

**GOVERNMENT RESPONSE TO OFGEM'S REPORTS  
"THE NEW ELECTRICITY TRADING ARRANGEMENTS -  
REVIEW OF THE FIRST THREE MONTHS" AND  
"REPORT TO THE DTI ON THE REVIEW OF THE  
INITIAL IMPACT OF NETA ON SMALLER  
GENERATORS" OF 31 AUGUST 2001**

**1 NOVEMBER 2001**

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**GOVERNMENT RESPONSE TO OFGEM'S REPORTS "*THE NEW ELECTRICITY TRADING ARRANGEMENTS - REVIEW OF THE FIRST THREE MONTHS*" AND "*REPORT TO THE DTI ON THE REVIEW OF THE INITIAL IMPACT OF NETA ON SMALLER GENERATORS*" OF 31 AUGUST 2001**

**I. PREFACE**

1. Ofgem has reviewed the initial impact of the New Electricity Trading Arrangements (NETA) on smaller generators, in the context of a wider review of the first three months of the operation of the NETA market. It has found wholesale prices under NETA to be 20-25% below those achieved under the former Electricity Pool. Ofgem has also reported improving forward market liquidity, and decreases in volatility and price differentials in the balancing mechanism. For smaller generators, prices are around 17% lower than under the Pool (a smaller reduction than for generation prices overall) but smaller generators' output has fallen substantially. Other than windpower, the output of smaller generators does not seem significantly less predictable than for others. Only a few small generators participate directly in the balancing and settlement arrangements and there is widespread concern about the lack of available consolidation services to enable smaller generators to operate in NETA through another party, aggregating risks to limit exposure to imbalance costs.
2. The purpose of this document is to respond to Ofgem's reviews and consult on specific proposals. You are invited to make comments on the issues and proposals in this consultation paper by 1 December 2001. Specific questions are raised in the text, though you are welcome to make comments on any other aspects. In summary, you are invited to comment on the following proposals and issues:
  - ensuring energy imbalance prices are consistent with cost reflective principles (paragraphs 27 to 30);
  - ensuring that effective consolidation (or 'aggregation') services emerge. We have proposed setting up a working group that will look urgently at obstacles to market driven consolidation, including the possibility of encouraging consolidation (paragraphs 31 to 41);
  - the extent to which proposals could be applied to smaller generators and/ or only as transitional measures (paragraph 43);
  - Ex-post trading (paragraphs 44 to 49);
  - Single cash out price (paragraphs 50 to 51);
  - Greater access to imbalance revenue surplus (paragraph 52 to 54);
  - 'de minimis' or deadband provision (paragraph 55 to 56).

This document and the proposals it contains should be seen in the context of the Government's commitment to competitive markets as the basis for electricity trading and its target for 10% of electricity sales from licensed suppliers to come from renewables which are eligible for the Renewables Obligation by 2010, subject to the costs being acceptable to the consumer. The Government also has the target of achieving at least 10,000 MW of CHP capacity by 2010. This document puts forward practical proposals to help achieve these environmental

targets in the context of NETA and the Government's wider commitment to liberalised and competitive markets in the UK and across Europe.

## II. INTRODUCTION

3. On 27 March 2001, the New Electricity Trading Arrangements were implemented in England and Wales. This completed the programme of reforms to promote competitive wholesale markets that the Government had announced in the 1998 Energy Sources White Paper ('Conclusions on the Review of Energy Sources for Power Generation – Government Response to fourth and fifth Reports of the Trade and Industry Committee'). Box 1 provides a brief description of the NETA arrangements.

### Box 1

#### The New Electricity Trading Arrangements (NETA)

The Electricity Pool in England and Wales was replaced by New Electricity Trading Arrangements (NETA) at 00.00hrs on 27 March. The new trading arrangements are much more like those in other commodity markets. They comprise a series of bilateral markets (i.e. genuine two-side markets unlike the Pool) designed to encourage competition and liquidity and to remove distortions in the market.

The key features of NETA are:

- a forwards market where generators are able to contract with suppliers and large customers for the physical delivery of electricity. Such contracts can be struck close to the time of delivery or a year or more ahead;
- screen-based short-term power exchanges to enable participants to refine their contract positions close to real time in the light of current information (e.g. on the weather);
- a balancing mechanism operating from 3½ hours ahead of real time up to real time, in which the National Grid Company, as system operator (SO), accepts offers of and bids for electricity to enable it to balance the transmission system (NGC may also contract ahead for balancing services). However, the vast majority of trading takes place in the forward markets rather than in the Balancing Mechanism – on average only 2.3% of national energy demand is accepted in the BM; and
- a settlement process to deal with the financial settlement of balancing mechanism trades and to deal with those participants whose generation or consumption of electricity is out of balance with their notified position. The Balancing Mechanism/ System is the means by which the SO balances the system between gate closure and real time for each half hour period. Participants which end up out of balance are subject to imbalance prices which are designed to reflect the costs of imbalances having to be resolved by NGC. These are known as the System Buy Price (SBP) and the System Sell Price (SSP).

4. NETA is a set of market mechanisms, governance arrangements and balancing arrangements which are intended to allow market signals - the interaction of supply and demand - to set wholesale electricity prices while providing for the efficient balancing of the electricity system. A key point in what follows is that

NETA rules determine how the market will be structured, not what the prices thrown up by that market are going to be.

5. Separately, the Government has important environmental targets as part of its commitment to addressing climate change. In particular, the Government has set ambitious targets for electricity from renewable sources which are eligible for the Renewables Obligation to make up 10% of sales from licensed electricity suppliers by 2010 subject to the cost of the consumer being acceptable. This is to be implemented through a Renewables Obligation, which will require licensed electricity supply companies to supply to customers in Great Britain a specified proportion of their electricity from specified renewable sources, or pay a 'buy-out' price to Ofgem of 3p per kWh. The buy-out price will act as a safety net to limit the cost to the consumer should the price of renewables be higher than expected. When setting the buy-out price the Government took into account the anticipated effect of NETA on the price of renewable electricity generation. Box 2 describes the Government proposals for the Renewables Obligation in England and Wales (and the separate arrangements which will prevail in Scotland).

## **Box 2**

### **The Renewables Obligation**

The Utilities Act 2000 made provision for an Obligation to be placed on licensed electricity suppliers to supply specified amounts of electricity generated from renewable sources.

A preliminary consultation was published in October 2000 containing proposals about how such an Obligation would be implemented in England and Wales (there will be an analogous Renewables Obligation Scotland in Scotland). Having carefully considered the issues raised in the preliminary consultation the Government set out detailed proposals for the Renewables Obligation in a Statutory Consultation which was published on 3 August and is available on the DTI website at <http://www.dti.gov.uk/consultations/>

The Renewables Obligation moves away from the Non-Fossil Fuel Obligation approach and reflects the Government's belief that the way forward is to create the market conditions for a thriving, dynamically competitive renewables industry.

The Government hopes that the Order implementing the Renewables Obligation will be able to complete the Parliamentary process before Christmas. We have proposed that the Order will come into effect and the first Obligation period will begin at the beginning of the first month following its approval by Parliament, possibly 1 January 2002. The Obligation will run until 31 March 2027.

Licensed electricity suppliers will be required to provide evidence to Ofgem of their compliance with the Obligation. In order to ensure maximum flexibility and to limit the potential cost to consumers suppliers will have three main ways in which they can comply with their Obligation through:

- Supplying power from eligible renewables generating stations to consumers in Great Britain and redeeming the Renewable Obligation Certificates (ROCs) that they receive; and/or
- Buying ROCs independently of the power that gave rise to their issue; and/or
- Paying a buy-out price (proposed as 3p/kWh) to Ofgem rather than supplying renewable electricity. The proceeds from the buy-out will be returned to suppliers by Ofgem, according to the number of ROCs that each supplier presents to discharge their obligation compared to the total number of ROCs presented by all suppliers.

Ofgem has recently published a consultation document on its procedures for implementation, monitoring and enforcing compliance of the Renewables Obligation. The consultation document can be found at [http://www.ofgem.gov.uk/docs2001/procedures\\_renew\\_ob.pdf](http://www.ofgem.gov.uk/docs2001/procedures_renew_ob.pdf)

6. Separately, the Government also has set a target of achieving an installed capacity of at least 10,000 MW of CHP plant by 2010. Combined Heat and Power plants are designed to produce both electricity and usable heat, significantly reducing energy costs and greenhouse gas emissions. CHP offers particular benefits where there is a regular, local requirement for heat and electricity, for example, factories, hospitals, leisure centres and housing developments. CHP technology continues to be a key element of the Government's climate change strategy for the business, public and domestic sectors. CHP typically achieves a 25 to 35 per cent reduction in primary energy usage compared with electricity-only generation and heat-only boilers. The UK's current CHP capacity of around 4,300 MW is estimated to save around 4 million tonnes of carbon per year.

7. It is important to note that these environmental targets are about outcomes; in contrast to NETA, which is a market process, the Government's commitments and objectives in respect of its climate change involve changing the actual energy mix in the UK, to reduce its climate change impact over time.

### **Characteristics of CHP and Renewable Plant under NETA**

8. By their nature, some CHP plant and some forms of renewable generation (especially wind) have the least predictable output of any sort of generation. This is significant under NETA, because NETA's imbalance settlement arrangements (explained in Box 1) result in unpredictable revenues for generators who have not been able to predict their output, or contract for the output they produce. However, it needs to be borne in mind that trading in the BM – and consequent exposure to imbalance prices – accounts for a very small proportion of national energy demand, according to Ofgem, only about 2.3%. It is important to note, however, that not all renewable or CHP plant is the same, or in same position under NETA. This consultation document necessarily treats CHP and much renewable generation as a single type of participant in the electricity market. While that is appropriate for these purposes, it is important to remember the real differences that actually exist between different sorts of generation and different generators. Box 3 briefly describes the different types of renewable and CHP plant and their relevant significance within the electricity market.

## Box 3

### Renewable generation and CHP plant

#### Renewable generation

Renewable energy has a key role to play in the Government's wider Climate Change programme and at its most basic level can be thought of as energy that occurs naturally and repeatedly in the environment. These sources produce significantly lower levels of environmental pollutants than conventional sources of energy; in particular they emit no greenhouse gases or are neutral over their life-cycle in greenhouse gas terms.

The basic definition of renewable sources used in the Utilities Act 2000 is "sources of energy other than fossil fuel or nuclear fuel ...". Renewable energy can include energy generated from the following sources, which are at differing stages of commercial development in the UK:

- Biofuels e.g. energy crops, agricultural and forestry residues;
- Onshore and offshore wind;
- Water (hydro, wave and tidal)
- Solar energy (photovoltaics and active/passive heating)
- Geothermal energy

Renewables currently represent just under 3 per cent of UK electricity supplies but are expected to make a significant contribution to security, diversity and sustainability of energy supplies in the medium to longer term.

Most of the technologies are small-scale, modular and deployed close to the resource itself. Some of the renewable sources are intermittent in nature e.g. wind and solar, whereas other sources are more flexible e.g. energy crops, agricultural and forestry residues.

#### CHP

CHP uses a variety of fuels and technologies across a wide range of sites and scheme sizes. The basic elements of a CHP plant comprise one or more prime movers (a reciprocating engine, gas turbine or steam turbine) driving electrical generators, where the steam or hot water generated in the process is utilised via suitable heat recovery equipment for use either in industrial processes, or in community heating and space heating.

There are four principal types of CHP system: steam turbine, gas turbine, combined cycle systems and reciprocating engines.

A variety of fuels are used, natural gas being the most common, fuelling 62 per cent of schemes. Non-conventional fuels account for around a quarter of fuel used for CHP; these include by-products or waste from industrial processes. Coal accounts for 4.5 per cent and fuel oil for 6 per cent of schemes.

The majority of CHP schemes are found in the industrial sector (88.5 per cent of current capacity), with the remaining 11.5 per cent in the commercial, public and residential sectors.

In 2000 CHP accounted for 6 per cent of the electricity generated in the UK.

