

NETA – Is The Glass Half Empty or Half Full?

This article sets out some first thoughts on experience under NETA based on nearly six months of operation. We also now have the benefit of Ofgem's considered thoughts on the first full three months.¹

Ofgem are clearly delighted with NETA's record to date: "I would say that, given the complex nature of the reforms and of the project to implement them, we are pleased and encouraged by the first three months of operation. Prices appear to be reflecting market conditions to the benefit of customers; and generators and large demand sites are changing their behaviour and responding to the new incentives more quickly than we could have hoped. NGC is working hard under its new incentive arrangements to reduce the costs of operating and balancing the system – this is also directly benefiting customers," states Ofgem Chief Executive Callum McCarthy in a covering letter to Energy Minister Brian Wilson.

Not all commentators and market participants are quite so upbeat. A closer reading of the three-month report and the copious market data available does suggest that the record is a bit more mixed. We look at five areas central to the operation of the new market:

- wholesale (OTC and forward market) prices and liquidity;
- cashout prices;
- system balancing and the role of NGC;
- governance and modifications; and
- systems issues.

We identify a number of issues that seem to have been skirted round and which may need to be addressed if a more balanced assessment is to be achieved.

Overall, NETA Implementation Has Been Hugely Successful

It is a credit especially to NGC but also to participating companies and the NETA programme managers that such fundamental change has been achieved to such a tight timescale, without major incident and whilst avoiding any obvious political embarrassment. The measure of the success is easy to understate. Implementation ten weeks after the collapse of the Californian Power Exchange and less than ten weeks ahead of a general election was seen by detractors of the process as foolhardy. In the immediate run up to the decision to Go Live on 27 March 2001 – which was in the balance right up to 17 March - a number of industry leaders, including the then Pool Chairman, were urging caution and delay. Even then the Pool, which had been generally derided, began to find some friends in strange places, and a number of academics and commentators continued to warn the regulator and government that it was set on the wrong course.

¹ *The New Electricity Trading Arrangements – A Review of the First Three Months*, Ofgem (August 2001).

Privately, many in the industry questioned whether NETA was worth the candle. *Power UK* on the eve of NETA warned “there is no clear proof that [NETA] will deliver lower prices. It seems that some traders just believe prices will fall in the future for no other reason than it is deemed politically untenable for wholesale prices in the short-term to increase – even though input costs, such as gas and coal, are on the rise. Just what actually happens to prices after the election is another matter altogether”.² Yet energy policy hardly got a look-in during the election campaign, and the only media coverage subsequently has highlighted the positives.

Wholesale Prices Have Fallen, But Is This Attributable to NETA?

So, what’s happened? Wholesale prices under NETA are 20 to 25 per cent below Pool prices, announced Ofgem in unveiling its three-month review. Ofgem use a range of measures to bear out their conclusions about price. Large industrial customers have reported a fall in contract prices of 25 per cent over three years in anticipation of NETA, with a further 10 per cent reduction in the first three months since Go Live. Day ahead baseload prices are also 24 per cent lower than they were this time last year, despite continuing adverse continental gas prices.

Such news is obviously good for customers, though it would be over-egging the pudding to attribute the sustained price reduction wholly or even substantially to NETA. Significant benefits arising from further changes in industry structure have flowed through with yet more recent capacity additions³ and another wave of generation divestitures during 1999/2000. Given current oversupply conditions and aggressive competition for market share, it was inevitable that prices would fall. There have also undoubtedly been seasonal effects in prices, especially since end March.

On the other hand, it would be niggardly to suggest that NETA restructuring has not had a significant impact on prices especially at a time when gas prices increased over the year by about 12 per cent. All the indications are that Ofgem’s claims about prices under NETA – which many thought political rhetoric – have come to pass. But the price changes do need to be seen in a wider context. It is a little too early to reach hard and fast conclusions with winter stretching ahead of us.

These sentiments were captured by TXU Europe’s UK electricity trading vice president Paul Taylor at a recent presentation on the impact of NETA: “nobody can really say what will happen to forward prices until there’s been a winter under NETA”. He pointed out that the market had adjusted to NETA long before the new trading arrangements came into place at the end of March, and this has made it difficult to gauge its real impact. Not surprisingly, the industry is looking to the imminent October contracting round for clearer indications of medium-term impacts.

