value April-June 2002)	40	-
CCL benefit	4.3	4.3
Illustrative total price (£/MWh)	60.3	20.3

9.40 Twenty-one of the respondents to Ofgem's latest survey indicated that the introduction of ROCs had improved their position to the point where they remain commercially viable. However, five respondents commented that they have been comparatively disadvantaged, as they do not qualify for ROCs. Fuller details of Government initiatives for renewable and CHP generators are given in Appendix 2 and Appendix 9.

Moving Gate Closure

9.41 As noted earlier, on 2 July 2002 Gate Closure shortened from three and a half-hours to one hour. The shortening of Gate Closure enables market participants

[61] The RO target increases each year upto 10.4% of total supplies in 2010/11
[62] Souce: Platts, Power in Europe 380 . 15 July 2002
[63] From 1 April 2002, all sales of electricity from "Good Quality CHP" schemes have been eligible for exemption from the CCL. Previously, it was only on-site sales that received exemption.

to continue trading and fine tune their positions much closer to real time so that they can adjust their contract position for changes in their forecast output or demand. This is of benefit to all market participants since, for example, suppliers can adjust their contractual position closer to real time for unanticipated weather changes. However, it is particularly beneficial to smaller generators whose output is unpredictable, such as wind farms. Should it be possible to reduce Gate Closure further in the future in the light of operational experience then the position of unpredictable smaller generators should improve further.

Embedded benefits

9.42 The CWG has argued that a lack of supplier competition at the Grid Supply Point Group (GSPG) level could be affecting the ability of embedded generators and independent consolidators (i.e. consolidators who are not the former PES) to access embedded benefits. Ofgem remains concerned by suggestions from smaller generators that incumbent suppliers have an inherent advantage and a stronger negotiating position than themselves or potential consolidators. Where abuse of localised market power on the part of suppliers can be established, it would, of course, be a violation of the Competition Act. Ofgem will continue to monitor the behaviour of suppliers and take action on any evidence of anti-competitive behaviour.

Summary

9.43 Responses to Ofgem's survey of smaller generators' experience over the first year of NETA operation revealed that:

- very few smaller generators have chosen to become BSC Parties. This was expected and in line with the position under the Pool (where few smaller generators chose to become Pool members) and also in line with the survey results from the two month review published in August 2001;
- most smaller generators continue to sell their output to their local supplier. While 50% of those responding said they had held discussions with independent consolidators, most said they did not offer better terms than their local supplier. Only three generators had contracted with a consolidator;

- on average, the price smaller generators reported receiving for exports over the first year of NETA was £20.6/MWh as compared with £23.2/MWh in the first two months of NETA (a reduction of 11%). This compares with a reduction of 20% for baseload wholesale electricity prices generally over the first year of NETA. As at the time of the August Review, the average price received by smaller generators thus remained somewhat more favourable than the overall position on generation prices; and
- the output of smaller generator respondents was slightly up (by 2.5%) over the first year of NETA compared to the previous year. This is in contrast with the survey results for the first two months of NETA, which indicated that exports had fallen by 44% compared to the same period in 2000. In particular, output from CHP plant, which was reported to have decreased by 61% in the August review, showed a slight increase of 2% over the year. This could have been influenced by a fall in gas prices of 15% over the year.

9.44 The position of smaller generators is continuing to evolve both in response to changes in the trading arrangements and other initiatives. In particular, the introduction of the Renewables Obligation from 1 April 2002 has benefited many renewable generators and the climate change levy benefits both renewables and good quality CHP.

9.45 Ofgem is taking forward work to safeguard smaller generators with respect to abuse of market power by suppliers.

10. The demand-side

Introduction

10.1 Under the Pool, there was a lack of supplier pressure and demand-side participation (see Chapter 2). One of the objectives of NETA was to increase the role of the demand-side. This chapter looks at the contribution of the demand-side over the first year's operation of NETA and highlights the potential for increased demand-side participation in the future.

Background

Demand participation under the Pool

10.2 There are some features of electricity that generally limit the price responsiveness of demand. There is limited scope for switching easily, at low cost, to substitute sources of energy, particularly in the short-term, and, as a result, inter-fuel competition is fairly weak. More efficient use of energy can be stimulated by higher prices, but the process often requires significant investment and the lags involved may be relatively long. Consequently, the overall demand for electricity is not very responsive to price. However, appropriately structured wholesale trading arrangements can significantly affect the strength of demand-side influences on wholesale price determination.