9. The difficulties which CHP and Renewable plant might face under NETA were recognised from the outset because wholesale electricity prices were expected to fall and because of the removal of market distortions by targeting costs. While the new arrangements are very effective in promoting competitive electricity markets, they have been widely seen as unhelpful to these particular types of generation, because of the application of imbalance charges to market participants who do not meet their contracted volumes. There have been reports suggesting that it would no longer be economic for much of this type of plant to continue generating. It has been suggested that if these concerns are borne out, the targets for CHP and renewables might become unachievable. Against the background of that concern, shortly before the implementation of NETA, the then Minister for Energy commissioned from Ofgem a report on the impact of the competitive NETA market over the first two months of operation on smaller generators. Smaller generators as a group include a large number of renewable and CHP operators, as well as new small entrants to the market. Ofgem has now produced this report, together with a wider review on the first three months operation of NETA. These reports form the factual background to this consultation.

### **III. OFGEM'S FINDINGS**

10. Ofgem's summaries of its two reports, on the first three months of NETA operation and on the effect of NETA on smaller generators, are attached at Annex 1. For the purposes of this consultation, the key facts which Ofgem has identified in respect of smaller generators are:
  - (a) That the prices achieved by smaller generators are 17% lower than under the Pool. This is a somewhat smaller reduction than for generation prices overall;
  - (b) Smaller generators' output has fallen substantially. Ofgem suggests the lower export prices for electricity are one factor, but also speculates that higher costs (especially gas prices) may also have contributed;
  - (c) Smaller generators are generally not participating directly in the balancing and settlement arrangements. This is broadly as expected, and the same situation as existed under the Pool. Whilst trading in the BM accounts for only a very small proportion of total trading – according to Ofgem, on average 2.3% of national demand - there is widespread concern that consolidation services have yet to become fully operational and that smaller generators are at a disadvantage. Consolidation would allow smaller generators to operate in NETA through another party, which would aggregate the output of a number of generators to reduce unpredictability and manage risk, and so limit exposure to any imbalance charges.
11. As part of its analysis, Ofgem has singled out the position of wind generators within the renewables community as especially unpredictable.
12. Ofgem notes that its report on smaller generators covers, as it was asked to, only the first two months of NETA operation, and that contract prices were struck prior to NETA implementation. Ofgem notes that 'the limited period covered inevitably has drawbacks'.

13. Ofgem also notes in its report on the first three months of NETA operation generally that 'BSC rules have had to evolve in response to issues that have arisen in the markets. Over the three months there has been a significant reduction in the SBP/SSP price spread. There has additionally been an encouraging competitive response (including from the demand-side) and SO operator responses to high prices in the Balancing Mechanism.'

### **Comment**

14. The Government is committed to seeing further development of renewable generation and more use of CHP generation. Plainly, investors will need a reasonable expectation that investment in renewables and CHP is going to be profitable. That profitability will - inevitably - depend on the particular circumstances of each individual project or installation, as well as wider market conditions and mechanisms. Here it is important to remember that NETA is simply a market mechanism, and not a means of setting prices, or underwriting investment. Furthermore, the Government considers that the mechanisms introduced by NETA represent a very considerable advance over the Pool in providing for a genuinely competitive wholesale electricity market. In particular, the rapid emergence of a strong and liquid forward market in electricity is important in contributing to the UK's longer-term security of energy supply by providing reliable longer-term price signals for investors to use in planning new generation. The Government believes that NETA should form part of its longer-term aim for encouraging a move towards a more cost-reflective and efficient system within which the benefits of embedded generation are recognised.
15. The consequences of NETA and overall supply/demand balance are also important background for this exercise. Plainly, prices for electricity in the England and Wales market reflect the rise in generation capacity on the system relative to demand, i.e. high plant margins. Between 1998 and 2001 installed capacity in England and Wales increased from 62.4 GW to 68.2 GW whilst peak demand grew by only 1.8%. Electricity generation capacity margins currently appear very healthy and are projected to remain so over the next few years. It is estimated that in England and Wales, plant margin at peak is currently 26.4% (source: NGC 2001). In a situation like this where supply fundamentally exceeds demand, the sort of downward pressure on prices which we have seen since the advent of NETA is unsurprising. It does, incidentally, entirely validate the Government's earlier decision to reform the Pool on the basis that Pool prices were persistently higher than would have been the case in the genuinely competitive market.
16. Where does that leave renewable and CHP generation? Renewable and CHP generation has particular characteristics and is already subject to particular policies aimed at promoting their use.
17. In addition to the Renewables Obligation (described in Box 2) the Government has a number of other policy instruments designed to promote the development of renewables. These include:
  - exemption of renewable electricity from the Climate Change Levy;

- supporting programme of research and development and technology transfer;
- capital grants to bring forward longer term technologies such as offshore wind and energy crops;
- a fund of £100 million announced by the Prime Minister in March 2001 to stimulate the development of renewables; and,
- a positive, strategic approach to planning for renewables at a regional level.

18. The Government also has in place a number of measures to promote CHP. These include:

- exemption from the Climate Change Levy for Good Quality CHP<sup>1</sup> electricity used on site or sold direct to other users;
- CHP is one of the key options available for energy intensive industries to use in making Climate Change Agreements to secure an 80% reduction in the Climate Change Levy;
- Enhanced Capital Allowances offer tax incentives to companies investing in energy saving technologies including Good Quality CHP;
- Exemption of CHP plant and machinery from business rates;
- There is also increased support for energy saving advice and audits for business, and for the development of low carbon technologies and new renewable sources of energy. Treasury has earmarked £50 million of levy revenues for this in FY 2001-02. Most of this expenditure will be managed by the new Carbon Trust.

### **CHP operators and gas prices**

19. CHP operators are, in particular, susceptible to variations (both absolute and in relation to the price they achieve for electricity exports) in the price of their fuel, principally gas. Gas prices at wholesale level have, overall, risen considerably in GB over the past fifteen months (although they have recently been falling), as a result of financial and physical arbitrage in the wholesale gas market over the Anglo-Belgian gas interconnector. The Anglo-Belgian interconnector is capable of carrying a large proportion of North Sea gas output (especially in the summer, when it tends to export towards Northwest Europe). At the time of its opening in 1998, continental European gas prices were low. These prices have been traditionally set by indexation to the oil price, which was then low. Since 1998, increases in oil price have led to increases in wholesale gas prices in Northwest Europe and have created arbitrage opportunities for GB gas producers using the interconnector. GB wholesale prices have increased as a result. Ofgem's report on the initial impact of NETA on smaller generators states that prices have risen from 17p/therm in the period from 27 March to 27 May 2000 to 23p/therm in the same period in 2001, an increase of over 30%. Ofgem states that (para 5.24) 'such a change, combined with a fall in wholesale electricity prices can be expected to exert significant pressure on the operating margins of any gas fired generator, small or large and this includes many CHP plants'.

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<sup>1</sup> Good Quality CHP is CHP that has been certified by the CHPQA, a voluntary quality assurance programme designed to provide a universal method to assess, monitor and certify the quality of CHP schemes for a range of purposes, including eligibility for exemption from the Climate Change Levy, access to enhanced capital allowances, and eligibility for the de-rating of plant and machinery. The programme is based on a Quality Index approach, providing a practical, reliable and determinate method of assessing the quality of the range of CHP installations of different sizes, types and fuel uses. Further information and advice can be found on the CHPQA website at [www.chpqa.com](http://www.chpqa.com)

20. The Government has been concerned by the competitiveness effect of this price increase on gas consumers, including CHP operators, in GB. Ministers have announced and are vigorously pursuing a three-part policy intended to ensure that GB gas prices are as competitive as possible, including tackling any anti-competitive behaviour, improving the functioning of markets and continuing to push for EU wide competition and liberalisation. As part of taking forward this strategy, the Government will shortly be publishing a consultation document on gas issues. The Government's three-part strategy is set out in more detail in Annex 2.
21. However, it is also important to be realistic; at a time when England and Wales wholesale electricity prices are subject to strong downward pressure as a result of NETA and given the surplus of generation which exists, and at a time when wholesale gas prices are subject to continuing upward pressure while oil prices remain relatively high and continental gas prices remain linked to oil, CHP operators will continue to be under pressure. The economics of CHP are fundamentally predicated on arbitraging the costs of gas against the alternative sources of heat for industrial use, offset to a greater or lesser extent by the income achieved from the export of surplus electricity. Changes to the NETA system (discussed below) cannot alter the fundamental economics of CHP, except at the margins. The unpalatable consequence of these developments in the gas and electricity markets may well be that it will be much more difficult to achieve the Government CHP target. The Government is determined to ameliorate this situation, through further encouraging appropriate improvements to NETA, through continued application of its gas price strategy and other measures directed at encouraging CHP investment but the realities of the market need to be understood if these steps the Government is proposing to take are to be put in the right context.

#### **IV. PROPOSALS**

22. The Government is strongly committed to renewables and CHP. At the same time, it is committed to the regulatory framework set out in the Utilities Act 2000, the principles and structure of NETA, which has already delivered a good deal of real benefit to UK consumers, and promises to do so in future as well.
23. In thinking about what might be done, Ofgem has made the following points, which need to be borne in mind:-
- (a) Ofgem has no power under the BSC to initiate modifications<sup>2</sup>. This right is reserved to BSC signatories and certain consumer groups. Furthermore, Ofgem's ability to agree modifications is circumscribed to those modifications which would better facilitate the achievement of applicable BSC objectives as set out in NGC's transmission licence. Ofgem has told the Government that its legal advice

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<sup>2</sup> In exceptional circumstances, where the Authority considers there is substantial disruption to the implementation and/ or operation of NETA and that urgent action is necessary, the Authority has been given special powers for the first year following the implementation of NETA (i.e. until 26 March 2002). In such cases the Authority can request the BSC Panel to consider what modification to the BSC would prevent such substantial disruption.

is that it would unlikely that a modification to the settlement arrangements which favoured only certain categories of generators would meet the relevant criteria;

(b) Nevertheless Ofgem made it clear it will accommodate and – to the extent possible, given for example the potential requirements of IT systems development - rapidly facilitate - modifications which both assist smaller generators and achieve the relevant BSC objectives, consistent with Authority's statutory duties. A number of these modifications are in train now (discussed below). In particular, Ofgem has said that it will continue to monitor system buy and sell prices to check that imbalance prices remain consistent with cost reflective principles, and will be sympathetic to modifications wherever there is evidence that this is not the case.

24. Ofgem has also commented "that there are issues, outside NETA, raised by the present position of "green energy" generation. It is not for Ofgem to decide the level of support needed if the Government is to achieve its targets. The fall in wholesale electricity prices which NETA has produced makes it necessary for the Government to re-calculate the amount of subsidy needed to allow "green energy" to meet the Government's targets. Ofgem believes it likely that the cost involved in achieving the targets will be higher than has hitherto been estimated, and, if so, the Government should consider giving a higher level of support, assuming that whatever cost that the Government believes appropriate will accommodate this. It is also clear that reliability will continue to be a feature of electricity generation and supply which is valued, and this will be true of a green generation as it is for other parts of the electricity supply system. In terms of the Government achieving its targets for "green energy" there is therefore great advantage in encouraging those forms of generation which are predictable and reliable. It is also of the case that if, for wider environmental reasons, the Government wishes to encourage particular forms of renewable energy which are relatively less predictable and reliable, this will give rise to additional costs, which should be recognised".

25. The Government takes these points seriously. Indeed, the proposed Renewables Obligation, on which the Government is currently consulting on its detailed proposals, is an explicit support mechanism, consistent with but outside the NETA arrangements, where the costs, benefits and mechanisms have been identified and linked to a declared environmental objective. As explained above, when setting the buy-out price the Government took into account the anticipated effect of NETA on the price of renewable electricity generation. But the Government believes more can be done. The following section describes, and invites comment on, a number of specific proposals and (in some cases) lines of enquiry intended to better achieve the Government's targets in respect of renewable and CHP generation.