Credit rating agency Moody’s recently struck a similarly circumspect note. In a special comment on NETA from June, it opined: “Moody’s believes that NETA will not by

² Will NETA be worth it? *Power UK* 84 (February 2001).

³ Between 1998 and 2001 installed capacity grew by 5.8GW whilst peak demand grew only 1.8%.

itself have a dramatic overall impact on electricity prices. Official statements had suggested that prices might fall by around 10% due to the introduction of NETA. Despite recent falls in generation prices, Moody's says this has more to do with other structural changes in the market place rather than the new trading arrangements. Indeed, the risks arising from NETA, and in particular the balancing mechanism, appear to have led to an increase in forward wholesale electricity prices since its introduction."⁴

Ofgem's Main Conclusions on the First 3 months of NETA

- NETA is resulting in “real and sustainable benefits to consumers”.
- The vast bulk of electricity – some 97% - is traded outside of the Balancing Mechanism and the price has fallen, and is significantly lower than pre-NETA levels. To illustrate:
 - baseload forward prices fell from around £24/MWh in the middle of 1999 to around £19/MWh in late 1999/00 “in anticipation of NETA”;
 - the average price for OTC baseload contracts for the first three months of NETA is said to have fallen 6% compared to the same period in 2000;
 - peak contract prices have fallen by 21%;
 - day ahead weighted average baseload OTC contracts have fallen by 24%, comparing one year with another.
- The number of OTC and Power Exchange contracts traded in the market has tripled since NETA start and volumes doubled, and two PXs are trading “significant volumes”.
- Power Exchange prices have been on a downward trend March through June.
- Imbalance prices have been volatile, but:
 - SBP has been on a downwards trend;
 - SSP has been on an upwards trend;
 - with increasing convergence between the prices; and
 - volatility has declined.
- A modification, P18A, “is likely to see further convergence of the SSP/SBP”.
- The fall experienced in SBP is due to fewer purchases by NGC rather than lower offer prices, and the rise in SSP is largely due to increases in the bid prices of coal and CCGT plant.
- NGC has responded to the new arrangements and price signals. Over the 3 month period, the trend in Balancing Costs has been downwards.
- The process of proposing and implementing modifications to the BSC “has operated as intended”, and “the new governance arrangements allowed initial teething problems to be addressed urgently” and allow “greater participation by all interested parties”.
- “There are a number of areas, as was expected, where further market developments are 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”.

⁴ NETA: *The Early Days*, Moody's Global Credit Research.

Forward Markets are Mostly Illiquid

Ofgem boasts “the introduction of NETA has resulted in a large and rapid development of the wholesale market.” A closer examination suggests a lack of balance in these comments. Whilst prices have been encouraging, forward trading has not. Hard and fast data is hard to locate. Although OTC trades have escalated significantly, the overall volume of transactions is still small, bilateral markets are still opaque and the much hoped for price curves are not yet emerging. Combined volumes on the short-term power exchanges have been less than ½ per cent of total trades. Forwards markets in particular have simply not taken off, and there have been only two trades (which were probably managed) in the IPE’s electricity futures contract.

Added to this, the institutional framework for trading is highly fragmented with four power exchanges (PX) currently operating, various players releasing price reporters including Heren, Platts and Argus, and brokers such as Spectron and traders such as Enron routinely releasing price information to the market. This fragmentation compounds the problem of lack of liquidity. The reasons for these disappointing statistics are complex and again it is early days to judge. Nor is this simply an UK phenomenon as similar problems are being experienced in the nascent European exchange-based markets. Such factors are likely to be of little consolation to Ofgem - especially given its stated market design objectives and its decisions during the design phase to leave trading and related disclosure matters to the market – but it is surprising that it chooses not to comment.

Cashout Prices Have Settled Down, But Remain Volatile

Ofgem paints an attractive picture of ameliorating prices that are converging, and of rapidly diminishing volatility. This analysis is not incorrect in relative terms but a little distorting in absolute terms. Cash-out prices have been extremely volatile, with high spikes for System Buy (SBP) or top-up prices and low spikes for System Sell (or spill) (SSP) prices. It is not possible to say how divergent prices have turned out against expectation because little was said about likely imbalance settlement prices prior to Go Live. However, even outside the real spikes, the feeling in the market is that prices have generally been higher than expected. In particular, the spread between SBP and SSP has been wide and at in excess of £25/MWh on average during August remains wide.