10.3 As noted earlier, under the Pool suppliers were treated as price takers and were required to purchase most of their requirements through the Pool at a common clearing price, which was determined on the basis of a central estimate of demand produced by NGC. Therefore, there was little incentive for active participation from the demand-side.

10.4 Direct participation by the demand-side in the Pool was limited to a handful of large customers via the Pool's Demand-Side Bidding Scheme. This scheme allowed up to 30 demand sites to bid into the Pool for load reductions in competition with generators. In practice, however, demand-side bidders only had a minimal effect on Pool prices and did not provide effective competition to generators. Generators bidding into the Pool were, therefore, confronted with demand which curve where demand was highly unresponsive with respect to

price, notwithstanding the fact that, lying behind the trading arrangements, was a set of large buyers who, in other circumstances, could have been expected to be eager to negotiate keener prices. Thus, the Pool did not allow large buyers to 'connect' with their suppliers in ways that are typical of other markets.

10.5 There were contracts for different CfD's under the Pool. However, the difficulty was that, in negotiations, a generator always had the option of selling electricity via the Pool, where demand-side influences were weaker. This strengthened the bargaining position of the generator, and made them less willing to discount prices from average Pool prices, at least so long as there was a prospect, over the relevant period, of higher Pool prices. There additionally was limited transparency and price reporting of the CfD's that were in place. Overall, the lack of demand-side pressures in the Pool served to weaken demand-side pressure in the negotiation of longer-term supply contracts.

10.6 Large customers did participate indirectly in the previous trading arrangements via:

- load reductions at times of peak demand as a means of reducing their exposure to transmission charges;[64]
- contracts with NGC for the provision of ancillary services, such as standing reserve and frequency response; and
- contracts with their local suppliers for load management.

10.7 However, it remains the case that overall, competitive pressure on generators from the demand-side was relatively weak, and the wholesale electricity market is characterised by the presence of large, commercial buyers on the demand-side, and this should, in principle, be a major factor in intensifying competitive pressures on generators. Nonetheless, even where supply competition was vigorous, as in the industrial and commercial sectors, the impact of demand-side pressures on wholesale prices from suppliers was limited.

[64] Both under the Pool and under NETA, Transmission Network Use of System charges are levied on the basis of a customer's average demand during the three Triad periods. This demand is defined as the average demand of a supplier over three half hours between November and February (inclusive) in a financial year comprising the half-hour of highest system demand peak and the two next highest half-hours of system peak demand, which are separated from the system peak and each other by at least 10 days.

The role of the demand-side under NETA

10.8 Increasing the role of demand-side in the new trading arrangements, both through supplier pressure and the direct involvement of customers, was seen as a particularly important development. The contractual freedom which is a feature of the new trading arrangements was expected to stimulate competition between suppliers and lead to more competitive buying of electricity, which in turn would put competitive pressure on generators. Thus, the essential benefit of incorporating the demand-side would be to release the normal market opposition between the buyers' and sellers' interests.

10.9 In addition, Ofgem considered that the development of 'two-sided' markets would reveal the latent responsiveness of demand, which under the Pool was treated in a highly aggregated manner assuming very little responsiveness. This could influence forward prices, but also it was anticipated that allowing demand responsiveness to emerge would provide NGC as SO with another source of balancing services and hence enable it to balance the system at lower cost.

10.10 Customers with half-hourly meters were believed to be a ready avenue to develop demand-side opportunities in relation to the provision of balancing services. But Ofgem believed that suppliers (acting as aggregators) might also play a role in realising the demand-side potential. Expansion into the domestic market, where half-hourly meters are absent, was considered to be dependent on the introduction of more sophisticated profiles of customer's demand, technology advances in control systems and the extension of switchable demand.

Experience

Supply side pressure

10.11 Under NETA, suppliers participate directly in the forward, futures and spot electricity wholesale markets and contract with generators and traders (either directly or via power exchanges) in order to cover their electricity requirements, which has increased demand-side pressure in price formation. In addition, there is much greater transparency regarding future prices, a broader range of products

available to suppliers and a greater variety of trading opportunities due to the emergence of power exchanges and on-line brokerages.