26. Overall , the Government's preliminary view is that the key to improving the market for all participants, but particularly smaller generators, is to seek to ensure that energy imbalance prices remain consistent with cost-reflective principles, combined with the establishment of effective consolidation services (see further below). Put simply, we believe it is necessary that NETA operates to target costs accurately, fairly and proportionately. A truly cost-reflective system should benefit all participants, and smaller generators in particular. At the same time, it

has been clear from the outset that arrangements (in particular rules that allow consolidation services) should be in place that help smaller generators participate effectively in the system by overcoming specific hurdles such as unpredictability and/ or issues associated with scale (such as administrative burdens).

**(1) Ensuring energy imbalance prices are consistent with cost reflective principles**

27. Whilst energy volumes accepted in the BM represent only a very small proportion of national energy demand, it is argued that imbalance prices have a greater relative impact on smaller generators for two main reasons: (1) administrative and risk covering burdens, which others may undertake for smaller generators – at a price; and (2) prices which value unpredictable output less than reliable and flexible output. Ofgem's report notes that 'BSC rules have had to evolve in response to issues that have arisen in the markets'. Since the advent of the NETA arrangements on 27 March, the volatility of imbalance prices has reduced, and the initially wide spread between system buy and system sell prices has continued to narrow. Volatility in imbalance prices, particularly high SBPs, was initially caused partly by the very high priced and very flexible hydro plant which NGC was using to balance supply and demand and to control frequency. To address this, NGC has with some success tried to encourage other players (including the demand side) to compete for the short notice balancing market. Ofgem notes that 'more active response from large loads should further reduce the incidence of volatility and price spikes close to real time'. Early high spreads were also reduced by some early modifications, including:

(a) a change to the methodology by which NGC's option fees are calculated (P3);  
and

(b) elimination of price spikes caused by truncating effects (P10).

These have contributed to a sharp reduction in the average spread between SBP and SSP from around 7p/ kWh in April 2001 to around 2p/ kWh in September 2001. Ofgem states in its report on smaller generators that the spread has reduced from £94.23/ MWh, or about 9p/ kWh (average spread w/c 26/03/01) to £30.09/ MWh, or about 3p/ kWh (average spread w/c 21/05/01). These developments should be particularly welcome from the perspective of renewable and smaller generators. In addition to modifications already implemented, Ofgem has approved a modification (P18A) which has removed from the calculation of imbalance prices very short-duration NGC action as system operator intended to deal with frequency excursions rather than overall energy balancing. This was implemented on 25 September 2001 and is expected to have a significant effect.

28. Ofgem has said it 'will, of course, seek to accommodate modifications which better facilitate the BSC objectives, and which further the Authority's statutory duties. There are a number of modifications which market participants are discussing which may both satisfy these criteria and prove helpful to smaller generators, for example ... reducing the time of gate closure' [P12] (Paragraph 9 of Callum McCarthy's letter of 31 August 2001 to Brian Wilson, published on Ofgem's website). There are further relevant modifications that have already been

proposed. These include (a) a modification that would remove balancing services from exposure to imbalance charges ( P34); (b) a proposal for imbalance cash-out prices to be amended to more closely reflect the costs that out of balance parties impose on the system (P27). These proposals could all have important direct effects in helping smaller generators.

29. In principle, this is an area where the interests of small generators coincide with all others; significant spreads between system buy and sell prices are an expression of the costs of short notice changes in generation and demand and, where possible, it would be consistent with BSC objectives to remove any factors which artificially widen the spread, and to eliminate unnecessary volatility. Views are invited on whether there are further modifications to the balancing and settlement arrangements which would improve the way the balancing system is working, consistent with the objective of the Balancing and Settlement Code.
30. Given the significance of this stream of work for all participants in the wholesale electricity market, the Government has asked Ofgem to report on progress in further improving the effectiveness of NETA and ensuring imbalance prices are genuinely cost-reflective, and the spread between system buy and sell prices and balancing market/ imbalance prices volatility as part of its review of the first year's operation of NETA. This will allow a good more experience to be taken into account, including the bulk of the first winter's trading under NETA arrangements.

## **(2) Consolidation**

31. In addition to seeking to ensure that energy imbalance prices are reflective of costs, it is expected that consolidation will further reduce the risk for smaller generators in particular.
32. In the period when the NETA systems were being designed and developed, the possibility that renewable and smaller generators will find the NETA market difficult to work in was recognised. A key market based solution consistent with wider NETA principles identified at that time was "consolidation". This is where specialist energy trading skills would be offered to renewable and smaller generators, on the basis that the risks of imbalance would be smoothed if a portfolio of differentiated risk was established, and the trading costs spread across that same portfolio.
33. The Specials Expert Group (SPEG) was set up as part of the NETA Programme to consider arrangements that would be possible to reduce the impact of cost-reflective balancing on smaller generators. The group drew on experts from the CHP and renewable community and made a number of recommendations that were subsequently accepted, notably arrangements for consolidation services. A seminar was held on 8 March 2001 where the arrangements were discussed prior to the start of NETA.
34. As Ofgem's reports explain consolidation services had not emerged competitively in the first two months of NETA. Whilst they are starting to emerge now, they are still at an embryonic stage.

35. In addition, a modification (P7) has been proposed to enable supplier demand, for all supply companies in the same company group, to be allocated to the same BM Unit within a GSP Group. It is expected that this modification would facilitate more efficient consolidation.
36. But there is more that may be done to tackle the lack of consolidation services. The Government proposes to establish a working group of smaller generators, NGC, BSC participants, Ofgem, the DTI and DEFRA to look urgently at possible structural or regulatory obstacles to consolidation. This group will be tasked with looking urgently at any obstacles in respect of consolidation which can be addressed within the BSC framework or alongside it, consistent with BSC objectives. The government will ask this group to provide it with an interim report by 24 December 2001, and to provide a final report by 31 January 2002. It is not intended that progress on implementation of any improvements identified would be held back by this timetable. Terms of Reference will be published jointly by DTI and Ofgem.
37. While the work of this group will look at consolidation for smaller generators in general, including renewables and CHP, the Government will also ask it to look in particular at the position of wind generators, including prospective offshore wind installations that the government is seeking to encourage. Ofgem's report identifies the particular unpredictable nature of wind generation. At the same time, the Government is keen to promote renewable energy as much as possible, at prices consumers are prepared to pay. While the Renewables Obligation will in due course provide a significant incentive for supply companies to contract with wind operators, their unpredictability may continue to be a commercial obstacle. On the other hand, it has been suggested that an efficient portfolio of wind generators should be expected to give a manageable imbalance exposure to its consolidator. In particular, for an efficient national portfolio of wind generators, an initial calculation has estimated a cost of about 0.3p/kWh. On this basis there should be scope for wind generators to compete effectively with large generators.
38. Therefore, the government will ask the group referred to in paragraph 36 above to look in particular at any obstacles which might exist to the offering of consolidation services which will brigade unpredictable wind generation with more predictable generation qualifying under the Renewables Obligation, including hydro power.
39. Finally, a key issue the working group will be asked to consider is on what timescale, once obstacles to aggregation have been identified and addressed, aggregation services are likely to be provided on a competitive basis; in particular, whether competition in consolidation is likely to emerge in the near future or whether transitional measures may be necessary to encourage aggregation services. For example, it has been suggested that market participants could be invited by tender to put in place the infrastructure necessary to provide aggregation services. Although such a proposal may involve issues such as state aid and procurement rules, it is nonetheless an idea the working group may wish to consider.

40. The Government would be concerned if arrangements for reflecting locational factors in access to the transmission system had the inadvertent consequence of creating administrative obstacles to the aggregation of diverse renewable energy sources by otherwise efficient consolidation service providers.

41. The Government invites views on this proposal and on issues relating to consolidation.

### **(3) Others**

42. Other proposals have been suggested both to Ofgem and to Government, and these are outlined below. As described above, the Government believes the issues faced by smaller generators can and will be addressed – without undermining the fundamental principles of NETA - within the framework of the existing NETA rules, and through ensuring effective consolidation services are in place. We believe there are potential drawbacks to the proposals listed below, and we have set these out. Nevertheless, the Government invites views on these proposals.

43. The proposals below describe changes which do, or could, apply to all generators. It has been suggested that some of these proposals could be applied to smaller generators and/or only as transitional measures. As mentioned above, there are constraints on the ability to implement changes to the BSC which are likely to prevent changes that favour only a small part of the market. The Government invites views on whether individual proposals should be applied to all generators, or only to smaller generators, and to what extent proposals should be introduced as transitional measures.

### Ex-post Trading

44. One particular proposal where the Government is inviting views is ex-post trading. This would involve moving contract notifications after (or possibly closer to) real time. If contract notifications were after real time, parties would know their physical production and consumption before notifying contracts. They could trade contracts to minimise imbalances, or use an aggregator to pool the imbalances of several parties.

45. It is argued that ex-post trading appears to mirror more closely physical reality. In principle, it may well offer the possibility of NGC operating on a net basis to continue to balance the system while participants in the market are able to trade out the majority of imbalances ex-post. This has the potential to reduce overall imbalance to levels that occur in practice and could reduce significantly the volume of energy attracting imbalance charges. It may also have an impact on the cost of doing business as imbalances for individual time periods could be dealt with during normal trading hours.

46. It is also argued that ex-post trading would allow the potential for imbalance in the "right" direction (ie. that which is helping the system operator to balance the system) not to be penalised, and might in some circumstances attract a relative premium.

47. However, others have suggested that ex-post trading would diminish the incentive for more predictable and reliable plant and so the costs of NGC's uncertainty would be more widely spread and less targeted on those that cause them.
48. In addition, it has been argued that an ex-post trading system would result in a similar outcome to a single cash out price (see below), undermining the core NETA principle of encouraging participants to contract ahead and balance their positions.
49. Views are invited on this concept.

#### Single cash out price

50. The Government is aware that generators – small and large – have argued for replacing the dual cash out prices with a single cash out price. We invite views on such a proposal. In considering this option it needs to be borne in mind that the absence of two cash out prices would disincentivise the whole market to balance in advance of gate closure. This would also go against one of the core principles of NETA which is to incentivise participants to contract bilaterally in advance of gate closure, in order to minimise the actions which the system operator has to take to manage the system. We therefore invite views particularly as to how participants would be incentivised to balance under a single cash out model.
51. Moreover, it is recognised that, under NETA, reliability and predictability are valued - an important principle in ensuring security of supply in the longer term. It has been suggested that a single cash out price would remove the distinction between the values placed – deliberately – on predictable and unpredictable generation respectively.

#### Greater access to imbalance revenue surplus

52. It has been suggested that a greater proportion of the imbalance surplus could be allocated to small generators. In general, the allocation of imbalance charges leads to a surplus/ deficit of revenue (known as the Residual Cashflow Allocation (RCA), or 'Beer Fund') which is, broadly, distributed or charged to trading parties on the basis of their net metered volumes. In broad terms, smaller generators tend not to be subject to this because most of them (not registered in central settlement) are netted off their supplier's demand before the calculation is made. To remedy this, it might be possible to change the way in which the proportional entitlement to the imbalance surplus is calculated such that the output from smaller generators always contributes to an increase in that entitlement.
53. Ofgem has argued that it would be difficult separately to identify the metered volume attributable to those small generators not registered in central settlement, and therefore difficult to implement this modification on a targeted basis. In addition, in the situation where smaller generators contract directly with suppliers, it has been argued that the RCA is designed to compensate for the costs of balancing the system reflected in the Balancing Services Use of System ('BSUoS') charges. I.e. in a perfectly cost reflective system the RCA should be the same as BSUoS, the costs of balancing effectively being paid, through the

imbalance charges, by those participants that cause the imbalances. BSUoS is paid by those participants connected to the transmission system and avoided by smaller, embedded, generation. As such it represents a benefit of embedded generation to the supplier, which compensates for the fact a supplier may not benefit from the corresponding portion of the RCA. According to Ofgem RCA and BSUoS taken together have been a charge on participants since early May 2001. In addition, at times the RCA has in fact been negative. The Government notes that some participants have expressed doubts as to whether embedded benefits are reflected accurately in bilateral contracts between embedded generators and suppliers.