Over the first three months, the overall pattern for SSP was to trend upward whilst SBP trended down. Monthly average SSP over this period increased by 195% whilst the average SBP decreased by 60%. These figures say more about the starting point than the end point. Table 1 additionally bears out that the imbalance prices have been highly volatile at times, as illustrated through the standard deviation in prices. However, the average standard deviations do show that the volatility of both SSP and SBP declined since Go Live.

Table 1 – Overall Balancing Mechanism Price Distributions

Month	Average SSP (£/MWh)	St. Dev of SSP (£/MWh)	Median SSP (£/MWh)	Average SBP (£/MWh)	St. Dev of SBP (£/MWh)	Median SBP (£/MWh)	Spread
March	2.73	17.92	6.45	103.37	189.82	43.20	100.64
April	2.22	22.52	7.65	71.67	149.33	29.92	68.58
May	6.69	16.19	9.99	50.14	168.13	23.44	43.36
June	8.05	7.63	10.39	41.79	157.55	21.77	37.12
July	8.37			31.47			23.10
August	11.38			38.05			26.67

More recently trading in July and August has seen further extrapolation of these trends though the convergence in prices stopped during August. The buy price for the same commodity is still a factor of four that of the sell price nearly six months into market operations when the market is supposed to have settled down.

Ofgem has recently approved a modification to the rules⁵ 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.⁶ This modification, when implemented, is likely to give rise to further convergence in cash-out prices by removing small quantities of acceptances that increase price spikes and volatility from the pricing solutions. Some might say it is a fairly obvious pragmatic change that has less to do with pricing efficiency than taking a cause of price spikes out of the methodology.

Again, it is important to interpret price statistics to date sparingly. There is no fundamentally “right” level for these prices. They are tied mainly to actions of those participants who are out of balance, and there is no prevailing reason or reasons why there should be a systematic correct level of imbalance on the system on either a daily, weekly, monthly or seasonal basis. Furthermore, despite the evidence from recent weeks that the incidence and level of spikes and the spread have been reducing, some participants believe that imbalance prices still seem high and that they do not reflect any difficulty NGC is having with balancing the system. There are also concerns that imbalance prices are being systematically exaggerated by actions needed for within half-hour balancing (which is a system issue), not for overall energy balancing. This “pollution” of imbalance prices with very short-term effects was something the market designers sought to avoid in the market design phase, but which has not to date been accomplished.

Overall, the fact that imbalance prices have stabilised from the highly volatile levels in the initial weeks of NETA should not come as too great a surprise. The continuing high levels of standard deviations in mostly benign conditions should be a worry to Ofgem. The average SBP is typically more than three times the wholesale price level and

⁵ Modification P18A – a copy of the Modification Proposal and the Authorities decision letter can be found on the Elexon website (www.elexon.co.uk).

⁶ System balancing costs, such as those associated with correcting short duration frequency excursions within the half hour balancing period.

represents a strong incentive to avoid being out of balance. Whether this is a reasonable objective or driver of prices has not been properly debated. More to the point, Ofgem has shown no appetite for examining these issues.

What about volumes? Ofgem maintains that the Balancing Mechanism has also been operating as expected in terms of volumes, and to date around three per cent of total volumes of energy have been traded through the Balancing Mechanism. Again, what is a “correct” level of Balancing Mechanism trades is difficult to say. Voluntary markets with residual pools are not commonplace (though they are becoming more common). In Nordpool, where the regulation market fulfils a similar function to the Balancing Mechanism, about five per cent of volumes go through it. In its evidence to the Competition Commission investigation of the initial market abuse licence condition, Ofgem indicated that the Balancing Mechanism might account for between five and 10 per cent of demand, so three per cent is on the low side.

The system continues to be predominantly long over all trading periods, and this is likely to remain the case as long as exposure to spill prices is commercially less onerous than exposure to top-up prices. Consequently, Balancing Mechanism volumes are unlikely to increase. This of itself is not a problem as NGC is sourcing a significant amount of its system imbalance and some of its energy balance needs from Balancing Services contracts rather than the Balancing Mechanism. However, with small volumes going through the Balancing Mechanism, prices will remain systematically volatile even with P18A-style modifications. In turn, this means that volumes are likely to remain small creating a vicious circle with regard to unstable prices. Operationally, though, this should not be a cause of concern for NGC provided participants continue to offer in quantities to the Balancing Mechanism which to date has anyway been the case.