Load management services for suppliers

10.12 The potential exists for large customers to offer load management services to suppliers to assist them in managing their imbalance risk. But discussions with larger customers suggest there is little evidence of such aggregation happening on a wide-spread basis. In part, this may have been due to the relatively lower level of wholesale prices, which could have made it less attractive for customers to provide load management services. Some participants have also suggested that it is the result of suppliers over contracting at Gate Closure, and hence being subject to system sell prices rather than system buy prices for their imbalances.

10.13 In response to concerns from customers Ofgem established the Demand-Side Working Group ('DSWG') to identify with interested parties if there were any barriers to demand-side participation. The work of the DSWG is discussed in more detail in Appendix 12. Ofgem will continue to work within the DSWG to monitor developments in this area.

Provision of balancing services

10.14 As expected, half hourly metered customers have assisted in balancing the system by providing balancing services both under contract and via Balancing Mechanism bids and offers to NGC.

Balancing service contracts

10.15 Table 10.1 compares the contribution that the demand-side have made to contracted balancing services during the first year of NETA (2001/2) and the last year of the Pool (2000/01). A full description of these services is given in Appendix 4.

Table 10.1 – Demand-side contribution to the provision of contracted balancing services

Service[65]	2000/01	2001/02
Fast reserve	0%	5%
Standing reserve	23%	29%
Frequency response	29%	29%

Source: NGC.

10.16 Whilst there has been little change in the percentage of frequency response services provided by the demand-side under NETA, the demand-side has contributed a greater percentage of the reserve used by NGC. This is particularly the case for fast reserve.

10.17 Prior to the introduction of NETA, no fast reserve was procured from the demand-side. However, since September 2001,[66] NGC has been holding monthly tenders for the fast reserve service and from the outset the demand-side has been successful in obtaining contracts from NGC. In recent tenders, there have been new demand-side participants. As a result of increased competitive pressures, including from the demand-side, the average utilisation price paid by NGC has decreased from £438/MWh in May 2001 to £118/MWh in May 2002.

10.18 The number of customers who can provide fast reserve is limited. But a much wider range of customers can provide standing reserve, since the timescales involved are not as onerous. Twenty nine demand-sites, owned by 18 different companies, participated in the annual tender for standing reserve.

10.19 NGC is working with the demand-side to develop new balancing services that will enable suppliers to make use of the demand of their non-half hourly metered customers (up until now balancing services have only be provided by half-hourly metered customers). One example is the radio tele-switching of demand. NGC is in the process of setting up agreements with three suppliers that will provide up to 1500MW of radio tele-switched demand by next winter, which it will be able to use to provide a variety of services.

[65] Definitions of these services are provided in Appendix 4 and developments in the Fast Reserve service are discussed further in Chapter 10.
[66] This tender was for the delivery of fast response in October 2001.

10.20 Demand-side providers have been encouraged to participate in the tendering processes and direct bilateral negotiations that NGC uses to procure balancing services. For example, in its Procurement Guidelines, NGC specifically made it clear that it was interested in procuring balancing services from demand-side providers.

The Balancing Mechanism

10.21 To date, there has been little demand-side participation in the Balancing Mechanism. Only 0.15% of the offers accepted by NGC have come from the demand-side.

Summary

10.22 The trading of electricity like any other commodity in forward, futures and spot markets, has increased demand-side pressure in price formation.

10.23 There has not as yet been large scale aggregation by suppliers of the half-hourly metered demand of customers. This could have been influenced by the relatively low wholesale prices. However, Ofgem has initiated discussions with customers and other interested parties on this and related issues by the formation of the DSWG.

10.24 Half-hourly customers have played an important role in increased competition for the provision of balancing services to NGC as SO, although they have not participated to any significant extent in the Balancing Mechanism.

11. The Governance Arrangements

Introduction

11.1 The governance arrangements for the wholesale electricity trading arrangements were changed significantly with the introduction of NETA. An overview of the new trading arrangements and regulatory framework for NETA is contained in Appendix 2. This chapter provides an overview of the NETA governance arrangements, describes the process for modifying[67] them and details how Ofgem considers the new governance arrangements have performed to date.