54. Views are invited on this proposal.

#### "de minimis" or Deadband Provision

55. It has been suggested that there should be some form of de minimis level or "deadband" within the balancing and settlement system, so that generators who are only trivially out of balance would not face imbalance charges in either direction. Such a step would benefit all generators equally, but may be more significant in proportionate terms for smaller generators facing the prospect of relatively large costs (or reduced income) for small imbalances. Such a step might also reduce the tendency of larger generators to "self-insure" by holding generation in reserve (in some ways replacing the reserve NGC would otherwise instruct) to correct any shortfall in their own output. A modification has been proposed for a 'market-driven trading neutrality band' (P26) where all participants in the market should be allowed a trading neutrality band decided annually by the panel.

56. Against the background that the vast majority of smaller generators contract directly with suppliers, it has been suggested that such a proposal would provide perverse incentives to larger suppliers in relation to smaller generators, and could risk short-circuiting the development of consolidation services. For suppliers, aggregating a number of smaller generators in a consumption unit would remove the potential benefit of a 'deadband'.

#### **(4) Measures to help CHP operators**

57. The measures in this consultation document cover changes to NETA that would benefit CHP generators. The Government is looking again at the position of CHP operators, in light of the commercial and other difficulties these operators face, and is also urgently considering how best to encourage CHP. DEFRA will be publishing proposals in the form of a CHP strategy in the coming months.

#### **V. CONCLUSIONS**

58. It is important to place these proposals and these issues in context. There can be no doubt that the NETA arrangements introduced on 27 March have had a very significant effect on the way wholesale electricity is traded in England and Wales. In very large measure the NETA arrangements have lived up to their promise of providing a significantly more competitive wholesale market with clearer forward prices underpinning future investment decisions. This is a success. The fact that

renewable and smaller generators including CHP operators have found the NETA market more difficult in some cases to operate in (and particularly challenging in the case of wind generators) is something that the Government is determined to address without compromising the wider achievement.

59. Many of the problems experienced by small and renewable generators will be addressed by market operators with more experience. Work already underway among BSC participants, to improve the way the balancing and settlement arrangements operate and ensure imbalance prices are cost reflective will help. The renewables obligation will be a major step forward. The government will continue to press on to bring as much competition and liberalisation as possible to European gas markets, as well as addressing any anti-competitive behaviour identified in the UK gas market vigorously and promptly. The measures and further work described in this paper will be taken forward urgently, to give renewable and CHP operators every prospect of being able to trade effectively within a market framework. The government considers that these are the right steps to take at this stage, and it will continue to play its part actively as the work we have described goes forward.

## **VI. VIEWS INVITED**

60. The DTI invites views from all interested parties on the proposals and issues set out in this consultation document. Responses to the document should be received by 1 December 2001.

61. The Government believes a consultation period of one month is justified, because:

- The Government is committed to acting quickly following publication of Ofgem's reports, and believes urgency is in the public interest.
- The Government is not proposing any new regulation or legislation. Moreover, the issues have been debated and considered quite extensively since before the start of NETA.

Responses should be sent to:

Jeffrey Barretto  
Energy Policy Directorate  
Department of Trade & Industry  
Room 2119  
1 Victoria Street  
London SW1H 0ET

Or sent by e-mail to [jeffrey.barretto@dti.gov.uk](mailto:jeffrey.barretto@dti.gov.uk)

Or sent by fax to 020 7215 2867

Respondents are free to mark their replies as confidential although we would prefer, as far as possible, to be able to place responses to this document in the DTI library.

Unless clearly marked 'confidential', responses will be published by placing them in the DTI library.

## **Annex 1**

**August 2001**

**The New Electricity Trading  
Arrangements**

**A review of the first three  
months**

# Summary

## *Introduction*

This document provides an initial review (the Review) of the first three months of the New Electricity Trading Arrangements (NETA), introduced in England and Wales from 27 March 2001 ('Go Live'). One of Ofgem's objectives is to ensure that NETA is delivering effective trading arrangements. Ofgem is committed to monitoring whether NETA is meeting this objective. A further full review of NETA and its impact will be undertaken shortly after the end of its first year of operation.

At the request of the Minister of State for Energy and Competitiveness in Europe, Ofgem has undertaken a review of the impact of NETA on smaller generators over the first two months of its operation. A report that sets Ofgem's findings has been published on Ofgem's website at the same time as this document.

## *Background*

The new arrangements were introduced to address some of the fundamental weaknesses of the wholesale electricity trading arrangements under the Electricity Pool of England and Wales (the Pool), introduced in 1990 at the time of privatisation of the electricity industry. These included: wholesale electricity prices that had not fallen in line with reductions in generators' input costs; a lack of supply side pressure and demand side participation; and inflexible governance arrangements that had prevented reform of the arrangements.

The new trading arrangements were designed to address the weaknesses of the Pool and to deliver significant benefits over the Pool arrangements. In particular, NETA was designed to deliver more effective and competitive arrangements. Market participants have a greater choice of markets in which to trade under NETA and there is more scope for 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 new entry, by providing both generators and suppliers with clearer signals of when entry is likely to be profitable – thereby enhancing security of supply. The new balancing arrangements were designed to ensure short-term quality and security of supply, while the Settlement Process was to provide more accurate cost targeting and sharper cost incentives to manage risks. It was believed that the new arrangements would offer the prospect of reductions in wholesale electricity prices and hence lower prices for both industrial and domestic customers.

### **Overview of NETA**

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 (3 and a half hours before real time), in which the National Grid Company (NGC), as System Operator (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.

The balancing and settlement rules which are incorporated in the Balancing and Settlement Code (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.

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.

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. However, nobody is obliged to make Bids or Offers into the Balancing Mechanism.

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 (or '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.

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.

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.

## ***Main findings***

The Review covers the first three months of NETA operation. It provides an early indication of how NETA is working. Ofgem recognised that this will not necessarily be typical of the longer-term situation when the market settles down and the rules are modified as necessary in the light of operational experience.

### **Lower prices in the NETA markets**

Forward prices<sup>3</sup> have fallen substantially on the UK<sup>4</sup> Over The Counter (OTC) market and the three new power exchanges (Figure 1). In the forwards and futures markets the average price for all UK OTC Baseload trades for the first three months was £19.21/MWh. For the same period last year this figure was £20.51/MWh - representing a fall of 6 per cent. The average price for all UK OTC Peak trades in the first three months was £24.81/MWh. For the same period last year this figure was £31.24/MWh - an annual fall of 21 per cent.

It is likely that these reductions in wholesale prices will have real and continuing benefits for consumers. This general fall in wholesale electricity prices has taken place against a rising wholesale gas cost that has increased by approximately 12 per cent over the past year. Over one third of installed generation is now gas fired.

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<sup>3</sup> The Grid Trade Master Agreement (GTMA) replaced the standard Electricity Forward Agreements (EFA) contract which was traded under the Pool. The most significant changes are that power is now traded at a notional national balancing point rather than at the station gate and that generators pay a portion of NGC's system balancing costs. These changes do not increase the overall cost of electricity, but instead they transfer costs previously borne by suppliers. The increase in generators cost is approximately equal to £1/MWh. Ofgem has not sought to adjust any numbers in this report to reflect this change in contractual terms.

<sup>4</sup> Throughout this document prices are referred to as 'UK'. This is consistent with price reporting conventions, although the geographical market is the England and Wales market.

Figure 1 - UK OTC Winter Baseload year on year comparison<sup>5</sup>

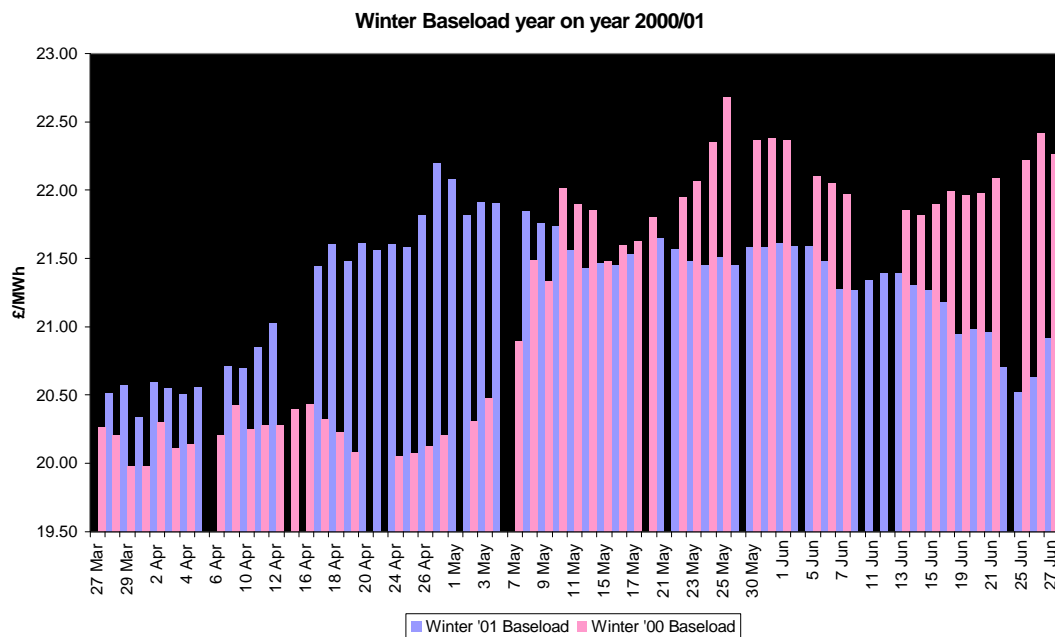
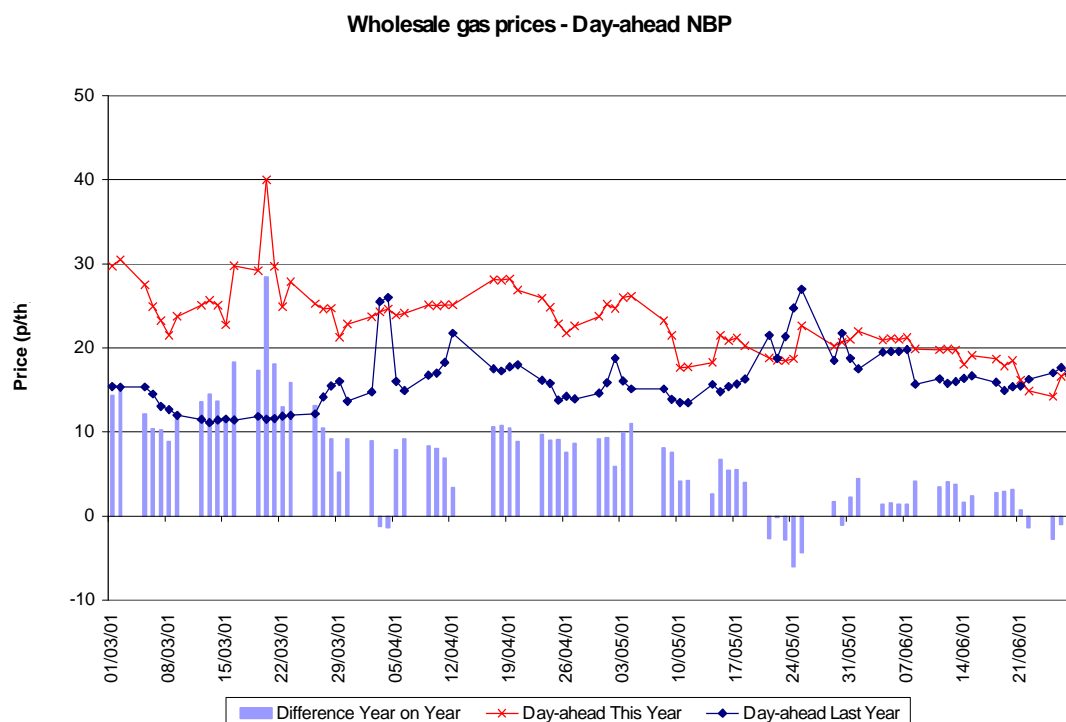


Figure 2 - Wholesale gas prices<sup>6</sup>



<sup>5</sup> Source: Heren European Daily Electricity Markets (EDEM).