Probably one of the main concerns to NETA watchers arises because few firm behavioural rules seem to have emerged under the Balancing Mechanism to date. Table 2 below looks at the distribution of energy imbalance prices over different times of the day over the first three months.

Table 2 – Price Distributions by Time of Day

Month	Average SSP (£/MWh)	St. Dev of SSP (£/MWh)	Median SSP (£/MWh)	Average SBP (£/MWh)	St. Dev of SBP (£/MWh)	Median SBP (£/MWh)
Peak ⁷	11.33	6.26	11.47	45.48	149.34	23.95
Shoulder ⁸	7.03	19.00	10.32	79.93	134.68	32.02
Off peak ⁹	-2.15	19.64	0.36	47.68	192.11	23.51

It is apparent that if a participant spills electricity there is most risk of receiving a negative price (that is, has to pay to spill) in off peak periods. This is a result of a combination of the system being long (which it is at most times) and relatively more

⁷ Peak is defined between 11.00 and 19.00.

⁸ Shoulder periods are defined between 07.00 and 11.00 and 19.00 and 23.00.

⁹ Off peak is defined as between 23.00 and 07.00.

inflexible plant wanting to stay on the system overnight. Off peak volatility of SSP has additionally been higher than peak volatility of SSP. The distribution of SBP differs in that top-up has, over the first three months, been most expensive in the shoulder periods and generally less expensive at time of system peak. Whilst this may not seem immediately intuitive, it is logical as there is a greater need for short-notice dynamic plant during periods of rapidly changing demand.

The Balancing Mechanism has seen a large number of participants with 25 companies submitting Bids and Offers from their generation stations and demand sites. There are generally between 15 and 20 companies whose Bids are accepted in the Balancing Mechanism. The volume of accepted trades in the Balancing Mechanism has been steadily declining month on month. For example the average daily volume of accepted trades was 48,000 MWh in April, but by June this daily average volume had fallen by 15,000 MWh to 33,000 MWh, a drop of almost a third. Unsurprisingly given the general levels of imbalance prices, then, these statistics suggest that participants are becoming better at self-balancing before Gate Closure.

System Balancing Costs Have Come Down, but the System Has Not Been Tested

Costs of system balancing are relatively less important than the costs of system balancing but still typically comprise for about five per cent of the wholesale price of electricity. There has been a substantial reduction to the balancing costs as NGC has learnt more effectively to manage the system and improved its performance in response to its incentive scheme. There was a decrease in balancing costs of 22 per cent between April and May, and costs through to early August fell to about 70p/MWh – well below NGC's target level of £1.10/MWh - although part of these reduction may be due to seasonal effects.

In general, balancing the system has not proved as difficult as some expected since the introduction of NETA. There are a number of explanations for this, which have included the following:

- there has been little maintenance work on overhead lines (interestingly at least in part because of access restrictions due to foot and mouth disease, though substation work has proceeded apace); consequently, there have been relatively few operational constraints;
- part loading of plant to enable market participants to self balance (see below) has had the beneficial effect of providing NGC free reserves and greater operational flexibility;
- summer seasonal effects have been at play; and
- there has been generally a very high level of plant availability compared with previous summers.

Seen in this light, the physical operation of the system under NETA has not yet been properly tested. It has not all been plain sailing, and NGC has not always had a clear view of the generation intentions of some individual generators which has caused it some

problems, and this is being tackled through Grid Code enforcement measures. But the overall picture NGC has projected is of it dealing capably with the issues thrown at it in a no fuss manner.

That said, there appear to be a number of issues that have emerged with regard to physical operation of the system in the early months:

- many parties with both generation and supply are “self-balancing” before gate closure. A significant amount of plant is being part-loaded in order to follow forecast demand arising within that company group. This tendency probably results from the illiquid forward contracts markets, and from the wider market’s perspective this is probably not efficient;
- as we have noted, parties are still tending to be overcovered at gate closure in order to avoid exposure to the high SBPs. One consequence is that NGC has had to resort to balancing actions with very few offer acceptances. Another is that SBP prices have been set by very small volumes (often accepted by NGC at short notice), making them highly volatile.
- NGC’s SO incentive scheme, which exposes them to the spread between SSP and SBP, encourages it to avoid unnecessary corrective actions that might subsequently be reversed out. This property arises because the net imbalance volume – the difference between the quantity of acceptances used for spills and top-ups - falls outside of its incentivised costs under the scheme. This in turn means that they have been reliant on plant with very fast response times, even though there have been bids and offers available at very much lower prices. At the point when balancing actions are selected, this plant is not being called presumably because of less favourable dynamics. This in turn has again contributed to the occurrence of price spikes.