Background

11.2 The governance of the Pool was widely recognised as inadequate and cumbersome. During the 11 years of the Pool's existence, most of the areas flagged for development at privatisation remained unchanged in part as a result of its governance structure. In particular, there was specific criticism that it had proved difficult for the Pool to respond quickly, if at all, to changing circumstances.[68]

11.3 In designing NETA, it was recognised by Ofgem and the DTI that the governance arrangements needed to be sufficiently flexible to allow modifications to be made to the rules in a timely fashion as the market developed and in the light of operational experience.

11.4 The NETA governance arrangements are designed to allow greater participation by all interested parties and are based on the following principles:

- **Objectivity** – decisions on modification proposals are based on objective criteria and are not unduly biased by the interests of any particular party or group. The key to achieving this is that decisions are made by reference to predefined objectives, and decision makers are enabled to have full access to all relevant information;

[67] Changes to the BSC are termed as Modifications whilst changes to the CUSC are termed as Amendments. In this chapter, the terms Modification and Amendment have been retained when used in their specific sense, otherwise the general term modifications has been used.
[68] Offer publication: Review of Electricity Trading Arrangements, Interim Conclusions – June 1998

- **Transparency** – decisions are taken in a transparent manner. Information is available to all affected parties and discussion and analysis relating to modifications is readily accessible;

- **Inclusivity** – no relevant information or viewpoint is excluded. Contributions are welcomed from all interested parties on key decisions;

- **Effectiveness** – the decision-making processes are intended to balance the need for timely decision making and thorough consideration of issues; and

- **Efficiency** – the scope of the governance arrangements extends beyond the design and overseeing of market rules, it also includes the procurement, management and enforcement of contracts with service providers, the monitoring and enforcement of rules, financial control and dispute resolution. These arrangements provide for these activities to be undertaken impartially and efficiently, with scope and responsibilities laid out clearly.

11.5 Ofgem provides co-ordination to the NETA governance structures and, in reaching decisions on proposed modifications, has regard to its Statutory Objective and general duties under Sections 3A to 3C of the Act which enables it to take a broader view of the proposed modification's impact on the industry than the objectives of the Codes/Statements. The role that Ofgem has in NETA governance arrangements ensures that there is a greater ability to achieve change than was the case under the Pool.

11.6 An overview of the governance process and structures is given in Appendix 2.

Experience

11.7 In the first year of the operation of NETA, a total of 72 Modification Proposals were submitted to the BSC. A wide range of BSC parties, as well as NGC and the BSC Panel, put these Modification Proposals forward. During the year, a total of 46 BSC Modification Proposals were taken to their conclusion, and completed the BSC Modification process. Of these, the Authority has approved 18, rejected 18 and a further 10 were amalgamated or withdrawn. The register

of all Proposed Modifications to the BSC and related documents can be found on the ELEXON website (www.elexon.co.uk).

11.8 Decisions by the Authority on a number of Modification Proposals to the BSC were delayed during the first year of NETA as a consequence of litigation between ScottishPower and ELEXON. When Ofgem initially considered these Modification Proposals[69] it was concerned that it would be inappropriate to take any decision pending the outcome of this litigation. However, having intervened in those proceedings and having had the opportunity to consider the relevant matters further and in more detail, Ofgem decided that, notwithstanding the litigation, it was appropriate to issue a decision in relation to these Modification Proposals.

11.9 Between September 2001 when the CUSC came into operation and 16 March 2002, 19 Amendment Proposals to the CUSC were submitted. Eight Amendment Proposals completed the Amendment Process and one was withdrawn. Of the completed Amendment Proposals, the Authority has approved six. The register of all Amendment Proposals to the CUSC and related documents can be found on the NGC website (www.nationalgrid.com/uk/).

11.10 In addition to the modifications to the BSC and amendments to the CUSC, there have also been a number of revisions to NGC's Balancing Principles Statement, Procurement Guidelines and the BSAD Methodology Statement.

11.11 Greater detail on the various modifications that have been proposed to date to the BSC, CUSC, special condition AA4 Statements and Charging Methodology Statements is provided in Appendix 5.