<sup>6</sup> Source: Heren EDEM.

In addition to lower longer term prices under NETA, prices in the day-ahead markets have to date been substantially less volatile than under the Pool arrangements. The chart below compares the volatility in the day-ahead NETA markets with day-ahead Pool prices.

**Table 1 - Pool and NETA Price volatility<sup>7</sup>**

St. Dev.	Year	April	May	June	July
<b>Pool Purchase Price (PPP)</b>	<b>2000</b>	27.00	17.99	13.00	9.87
<b>UKPX Reference Price</b>	<b>2001</b>	5.68	6.02	6.29	6.09

### **Emerging market mechanisms**

The introduction of NETA has resulted in a large and rapid development of the wholesale market. NETA has created a more transparent wholesale contract market that is closer to the way other commodities are traded. A number of power exchanges have been established and there have been significant developments in liquidity in both these power exchanges and in the OTC market. Forwards, futures and spot markets have evolved in response to the requirements of participants.

The majority of forward trading under NETA has been conducted through the OTC market. NETA has seen significant developments in liquidity in the OTC trades both in terms of the total volume of trades reported and in the variety of products on offer. The chart below shows the growth in daily traded volumes year on year.

Year on year there has been a 315 per cent increase in the number of contracts traded and an increase in the variety of products offered – in 2000

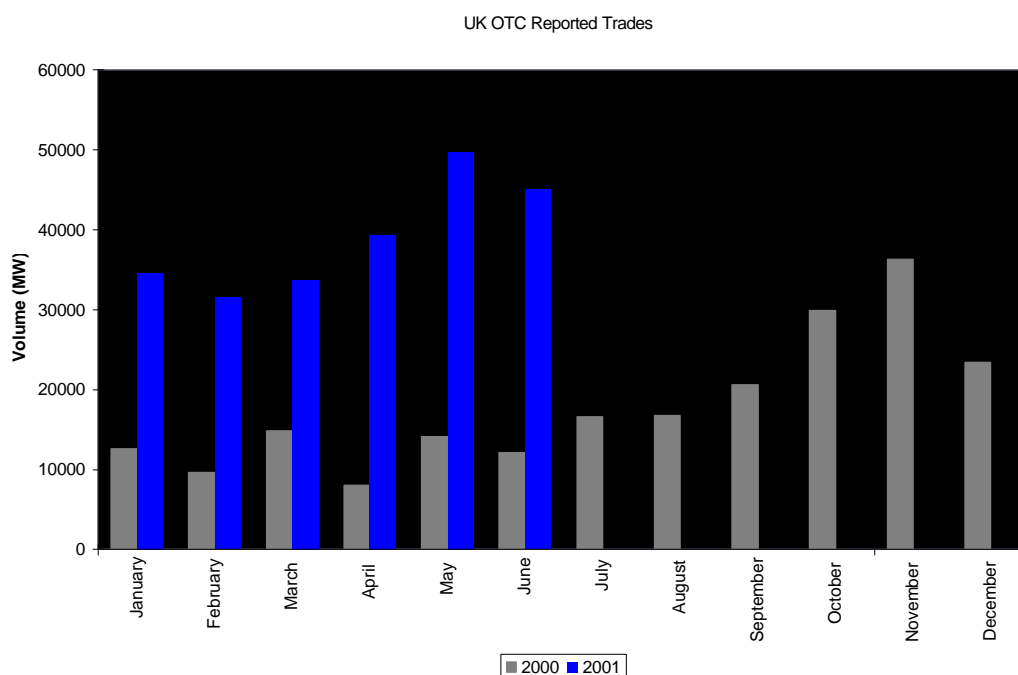
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<sup>7</sup> Source: Heren and Platts.

24 different products were reported, by 2001 this had grown to 148 an increase of 517 per cent.

The three main power exchanges that have developed since NETA Go Live are the UKPX, the UK APX and the IPE. Of these, the UKPX and UK APX offer a spot market while the UKPX and IPE offer futures contracts. The vast majority of trading on the exchanges has been through the spot markets with participants actively using these markets to fine tune their contractual position as their uncertainty reduces. Trades on the UKPX account for most of the non-OTC traded contracts, with 1,254,715MWh (250,943 trades) traded since Go Live.

**Figure 3 - Reported UK OTC power trades<sup>8</sup>**



Although liquidity in general has increased significantly there are still particular contracts on the forward curve that are not trading in large volumes. In particular there is a lack of liquidity in the within-day spot day

markets. This may reflect several factors including the initial spread between System Buy and System Sell Imbalance Prices, portfolio generators self insuring before Gate Closure against plant failure, a lack of reporting of individual participants' contractual positions from central systems and the timing of Gate Closure. To the extent that they reflect a problem, some of these issues have already been addressed through Modifications to the BSC, and others are being discussed at present or are the subject of Modification Proposals. If there is a demand for such trades, liquidity in the spot markets will grow as any barriers to within day trades are removed.

Under the Pool there was a lack of transparency in long term contracts for wholesale electricity with limited price reporting of EFAs trades. In addition to the overall improvement in wholesale market liquidity NETA has created a more transparent market. A number of price reporters (for example Heren, Platts and Reuters) have entered the market and forward prices are available through a range of media, at varying levels of costs. Table 2 summarises the type of information available. Price reporters operate a subscription service that allows subscribers to access information both in an electronic and a paper based format.

**Table 2 - Summary of daily information available from price reporters**

<b>OTC Trading</b>	<ul style="list-style-type: none"> <li>• UK OTC price assessments</li> <li>• UK trades</li> </ul>
<b>Power Exchange</b>	<ul style="list-style-type: none"> <li>• UKPX prices and volumes</li> <li>• UKPX, IPE and APX settlement prices</li> </ul>
<b>Balancing Mechanism</b>	<ul style="list-style-type: none"> <li>• Previous day System Buy and System Sell Prices and volumes</li> </ul>

### **The operation of the Balancing Mechanism**

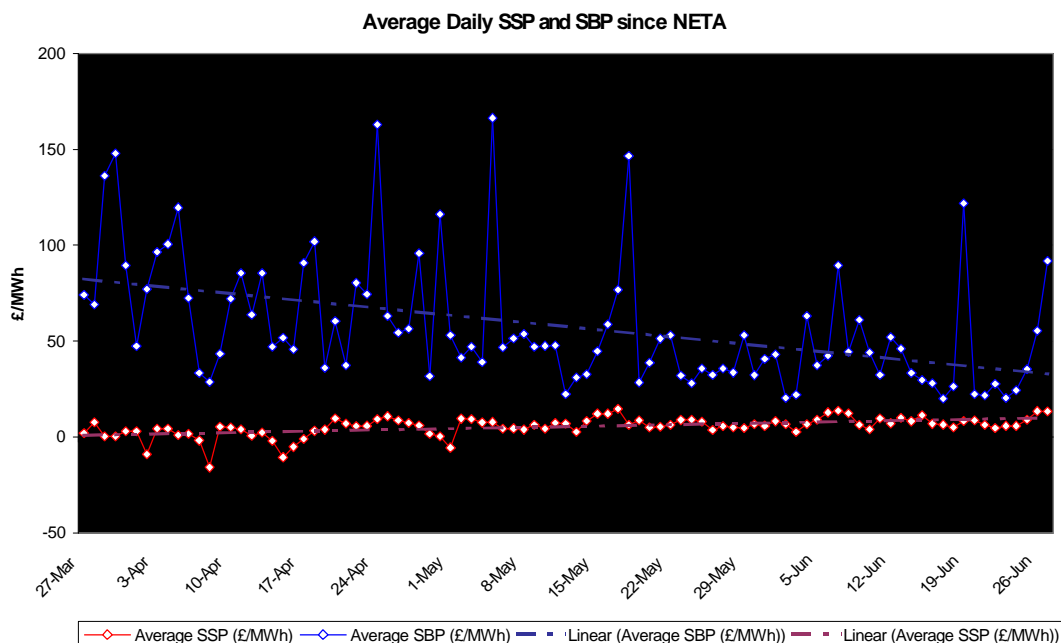
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<sup>8</sup> Source: Heren EDEM.

The Balancing Mechanism is one of the tools that the SO has available to it to ensure that short-term quality and security of supply are met. The Balancing Mechanism and the Settlement Process required new IT systems to be built and operated. These new central systems have operated successfully since NETA Go Live (with only a few very minor teething problems) and have maintained short-term security of supply.

The Balancing Mechanism has been operating as expected both in terms of volumes of energy traded and in terms of prices. To date only a small proportion of total volumes of energy traded, around 3 per cent, has been traded through the Balancing Mechanism. Also as expected, prices in the Balancing Mechanism and imbalance Settlement Process have been volatile, since supply and demand has to be matched at very short notice and also, in part because the volumes of accepted Bids and Offers in the Balancing Mechanism have been very small. Figure 4 below shows the trend of System Sell Price (SSP) and System Buy Price (SBP) paid to or by out of balance participants.

Figure 4 - Average SSP and SBP since Go Live<sup>9</sup>



The chart shows that in May and June there have been fewer occurrences of high prices than in April and fewer negative prices. The chart additionally illustrates the trend of the spread between the SBP and SSP reducing over time.

The imbalance prices are based on the average prices that NGC has to pay participants in the Balancing Mechanism and through contracts to maintain an overall system balance. Since NETA was implemented, NGC has tended to find at Gate Closure that generators were intending to generate more power than was required to meet national demand (i.e. the system was long). In some half hours, however, a sudden, unanticipated and short duration increase in demand has occurred. As a result, during the first three months, NGC has, on occasion, needed to instruct very flexible generation units to increase frequency at very short notice and at relatively high cost.

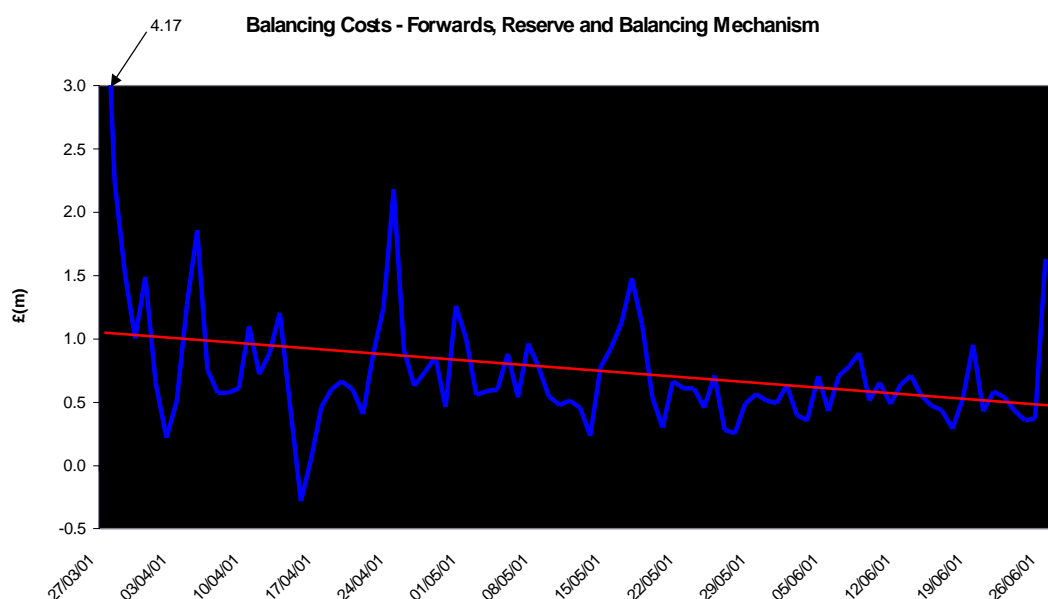
<sup>9</sup> Source: Balancing Mechanism Reporting Service (BMRS).