It is undoubtedly too early to conclude that these characteristics are detrimental to the market but their incidence and causes need to be kept under close examination.

Governance, As Intended, Has Been Flexible

Nearly 40 modification proposals have been put forward, and they are in various stages of consideration. A number have been treated as urgent but so far only a handful have completed the process. This is a great improvement on the stagnation that accompanied change processes in the Pool, and it appears that Ofgem has delivered what it intended to – flexible governance. However, many in the industry are worried that the sector will lurch from insufficient to too much change. The record of the gas market which has seen well in excess of 400 modifications in less than four years suggests that significant further change lies ahead for the electricity sector.

It is also clear that flexibility is secondary to control, with Ofgem having the last word on all changes to industry trading rules. Some market participants are already questioning the quality and consistency of some of Ofgem’s decisions and its interaction with the Balancing and Settlement Code Panel.

Also on a less than positive note:

- there have been multiple modification proposals to tackle the issues of price spikes. While these have all been referred to the same modification group in order that they can be considered together, they have nevertheless been dealt with in an ad hoc manner. The market does not seem to be any further forward in understanding what pricing mechanisms might best deliver efficient prices; and
- not all of the issues lie within the governance of the BSC. The interaction with the NGC incentive scheme and other aspects of the rules that impact on the SO come under the NGC transmission licence and under the new connection and use of system (CUSC) which has only just been implemented. These issues all need to be considered together, within an holistic framework of market development that deals appropriately with cross-jurisdictional issues.

Even without the CUSC dimension, it is too early to reach hard and fast judgements on how the new governance arrangements are working. Another area to watch.

Systems Issues Not a Concern – For Most

Going into market implementation, there was much scepticism as to how well new NETA systems - both central and market participant - would work. Ofgem does not comment on this issue, presumably because there have been no obvious glitches in the central systems. But some system problems have been, and continue to be experienced, by market participants. Some players have suffered severe financial liabilities as a result of technical or human mistakes especially with regard to erroneous energy contract notifications that were not identified and corrected before gate closure¹⁰. Although these errors have had no adverse impact on the physical balancing or costs of operation of the electricity system, they have had a very significant adverse effect on the calculation of the liability of the parties concerned for imbalance charges. Both London Electricity and ScottishPower are understood to have made significant losses through exposure to imbalance prices through faulty contract notification data. Problems have been compounded by the feedback of inaccurate data for validation from the central systems.

Attempts are being made to introduce modifications to the Code which would allow ex-post correction of such errors, and also the retrospective adjustment of liabilities back to Go Live. There appears to be a reasonable case for allowing some form of relief given the ambitious nature of the implementation process and the scale of the change in industry business processes.

Finally, a number of market participants have expressed concern that Logica (who provided the central NETA systems) are unable to make changes rapidly in response to agreed modifications. Rules flexibility does not necessarily translate into orderly and timely change management processes. This could be a serious concern in that modifications sometimes cannot be incorporated into the software for some time. Consequently, market participants will remain exposed to recognised shortcomings and

¹⁰ The point of which final physical notifications are made and at which the Balancing Mechanism opens.

their financial impacts. The concept of the “work around” – a manual adjustment to correct a recognised deficiency in the software – is already being well utilised, and can be costly.

Which is Why The Glass is Probably Half Full....

There have been no showstoppers, and overall the NETA systems seem to be functioning surprisingly well. Save for the problem of small generators, there is a perhaps surprising “business as usual” feel to activity in the market.

That said, while the top-level pricing indicators are positive, the new market is giving significant financial risk to market participants. Fundamentally, these risks do not show any obvious relationship to NGC’s ability to balance the system. Over time, if sustained, this property of the new market might increase barriers to market entry.

Illiquidity in the short-term and forward trading markets is a more immediate problem and should be a cause of concern to Ofgem. The basic lack of rationale for many of the Balancing Mechanism prices seen to date should also make Ofgem a little more anxious that it seems to be, but it is perhaps premature to expect to see any clear cut explanations. All aspects of the price setting in the Balancing Mechanism and its interaction with system operation and NGC’s incentive scheme need to be kept under close scrutiny and review, especially as the system moves towards winter.

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