11.12 The flexibility of the BSC governance arrangements has been particularly evident in the treatment of Urgent Modification and Amendment Proposals. Such modifications or amendments have often been implemented within-days of the modification/amendment being raised. Examples include modifications to

[69]Modification Propsal P37: "The Remedy of Past Errors in ECVNs and in MVRNs". Modification Proposal P37 sought to amend the BSC to enable past errors (but not future) in Energy Contract Volume Notifications and Metered Volume Reallocation Notifications to be remedied on an ex-post basis. This Modification Proposal was approved by the Authority on 10 May 2002.
Modification Proposal P44: "Correction of Notification Errors (subject to an RPO test)". Modifictaion Proposal P44 sought to allow BSC Parties to apply to the BSC Panel requesting the ex post creation of ECVNs/MVRNs or amendment of a previously submitted ECVN/MVRN in specific circumstances. This Modification Proposal was rejected by the Authority on 10 May 2002.

imbalance cash-out prices and modifications to deal with issues that arose following the movement into administration of a number of companies within the Enron Group.[70]

11.13 The NETA governance arrangements allow greater participation by all interested parties and have provided inclusivity. Market participants have been able to contribute through Modification Groups, Working Groups, Standing Groups, industry for a and consultation processes. The transparency of the governance arrangements has also been assured by placing all the documents relating to proposed modifications on ELEXON's or NGC's websites, as appropriate, where any interested party can examine them.

11.14 There has however been some concern from industry participants that the current governance structure creates a fragmented approach to developing the market rules that can inhibit efficient change. For example, when a participant proposes a Modification Proposal to the BSC and an Amendment Proposal to the CUSC to address the same issue or when an issue is being addressed through NGC's BSAD and a parallel BSC Modification Proposal is proposed.

11.15 However, it is important to recognise that during the development of NETA market participants considered that there was merit in clearly separating the roles of System Operator (NGC) and the BSCCo. Change co-ordination provisions were put in place between the BSC and other key industry documents which allow the changes required to other documents to be co-ordinated in order to give full effect to a modification approved under the BSC/CUSC and to be completed in a timely and efficient manner.

11.16 Throughout the process both NGC and Ofgem attend BSC meetings and CUSC meetings which enables information to be passed between the governance structures so that cross governance issues can be co-ordinated appropriately. To ensure a consistency of approach across these arrangements, all modifications to

[70] Modification Proposal P3: "Correction Of Price Spikes Generated By De-Minimis Purchases". This was submitted on 28 March 2001 and the Authority decision to reject was made on 10 April 2001.
Modification Proposal P10: "Eliminating Price Spikes Caused By Truncating Effects". This was submitted on 2 May 2001 and the Authority decision to approve was made on 11 May 2001.
Modification Proposal P54: Ability to Hold Short Notice BSC Panel Meetings". This was submitted on 30 November 2001 and the Authority decision to approve was made on on 30 November 2001.
Modification Proposal P58: "Disapplication of Volume Notifications Relating to a Default". This was submitted on 3 December 2001 and the Authority decision to approve was made on 4 December 2001.

the BSC, Grid Code, documents under NGC's licence and the CUSC are subject to the approval of the Authority.

11.17 Industry participants have raised concerns to Ofgem that when modifications require changes to central systems the time between the decision on modifications and modifications being implemented into the central systems can act as a barrier to effective governance. Against the background of these concerns ELEXON has over the past year worked with central system providers to reduce implementation times and has additionally implemented work around solutions to address urgent issues such as modifications to imbalance cash-out.

The performance of ELEXON

11.18 The BSC Panel in conjunction with ELEXON manages the rules and governance of the Balancing Mechanism and Settlement process as contained within the BSC which includes the implementation of the Modification Procedures. The principal role of ELEXON as set out in the BSC is to provide and procure facilities, resources and services (including those required by the Panel and the Panel Committees) required for the proper, effective and efficient implementation of the BSC. If a modification to the BSC is approved, ELEXON is responsible for overseeing the implementation of that amendment (including any consequential changes to systems, procedures and documentation).

11.19 The total costs of ELEXON for the year to 31 March 2002 were £71.6m. This is £12.8m below the budget of £84.4m for 2001/02. In general, costs have been lower than anticipated at the time of construction of the budget which was prior to Go-Live (27 March 2001), when the cost impact of the BSC trading arrangements for ELEXON was uncertain.