Ofgem has recently approved a Modification to the rules designed to better reflect the costs of NGC's actions to achieve an overall balance between supply and demand in imbalance prices by excluding others costs of maintaining system stability<sup>10</sup>. This Modification, when implemented, is likely to see further convergence of the SSP/SSB prices.

In addition, NGC and market participants have responded to the new arrangements and price signals. NGC has successfully reduced the number of occasions where it has had to call very expensive highly flexible plant at short notice. NGC has additionally sought to enter into a number of alternative balancing service contracts to reduce imbalance costs.

### Daily Balancing Costs

Figure 5 - Daily balancing costs under NETA<sup>11</sup>



The chart shows that there has been a substantial reduction in balancing costs as NGC has learnt to more effectively manage the system<sup>12</sup>. There have

<sup>10</sup> System balancing costs, such as those associated with correcting short duration frequency excursions within the half hour balancing period.

additionally been encouraging competitive responses to high price spikes with generators exploring the flexibility of plant and the demand side increasingly competing with high priced, flexible generation close to real time.

### **Participants' behaviour**

Overall the first three months of operation under NETA has been a learning experience for market participants. One of the key features of NETA is that, unlike the Pool where NGC centrally dispatched generating plant, generators now self dispatch and are subject to imbalance prices if their generation does not match their contracted output. This increased exposure to the risk of plant failure has seen an increase in the reliability of generating plant.

A major feature of the new arrangements is that the 'demand-side' is fully incorporated into the new balancing arrangements. Suppliers and customers can offer load reductions into the Balancing Mechanism in direct competition with generators. In addition suppliers, in seeking to manage their 'out of balance' position, are more responsive to their customers. Encouraging signs of demand side development have begun to occur with the demand side responding in direct competition to generators in NGC tenders for balancing services. This suggests there is the potential for greater demand side participation in the arrangements than has been seen to date and this will result in lower balancing costs and consequently benefits for consumers.

Under NETA the incentive for suppliers to understand their customers' demand requirements more fully and to work closely with those customers able to offer load management services is much greater than under the Pool

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<sup>11</sup> Source: BMRS, NGC and ELEXON.

<sup>12</sup> This decline in costs may, in part, be a function of seasonality.

arrangements. Ofgem also expects that there will be market development in this area. It is expected that this market development will result in benefits to consumers from both the general lower level of wholesale prices and the likely reduction in system balancing costs.

### **Flexible governance arrangements**

The Pool's governance was widely recognised as inadequate and cumbersome. During the 11 year life of the Pool, most of the expected reforms set out at privatisation were blocked under its governance structure. In designing the new trading arrangements it was recognised that the governance structure would have to be sufficiently flexible to facilitate changes to the rules as the arrangements developed.

The rules governing the Balancing Mechanism and Settlement Process are incorporated in the BSC. These rules need to evolve in light of experience of the implementation and operation of NETA. To date the process of proposing and implementing modifications to the BSC has operated as intended. In the first three months of the operation of NETA, market participants have submitted a total of 28 Modification Proposals to the BSC. A further 6 have been proposed since then. In the first three months, a total of 7 modifications have been taken to their conclusion, and therefore completed the BSC modification process. In particular, the new governance arrangements allowed initial teething problems resulting from the new trading arrangements to be addressed urgently with solutions being found within weeks of the problem being identified.

The Modification process allows greater participation by all interested parties. The Modification process also prescribes and limits the position of

Ofgem. Ofgem cannot initiate Modifications, and must judge any Modifications proposed against defined criteria.

### ***Conclusions***

Overall, Ofgem believes that the new trading arrangements are resulting, and will continue to result in, real and sustainable benefits to consumers. Ofgem is encouraged by the development of markets and learning by market participants in the period since Go Live. There are a number of areas, as was to be expected, where further market development is expected to emerge. Ofgem believes that this market development will ensure that wholesale electricity prices will continue to be lower than those likely to have emerged under the Pool.

The BSC rules have had to evolve in response to issues that have arisen in the markets. There has been an encouraging competitive response (including from the demand side) to high prices in the Balancing Mechanism. Over the three months there has been a significant reduction in the SSP/SSB imbalance price spread.

**August 2001**

**Report to the DTI on the Review  
of the Initial Impact of NETA on  
Smaller Generators**

## **Summary**

### ***Introduction***

On 21 February 2001, Peter Hain, the then Minister of State for Energy and Competitiveness in Europe, requested Ofgem to undertake a review of the impact of the first two months of the New Electricity Trading Arrangements (NETA) on smaller generators (the Review). This report to the Department of Trade and Industry (DTI) sets out Ofgem's findings.<sup>13</sup>

### ***Background***

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. They suggested that a reduction in profitability for smaller generators is not consistent with Government policy on the promotion of renewable and energy efficient types of generation. The Minister therefore asked Ofgem to undertake this review.

### ***Terms of Reference***

The Terms of Reference for the Review were consulted upon by Ofgem and published in May 2001. The Review covers both licence-exempt and exemptable generation. Both classes of generator can either be directly connected to the transmission network or embedded in the distribution

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<sup>13</sup> This report is available on Ofgem's website - [www.ofgem.gov.uk](http://www.ofgem.gov.uk)

network of a Public Electricity Supplier. A licence exemption applies to all generators who can export less than 100MW to the system.<sup>14</sup>

The terms of reference indicated that the Review should distinguish between those factors that affect all generators and any that appear to have a particular impact on smaller generators. The full Terms of Reference, including the scope of the Review are set out in Appendix 1.

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<sup>14</sup> The Secretary of State may make an order to class a generator as licence exempt from the requirement in Section 4 of the Electricity Act 1989, which requires that a person who generates electricity for the purpose of giving a supply to any premises or enabling a supply to be so given is authorised to do so by a licence, by virtue of the Electricity (Class Exemptions from the Requirement for a Licence) Order 1997 (SI 1997 No. 989) as amended.

## ***The Review***

In undertaking the Review, Ofgem has gathered information from a number of sources. Ofgem sent out a detailed questionnaire seeking data from smaller generators comparing the first two months of NETA with the same period in 2000. Over 500 questionnaires were sent out in May to a wide range of generators identified both from Ofgem and DTI sources, with the help of a number of trade associations and the Department for Environment, Food and Rural Affairs (DEFRA).<sup>15</sup>

40 companies or organisations returned completed or partially completed questionnaires representing 106 sites. We received comparable year on year data for 40 sites. In addition, Ofgem interviewed representatives of various types of smaller generators, consolidators, suppliers and trade associations.

## **Overview of NETA**

The new, more market-based, trading arrangements are based on bilateral trading between generators, suppliers, traders and customers. They operate more 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 3½ hours before real time, in which the National

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<sup>15</sup> Formerly the Department for Environment, Transport and the Regions (DETR).

Grid Company (NGC), as System Operator (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.

The balancing and settlement rules which are incorporated in the Balancing and Settlement Code (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, they are judged against defined criteria.

To help assess the likely physical balancing 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 the demand-side.

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. However, nobody is obliged to make bids or offers into the Balancing Mechanism.

NGC assess the position of all BSC Signatories 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 (or '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 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 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.

As well as achieving an overall physical balance of electricity supply and demand (the costs of which are charged to out of balance generators and suppliers) the SO may also need to accept offers and bids 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.

NGC, as SO, faces commercial incentives, put in place at Go-Live to manage the total costs of system operation on behalf of customers. Under the scheme, NGC is set a target level of system operation costs. If it manages to beat this target, it 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.

### ***Options for Smaller Generators under NETA and the Pool***

Prior to the implementation of NETA, a number of Expert Groups were established to focus on particular sets of issues. The terms of reference for the Specials Expert Group (SpEG) included the requirement to consider issues relevant to smaller generators. As a result of its work, various elements were

introduced into the new arrangements to ensure that smaller generators were treated appropriately. Broadly, smaller generators have three options for trading under NETA:

- ◆ they may contract with suppliers to sell their output locally. This option was also available under the Pool. In this way they can bypass the central balancing and settlement arrangements. The energy sold to suppliers is taken into account by them when participating in the balancing and settlement process;
- ◆ they may reduce their costs and risks by contracting ahead in forward and futures markets and in power exchanges, and further mitigate their risks by the use of the special provisions under the BSC that allows them to consolidate their imbalance positions at Gate Closure with other generators for the purposes of being assessed for payments or receipts of imbalance cash-out prices. Under this option their generation will be centrally registered under NETA. If they contract with a 'consolidator' offering commercial consolidation services then this option need not involve them signing the BSC i.e. they do not have to participate directly in the balancing and settlement arrangements; and
- ◆ they may contract ahead in the bilateral markets, as before, but also sign the BSC, register their own generation, and participate directly in the balancing and settlement arrangements. In this case they may offer to change their output via Balancing Mechanism bids and offers and they will also need to notify their contractual positions at Gate Closure to enable their imbalance position to be calculated. Generators similarly had the option under the Pool to sign the Pooling

and Settlement Agreement (PSA) and sell their generation directly into the Pool.

## ***Main Findings***

### **Summary**

The position of smaller generators during the first two months of NETA has 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 are common to all generators. Ofgem is publishing simultaneously with this Review a report on the first three months of NETA operation.<sup>16</sup>

During these early months, the market has been evolving rapidly as all generators learn how to operate most effectively under NETA. Forward and futures markets and the power exchanges have developed in the light of NETA experiences and the expected high volatility of initial imbalance cash-out prices has declined. BSC rules have been modified. These factors have affected all participants to some degree. It is not always straightforward to ascertain whether there has been a differential effect on smaller generators. It can be expected that the market will develop further over the coming months as NETA continues to settle down and participants gain more experience of operating with the new arrangements. In addition, the robustness of the findings are inevitably related to the number of returned questionnaires received from smaller generators.

Against this background the results of the analysis of smaller generators show:

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<sup>16</sup> 'The New Electricity Trading Arrangements – A review of the first three months', Ofgem, August 2001.

- (i) as expected, very few smaller generators have chosen to become BSC signatories. This is comparable to the Pool position, when only a small proportion of smaller generators traded via the Pool;
- (ii) for those smaller generators where we have comparable data, the prices received for exports covering the first two months of NETA are substantially below those of a year ago – typically by 17 per cent. This is somewhat more favourable than the overall position on generation prices. Since these prices – both for smaller and for the generality of generators – reflect contracts struck before NETA was introduced, they may change in the light of market sentiment now NETA is functioning;
- (iii) the output of smaller generators has fallen substantially, with export volume reduced by 44 per cent compared to a year previously. On the basis of the comparable data provided the total costs facing smaller generators have increased by 16 per cent, with fuel costs rising by 14 per cent.
- (iv) other than wind power generation, the performance of smaller generators does not appear to be significantly less predictable than that of other generators. The data confirms that wind power is unpredictable; and
- (v) there is widespread comment from smaller generators of the limited consolidation services 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 is clear that consolidation services have not yet developed to the extent that would appear feasible.

### **Options chosen by smaller generators**

As under the Pool, under NETA very few smaller generators reported that they had opted to sign the BSC in order to be able to participate directly in the Balancing Mechanism and imbalance settlement process. 9 out of the 40 companies who responded said that they had signed the BSC as compared with 8 who had signed the PSA. The vast majority (98 per cent) of the smaller generators had chosen the option whereby smaller generators may sign contracts for all of their exported output with a single supplier. None of the respondents had signed a contract with a consolidator during the two month period covered by the Review.

### **Export prices output and costs**

Smaller generators reported that their export prices for the first two months of NETA are below those for the same period last year. The reported price reductions by type of independent small generator range from round 11 per cent to 27 per cent. Some individual smaller generators have reported greater reductions, but most have not.

Most generators say that their contracts were entered into before the start of NETA. It is therefore possible that the reported price reductions do not yet reflect fully the prices that these generators may see after contracting in the light of experience under NETA.

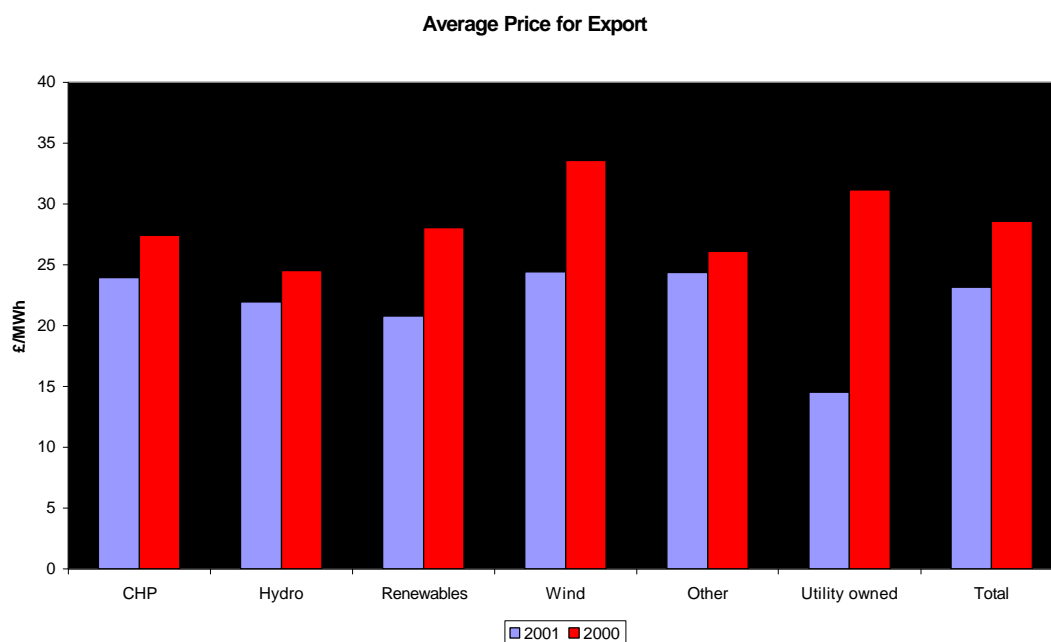
For the 40 generators for which complete data was provided,<sup>17</sup> the average income<sup>18</sup> per MWh for exports was £23.15 /MWh under NETA compared with £ 27.81 /MWh under the Pool, a fall of 17 per cent. Figures S1 and S2 below illustrate the impact of NETA on the export volumes and export prices of the

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<sup>17</sup> 41 respondents provided export information for both 2000 and 2001.

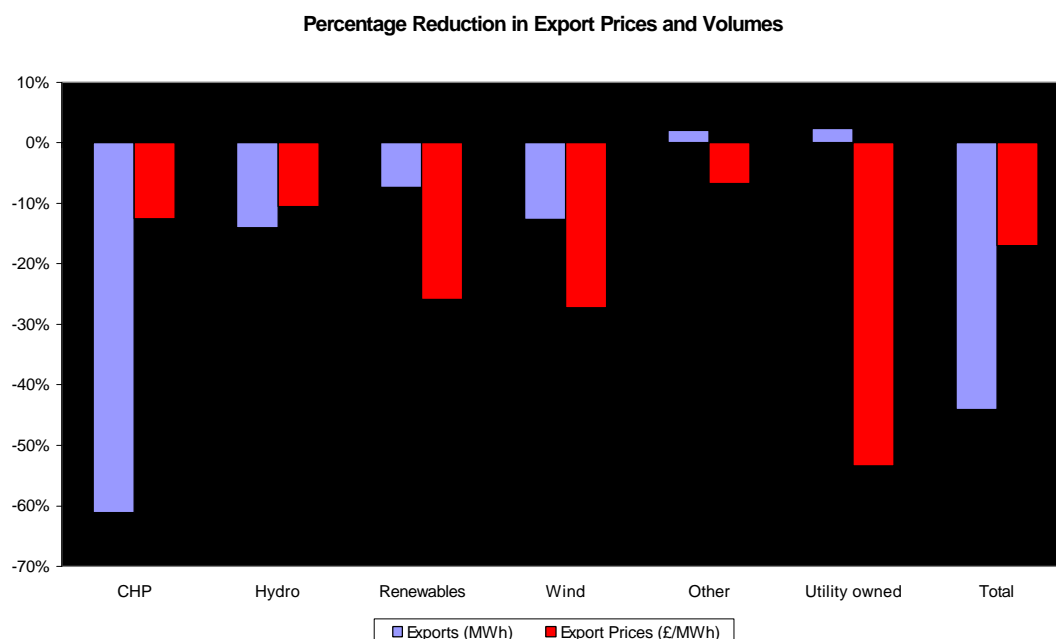
small generators who submitted complete responses. The generators are split up to show any differences in the impact of NETA on different technologies. The renewables category covers plant which comply with the definitions under the Climate Change Levy arrangements, but wind and hydro plant have been split out to demonstrate any differences for less predictable or less controllable plant. CHP includes only CHP plant which are not also renewables. 'Other' includes all the other independent, smaller generators. A utility group refers to a licensed supplier or generator.

**Figure S1 - Reported Impact of NETA on Export Earnings £/MWh**



<sup>18</sup> Excluding data from SSP/SBP exposed generators.

**Figure S2 - Reported Change in Export Earnings in £/MWh under NETA**



Smaller generators, especially CHP plant, reported a substantial reduction in export outputs as well as prices and hence also in revenues from the sale of their electricity. Although it is difficult to determine the cause of this reduction in output, on the basis of the data we have received, it is evident that there has been an increase in the costs smaller generators are facing. On average, the total costs of smaller generators have increased by 16 per cent with their fuel costs increasing by 14 per cent.

None of the respondents who had signed the BSC had participated directly in the Balancing Mechanism. One generator said that it had not been able to obtain an acceptable contract offer and as a result had sought to generate only sufficient power to meet its own demand. To the extent that it was then out of balance it was exposed to imbalance cash-out prices.

*The predictability of plant*

An analysis of the data reported by the smaller generators suggested that, other than wind power generation, the output of smaller generators is not in general significantly more unpredictable than that of other generators.

Figure S3 shows the stated level of predictability for smaller generators who gave the information plotted against the size of the generators. Wind power generators are excluded because they said that they were entirely unpredictable.

**Figure S3 - Unpredictability of Smaller Generators and Generator BM Units Excluding Wind Power**

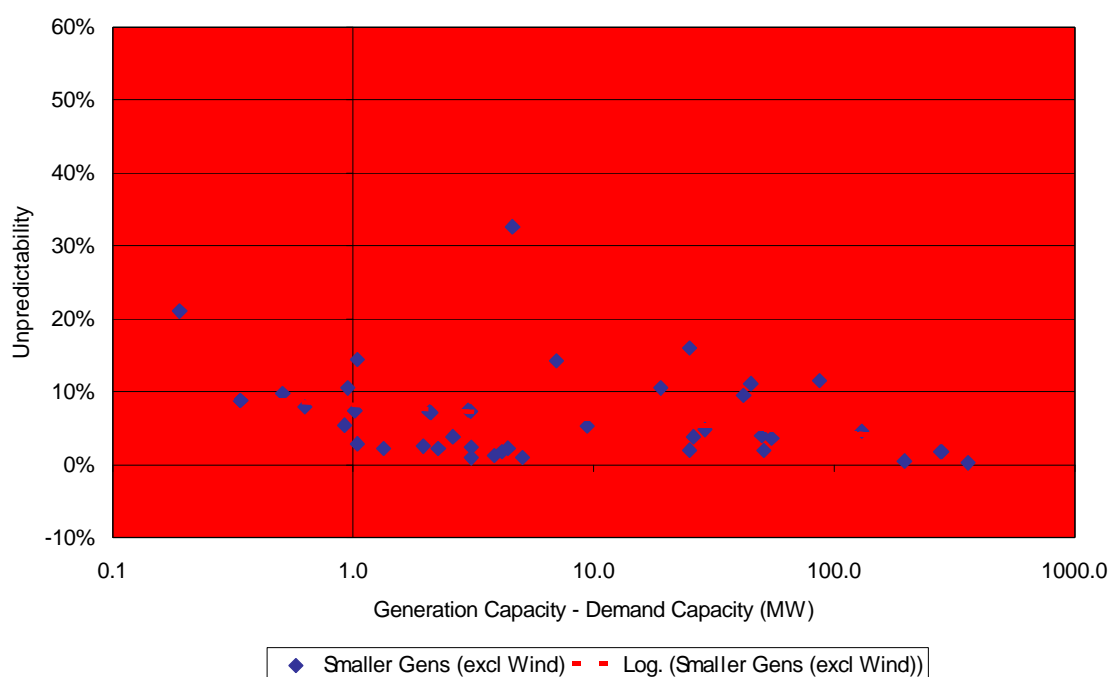
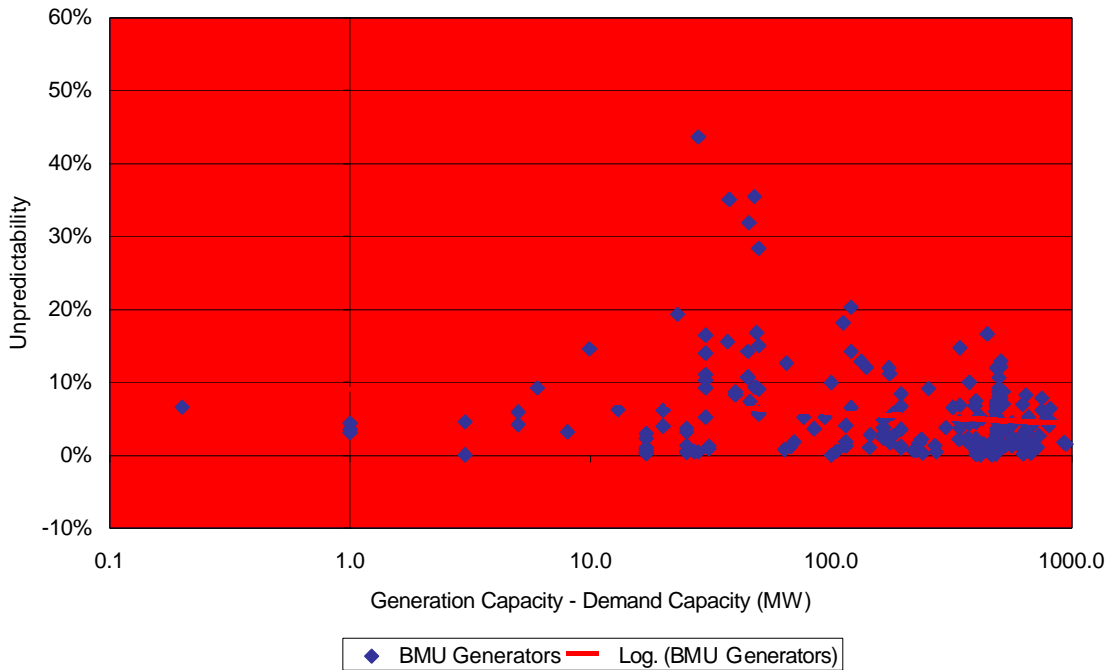


Figure S4 shows the same situation for large generators that have registered as Balancing Mechanism Units. In both cases there is only a slight increase in unpredictability as size decreases and the degree of scatter around the trend suggest that size is not a significant determinant of predictability.

**Figure S4 - Unpredictability of Larger Generator BM Units**



The data used for smaller generators were based on their questionnaire responses on day-ahead predictability, whereas for BM Unit generators it was based on their performance against their FPNs (adjusted for acceptances). Despite this difference in measurement mechanism within each measurement category, there does not appear, on the basis of respondents' data, to be a significant increase in unpredictability as size decreases. The data indicate that, as might be expected, wind powered generation is generally more unpredictable than other technologies.

### ***Market prices compared with Pool prices***

Ofgem's report on the first few months of NETA operation, published today, shows encouraging results so far, in terms of the emergence of bilateral trading options, including the establishment of power exchanges and increasing liquidity in these markets; in relation to developments to the balancing and settlement arrangements, including the use of the more

flexible governance to facilitate rapid refinement of the rules; and more generally in the extent to which participants are already learning to refine their positions in the light of early experience under NETA.