Table 11.1 - ELEXON costs in the first year of NETA

Expenditure Type	Year End		
	Budget £000's	Actual £000's	Variance £000's
ELEXON Operational (costs of running ELEXON)	**18,792**	**16,499**	**(2,293)**
Demand Led (costs associated with BSC modifications and system changes)	**10,000**	**5,593**	**(4,407)**
Contracted (costs relating to the out-sourced operation of the Trading Arrangements)	**41,883**	**36,289**	**(5,594)**
NETA Funding (costs associated with the pre Go-Live costs that are being spread over four years from 27 March 2001 onwards)	**13,750**	**13,233**	**(517)**
Overall Total	**84,425**	**71,614**	**(12,811)**

Update

11.20 Since 28 March 2002, BSC Parties have submitted a total of 23 Modification Proposals to the BSC, two of which have been approved by the Authority and one of which has been withdrawn. Of the 26 BSC Modification Proposals submitted in the first year of NETA which were live on 27 March 2002, 18 have since reached their conclusion, with 13 approved by the Authority and 5 rejected by the Authority.

11.21 A total of four CUSC Amendment Proposals have been submitted since 28 March 2002 all of which are still live. Of the 10 CUSC Amendment Proposals submitted in the first year of NETA which were live on 27 March 2002, four have since reached their conclusion with the Authority approving two and rejecting a further two.

11.22 Modification Proposal P28: "Review of Governance and Modification Procedures" sought to increase the efficiency and transparency of the BSC

governance arrangements and BSC Modification Procedures, specifically in relation to the operation of the Panel, Panel Committees, Modification Groups and Modification Procedures. The Authority approved Alternative Modification Proposal P28 on 26 June 2002. The Authority considered that Alternative Modification Proposal P28 better facilitated the achievement of the Applicable BSC Objectives by improving transparency and efficiency of the governance and Modification Procedures.

Summary

11.23 In the first year 46 BSC modifications completed the BSC modification process, of which 18 were approved, whilst eight amendment proposals completed the CUSC Amendment Process, of which six were approved. There have additionally been a number of modifications to NGC's BSAD and other licensed statements.

11.24 The Governance arrangements have been quick to respond to urgent issues within the trading arrangements and have promoted inclusivity and transparency.

11.25 Ofgem will continue to work with interested parties to ensure that Governance arrangements are effective.

12. Further developments to the electricity trading arrangements

Introduction

12.1 There are several further developments to the electricity trading arrangements underway that are due to be implemented within the next two years. This chapter provides an overview of these reforms and outlines how they will be taken forward. They include:

- Reforms to the transmission access and losses arrangements;
- The creation of a 'deeper' SO incentive scheme for NGC; and
- The introduction of British Electricity Trading and Transmission Arrangements (BETTA).

Reform to transmission access and losses arrangements

Ofgem's proposals for reform

12.2 Ofgem published its conclusions on the way forward on transmission access and losses in a revised proposals paper[71], published in February 2002 (the February document). This provided our high level views on the direction that reform of the transmission access and losses arrangements should take.

Progress since the February document

12.3 On 22 March 2002, the CUSC panel determined that a Transmission Access Standing Group (TASG) should be established to consider the issues raised by the February document and to develop further the proposals for reform of the transmission access arrangements. The TASG had its first meeting on 25 April 2002 and will report to the CUSC Panel on 16 August 2002. Following the report of the TASG, it is expected that CUSC amendment proposals to introduce new arrangements for transmission access will be put forward and debated by interested parties via the CUSC consultation process. Any necessary

[71] 'Transmission access and losses under NETA. Revised Proposals', Ofgem, February 2002.

modifications to other codes, such as NGC's transmission licence and NGC's Charging Methodologies will also be taken forward and consulted upon via the appropriate routes.

12.4 Since the publication of the February document, three BSC Modification Proposals have been submitted which propose reforms to the transmission losses arrangements, although one has subsequently been withdrawn. The Transmission Loss Factor Modification Group (TLFMG) set up by the BSC Panel is assessing the remaining BSC Modification Proposals P75 and P82 in parallel. The TLFMG is expected to prepare Assessment Reports in relation to both Modification Proposals for the November BSC Panel meeting.

12.5 Implementation of both transmission access and transmission losses reforms is expected to occur in April 2003.

Deep SO incentive scheme for NGC

Introduction

12.6 NGC is currently subject to a "shallow" SO incentive scheme that provides it with financial incentives to control the costs of operating the transmission system.[72] The scheme will expire on 31 March 2003.[73] Ofgem has highlighted that it then intends to implement a "deep" SO incentive scheme, which will additionally encourage NGC to make efficient trade-offs between operating and investment costs.