Substantial falls in forward prices occurred prior to and in anticipation of NETA. For example, large customers have reported reductions in wholesale electricity prices of up between 20-25 per cent in the three years prior to the introduction of NETA. This general fall in wholesale electricity prices has taken place against rising wholesale gas prices which have increased by about 12.4 per cent<sup>19</sup> (over the year from around 19.70p/therm to 22.15p/therm).

As expected, prices in the Balancing Mechanism and imbalance settlement process have been volatile, in part because the volumes of accepted offers and bids in the balancing mechanism have been very small. Since NETA was implemented, NGC has tended to face the situation at Gate Closure where generators were anticipating generating more power than was required to meet national demand. But in some half hours a sudden, unanticipated and short duration increase in demand has occurred. In the first two months of NETA this combination of events meant NGC in the balancing mechanism was usually accepting bids to reduce power output close to real time but occasionally needed to instruct very flexible generation units (and flexible demand) to increase power (or reduce demand) at very short notice. The result was that imbalance prices paid to generators who 'spilled' uncontracted power onto the system (System Sell Prices (SSP)) were often low and sometimes negative, averaging £4.27 MWh over the two month period. For suppliers who needed to 'top-up' their contracted power to meet customers demand (and generators who needed to replace power they had

contracted to suppliers but could not, in the event, generate) imbalance cash-out prices (System Buy Price (SBP)) relatively high, and sometimes very high, averaging £65.67 MWh over the same two month period.

Since the end of May, imbalance prices have been lower and less volatile. SSP averaged £8.62 MWh during June and July and SBP have averaged £39.26 MWh. Very small volumes of energy continue to be accepted in the balancing mechanism, on average 2.3 per cent of national demand.

### ***Emerging market mechanisms and the availability of price information***

#### **Emerging market mechanisms**

##### *Forward and futures markets*

The accompanying Report on the first months of NETA operation shows increasing liquidity in forward and futures markets.

The introduction of NETA has resulted in a large and rapid development of the wholesale market. NETA has created a more transparent wholesale contract market that is closer to the way other commodities are traded. A number of power exchanges have been set up and there have been significant developments in liquidity in these power exchanges and in the Over the Counter (OTC) market. Forwards, futures and spot markets have evolved in response to the requirements of participants.

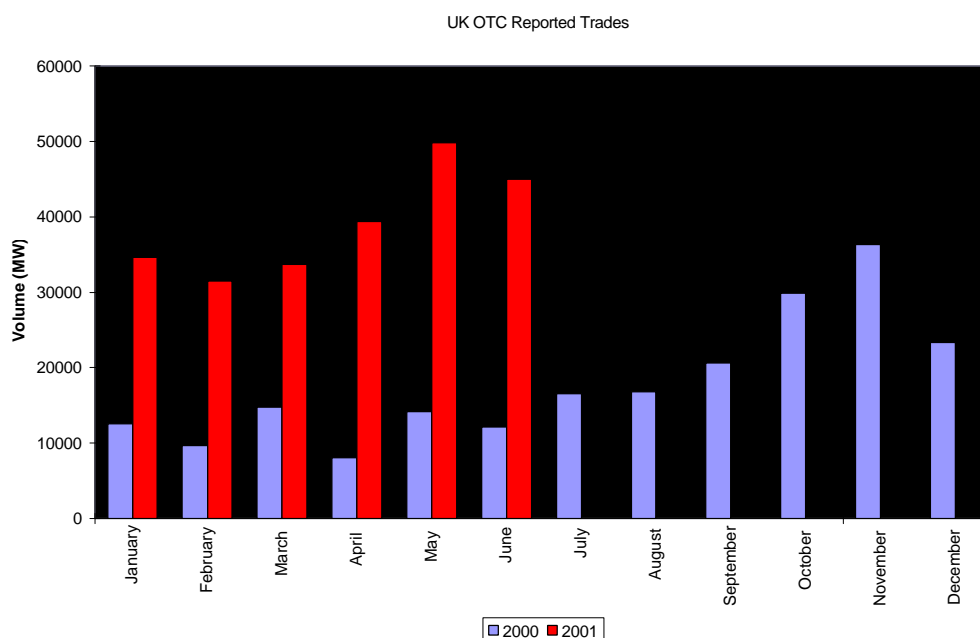
The majority of forward trading under NETA has been conducted through the OTC market. NETA has seen significant developments in liquidity in OTC trades both in terms of the total volume of traded reported and in the variety

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<sup>19</sup> Based upon monthly average forward prices for the Annual Package beginning in October 2001.

of products on offer. The chart below shows the growth in daily traded volumes year on year.

**Figure S5 - Reported UK OTC power trades<sup>20</sup>**



Year on year there has additionally been a 243 per cent increase in the number of contracts traded and an increase in the variety of products offered – in 2000 22 different products were reported, by 2001 this had grown to 108 an increase of 391 per cent.

The three main power exchanges that have developed since NETA Go-Live are the UKPX, the UK APX and the IPE. Of these the UKPX and APX offer a spot market while both the UKPX and IPE offer futures contracts. The vast majority of the trading on the exchanges has been on the spot markets with participants actively using these markets to fine tune their contractual position. Trades on the UKPX account for most of the non- OTC traded contracts, with 1,254,715MWh (250,943 trades) traded since Go-Live.

<sup>20</sup> Source: Heren EDEM.

The development under NETA of a liquid forward curve for wholesale electricity will enhance long term security of supply. The prices on the forward curve should facilitate effective new entry by providing both generators and suppliers with clearer signals of where new entry is likely to be profitable.

Although liquidity in general has increased significantly there are still particular contracts on the forward curve that are not trading in large volumes. In particular there is a lack of liquidity in the within day spot day markets. This may reflect several factors including the initial spread between System Buy and System Sell Prices, portfolio generators self insuring against plant failure, a lack of reporting from central systems and the length of Gate Closure. To the extent that they reflect a problem some of these issues have already been addressed through Modifications to the BSC, and others are being discussed at present. If there is indeed a need for such trades, there should be a growth in liquidity in the spot markets as any barriers to such trades are removed.

#### *Consolidation Services*

Consolidation services are those provided to allow smaller generators to take advantage of NETA trading opportunities without having to become a BSC Party by operating through someone who is a Party.

Seven companies have stated an intention to enter the market as consolidators, or have entered the market, in response to the opportunities for smaller generators provided for under the BSC. Smaller generator respondents expressed widespread dissatisfaction with the consolidation services available at the start of NETA, and a number of those offering

consolidation services indicated that they were not fully operational then. When the companies offering consolidation services were interviewed, only one reported that it had taken advantage of the consolidation facilities built into the trading arrangements and only in respect of one generator. However, all of the consolidators reported that they were watching the way the market was developing and still intending to offer the services although not yet marketing actively. There are more recent signs that the position is improving.

### **Publicly available price information**

#### *Price reporting*

A number of price reporters have entered the market and forward prices are available through a range of media, at varying levels of costs. Table S1 summarises the type of information available from two major price reporters. Both price reporters operate a subscription service which allows subscribers to access information both in an electronic and a paper based format.

**Table S1 - Summary of daily information available from selected price reporters**

<b>OTC Trading</b>	<ul style="list-style-type: none"> <li>• UK OTC spot and forward price assessments</li> <li>• Reported Trades</li> </ul>
<b>Power Exchange</b>	<ul style="list-style-type: none"> <li>• UKPX prices and volumes</li> <li>• UKPX, IPE and APX settlement prices</li> <li>• UKPX and APX spot prices and summary volumes</li> </ul>
<b>Balancing Mechanism</b>	<ul style="list-style-type: none"> <li>• Previous day System Buy and System Sell Prices and volumes</li> </ul>

### *Power Exchange information*

One of the short-term market exchanges that was available during start-up attracted much of the liquidity, and this market, UKPX, was not initially visible or accessible at low cost. It is now understood that it is intending to offer web-based visibility at lower costs. Other prompt electronic markets are developing liquidity and are offering competitive arrangements.

Appendix 7 contains a statement from each of these companies about their plans in this area.

### *Balancing and Imbalance Prices*

Information about Balancing Mechanism and Imbalance Prices are available to non-BSC parties in real time through the Balancing Mechanism Reporting System ([www.bmreports.com](http://www.bmreports.com)) and includes initial estimates of imbalance prices and bids, offers and acceptances in respect of each of the BM Units.

Two modifications to the BSC has been proposed to increase the amount of ex-post information available to non-BSC parties.<sup>21</sup>

### ***An evaluation of effects on embedded benefits of the new arrangements***

Because embedded generators are located close to demand in their region they save costs that would otherwise be incurred in transmitting electricity across the high voltage national grid.

In general, the embedded benefits available under NETA in acknowledgement of these cost savings are broadly equivalent to those available under the

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<sup>21</sup> P30 – Availability of Market Information To BSC and Non BSC Parties , this modification proposes making information on genset metered volumes full available to BSC and non-BSC parties,

Pool. These include avoidance of transmission charges, transmission losses and certain central administration costs. Under NETA, there are a number of detailed areas in which the scope of the application of embedded benefits has been expanded compared to the Pool. It is however recognised that there are a number of similarly detailed areas in which further consideration of how embedded benefits apply and how they can be accessed may be appropriate. These matters are in some cases already the subject of existing modification proposals, and are discussed further in the main body of this document.

Also relevant to smaller generators is the work of the DTI/Ofgem Embedded Generation Working Group, which reported in January 2001. One joint Ofgem/DTI initiative flowing from this is the setting up of the Embedded Generation Co-ordination Group, whose establishment was reported on 31 July 2001. This initiative is seeking to ensure that embedded generation is achieving the appropriate treatment in terms of embedded benefits and other arrangements.

### ***Conclusions***

Smaller generators are right to say that they are less profitable than they used to be. In terms of price achieved for energy exported, this is also true for larger generators and indeed one of the purposes of NETA was to bring about a more competitive wholesale electricity market and one in which the relative benefits that particular plant bring to the electricity system and costs they imposed on it are more clearly reflected in the prices they received.

However, it is also true that export volumes for smaller generators, and CHP

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subject to commercial safeguards. P22 – Provision of Generator Planned Outage Information to All, this proposes that generator's planned outage information be released to all participants via the BMRS.

in particular, have fallen substantially. This may be contributed to by the significant increase in gas prices that has occurred over the same period. This will place gas fired generators who do not have long term contracts under considerable commercial pressure.

NETA has only been operating for a few months. In many respects it is too soon to say whether smaller generators generally are more adversely affected than larger ones. Wider market conditions have already developed since NETA was introduced with increasing liquidity in forward and futures markets and in the power exchanges, and more price information is becoming available.

The BSC rules, aided by flexible governance, have also been refined and further modification proposals are being progressed. It can be expected that the market will develop further over the coming months as NETA continues to bed down and participants gain more experience of operating with the new arrangements.

## Annex 2

### **The Government's three-part strategy to ensure gas prices are as competitive as possible**

1. Tackling anti-competitive behaviour. The European Commission is, at UK request, at present engaged in an inquiry into certain aspects of market behaviour across the Anglo-Belgian interconnector. In the meantime both Ofgem and OFT continue to monitor the market. The Government has made clear that it will tackle any evidence of anti-competitive behaviour in the gas market vigorously;
2. Better markets. The Government has been working with the industry to address questions of market design and information flow both in respect of the interconnector and also in respect of the UK gas market, to address any identifiable imperfections or anomalies in market design. The Government welcomes recent decisions taken by interconnector shippers to publish information about actual flows and available interconnector capacity close to real time, and the steps being taken by the interconnector operator (Interconnector UK Limited), to market of unused capacity on the interconnector; and
3. The Government has a wider commitment to pursuing energy liberalisation in the European gas market, to introduce gas-to-gas competition there, and to ensure that wider European gas prices are set as a result of a transparent and competitive market process. Achieving this objective is increasingly important as the UK will move from a situation of (largely) self-reliance in gas, as had the other two been the case, to one of dependence on net imports of gas over the next five years or so. The publication in March of the draft second Gas Directive was a very positive step although the Government was disappointed that a firm date for liberalisation was not set at the Stockholm conference.