12.7 Increasing the role of the SO in investment planning will encourage transmission system capacity investment decisions to be made in response to customers' changing needs rather than as a result of a central planning process. This is because the SO is better able than the TO to assess the changing needs of the customers of the transmission system, as it is responsible for the day-to-day operation of the transmission system and administering the balancing arrangements. A deep SO incentive scheme should lead to a reduction in the cost of system operation over time, to the benefit of customers, who ultimately pay these costs.

[72] 'NGC system operator incentive scheme from April 2002, Final proposals', Ofgem, February 2002.
[73] The incentive scheme on NGC's own (internal) SO costs runs until 31 March 2006.

12.8 Ofgem has already consulted on a deep SO incentive scheme for Transco, the gas market SO and TO. Whilst there are differences between the electricity and gas markets, the basic principles underlying a deep SO incentive scheme are common to both markets. The Transco arrangements therefore provide a useful illustration of how a deep SO incentive scheme for NGC might be developed. In addition, consistency is required between the two sets of SO incentive schemes because interactions between the electricity and gas transmission networks are becoming more important.

Next steps

12.9 Ofgem intends to consult on the scope, form and duration of an appropriate "deep" SO incentive scheme for NGC in September 2002. Following a consultation period, Ofgem is intending to publish Final Proposals in December 2002, which will be developed in light of respondents' views. Prior to April 2003, subject to NGC's consent to the Final Proposals, Ofgem will be looking to implement licence modifications in order to modify NGC's Transmission Licence to take account of the proposed changes to the SO incentive scheme.

The development of the British Electricity Trading and Transmission Arrangements

Introduction

12.10 The British Electricity Trading and Transmission Arrangements (BETTA) reforms are designed to enable all consumers in Great Britain (GB) to benefit from competitive wholesale markets. In May 2002 Ofgem/DTI published their latest document[74] in relation to BETTA. This followed the Government's announcement in April 2002 of its support for introducing legislation to implement BETTA when Parliamentary time allows.[75]

Principal building blocks of BETTA

12.11 There are a number of key building blocks required to implement BETTA:

[74] ''The Development of British Electricity Trading and Transmission Arrangements (BETTA):Report on consultation and next steps, Ofgem/DTI', May 2002.
[75] See Hansard, 15 April 2002 Official Report Column 748W.

- the introduction of a common set of trading, balancing and settlement arrangements across GB, based on those applying in England & Wales at the time of implementation;

- the introduction of a common set of contractual arrangements for connection to and use of the transmission system, based on those applying in England & Wales at the time of implementation;

- the introduction of common GB charging methodologies for connection to and use of the transmission system, based on those applying in England & Wales at the time of implementation;

- the introduction of balancing arrangements that are administered independently by a GB system operator that is separate from generation and/or supply interests;

- removal of current commercial arrangements on use of the Scotland-England interconnector, by subsuming interconnector assets into the transmission businesses of the licensees that own those assets, and providing access to and use of those assets on the same terms as the rest of the transmission system; and

- the introduction of a single document governing technical matters associated with connection to and use of the transmission system in GB, embodied in a GB Grid Code.

Delivery of BETTA

12.12 The BETTA project plan is being developed on the basis of a BETTA Bill being enacted at the end of the 2002/03 parliamentary session. The three principal areas of delivery in the BETTA project are; legal documents, system development and transition arrangements.

Next steps

12.13 In the May 2002 document, Ofgem/DTI concluded that it is appropriate to take BETTA forward using a combination of consultation papers, expert groups and seminars. A seminar was held in June 2002 to discuss a range of issues and a number of expert groups (e.g. the SO/TO Expert Group) have been constituted.

12.14 Ofgem/DTI are seeking to consult on the appropriate issues during the course of summer 2002, whilst the DTI will be working on drafting instructions for the Bill consistent with its introduction into Parliament in the 2002/03 session, should it be decided that Parliamentary time is available then.

12.15 Ofgem/DTI will also be working on the detail underlying the transition to the new arrangements and their implementation. In due course, Ofgem/DTI will consult on the form and content of the various documents that are considered appropriate to govern such processes.