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Dear Ian

ELEXON Response to Project Discovery

Thank you for the opportunity to respond to Ofgem's Project Discovery consultation "Options for delivering secure and sustainable energy supplies" issued on 3 February 2010.

ELEXON has extensive experience in developing system solutions to shared industry problems through our work with the BSC change process. In this response, we've focused on how many of the policy options in Ofgem's consultation may be easily implemented into the existing BSC rules without incurring the expense, and possible additional complexity, of creating new market mechanisms.

Sharper short term price signals in electricity – effectiveness and practicalities of implementation

Project Discovery states that Ofgem has concerns around the strength of (imbalance) pricing signals and the fact that they may not reflect the value of lost load and voltage control or automatic load disconnection. Also, the pricing of the upfront costs of reserve contracts into the cash-out price does not reflect how these contracts have actually been used.

It would be straightforward to revise imbalance price signals within the existing BSC/BSAD arrangements, and to address voltage control or load disconnection within the BSC, including a different allocation of reserve costs via National Grid's BSAD methodology. Whether these actions would be an efficient and sufficient way to bring about security of supply (through sufficient generation and demand management) is a different question and would depend on a number of factors:

- Electricity imbalance prices are based on "energy balancing actions", i.e. actions taken by National Grid to balance on a nationwide basis and for periods longer than 15 minutes. Local supply interruptions, caused for example by transmission faults rather than lack of generation, or that were rectified within a short period of time would not fall within the current remit of electricity imbalance prices even if the imbalance price formulation allowed for voltage reduction/demand disconnection costs to be included. Local and short-term costs would fall into Balancing Services Use of System (BSUoS) rather than imbalance prices so it would be appropriate to consider whether this design feature would diminish the intended incentive effect of sharper imbalance prices.

- Whether voltage reduction is expressed as a voluntary offer by a single supplier to reduce its demand or whether it is always imposed by National Grid on suppliers' customers collectively at say an administered price representing the deemed value of lost load. If the latter, the "cost" will only impact imbalance prices once all other voluntary actions, short of national demand disconnection have been exhausted.
- Whether suppliers or their customers are exposed to imbalance prices in real time and react to them by load shedding – we give further thought to this separately below. Because imbalance prices (System Buy Price) are **charged** to parties when they fail to deliver against contract, not **paid** to them when they are contracted to do so, the efficiency of a sharper imbalance price signal in delivering new capacity build is likely to be dependent on the extent to which such plant are contracted for both duration and volume, and whether the contract price reflects the peaky imbalance prices into the contract price; if they don't then the risk for flexible plant actually increases with sharper imbalance prices. This is because they will be more exposed if they fail to generate against contract at the time needed; or if not contracted, the availability of such capacity at the time when prices are sharpest.

However, from a practical point of view the changes suggested to sharpen imbalance prices should be relatively straightforward to specify and implement.

- To introduce the "costs" of load disconnection into the existing BSC imbalance pricing arrangements one could simply apply an appropriate Offer price (perhaps an administered price representing the value of lost load) to such actions in the Balancing Mechanism. It would not be as easy to differentiate between individual customer preferences for the value of lost load. Although theoretically a supplier could now offer a price for total curtailment of all of its customers, this would not necessarily be reflective of individual preference, nor would it be easy for National Grid to curtail only that supplier's customers in practice.
- To introduce a "cost" of voltage control into the imbalance prices the pricing of such action could be seen as a Balancing Service which would then be included in imbalance prices through amending the Balancing Services Adjustment Data (BSAD) methodology used by National Grid.
- Changing the method of allocation of reserve costs to specific half hour settlement periods, ex post or ex ante, can also be made by suitable BSAD changes. The current BSC arrangements would automatically pick up BSAD allocated to particular half hours without requiring a change to the BSC.
- Reducing the value of the Price Averaging Reference (PAR) volume parameter in the BSC would sharpen the imbalance price by making it more marginal; this would be a simple modification to the BSC.

Enabling the Demand Side to respond

We believe that the consultation overstates the settlement barriers to innovative tariffs and technologies. Relatively straightforward changes can be made to encompass further time of use tariffs, much as radio switching is currently, and greater use of dynamic tariffs. The real barrier to increased demand side response may be that suppliers are only fully exposed to short term stress price signals when they are in imbalance. The current arrangements could be amended to increase pricing incentives. There are two timescales to consider and these would have different solutions:

1. Encouraging demand shifting or reduction before Gate Closure that the supplier can take account of in its contracts;
2. Facilitating demand reduction in "real time", i.e. post Gate Closure.

Time of use tariffs are typically set well in advance and so facilitate pre Gate Closure demand side participation but are not flexible enough for real time pricing (post Gate Closure) demand side participation.

1. Pre Gate Closure demand side participation

Smart metering would facilitate suppliers offering time of use tariffs to their end customers. This may allow more accurate demand forecasting and hence less exposure to imbalance for suppliers as well as reduced contracting costs through appropriate demand shifting.

And, although Project Discovery cites concerns that there are deficiencies which would limit their introduction, we believe that there are no major barriers to using the existing profiling arrangements to support dynamic tariffs.

The BSC profiling arrangements were designed to handle time of use tariffs correctly, by allocating the energy recorded on each non half hourly register to the appropriate half hour periods. Indeed, one supplier has already set up an off-peak configuration specifically for smart metering, albeit not a dynamic tariff. All that would be needed to allow the central systems to cater for dynamic tariffs, like the French Tempo tariff, would be the introduction of a mechanism for notifying switching times. These arrangements already exist for the Radio Teleswitch Service and it would be a relatively straightforward change to the BSC central systems to allow notifications from other sources.

The consultation refers to the need for reforms to settlement to allow the introduction of tariffs. The existing profiling arrangements are more versatile in terms of time of use tariffs, than they are sometime given credit for. We believe that relatively minor changes to central systems would allow greater use of dynamic tariffs.

As the BSC central systems process aggregated data, half-hourly settlement for residential customers could also be achieved with minimal change to the BSC. The existing 'elective' half-hourly arrangements for customers with average maximum demands of less than 100kW would be extended. There would clearly be system and data transfer implications in terms of

data collection and it is assumed that half hourly agency costs, which are currently a barrier to half-hourly settlement, would reduce once economies of scale were realised.

2. Post Gate Closure ("real time") demand participation

However, we agree that there are currently barriers to real time, post Gate Closure, demand participation (unrelated to time of use or dynamic tariffs). We have ideas on how suppliers and their customers may be more fully exposed to real time price signals by small changes to the existing BSC rules. For example, changing the reverse imbalance price at times of system stress or paying a marginal price for accepted bids and offers in the Balancing Mechanism rather than 'pay as bid'. We also have thought extensively on how smart meters and smart appliances can be used more effectively in combination with the BSC arrangements. We provide some further detail below and can expand upon these ideas, should Ofgem wish.

The way that suppliers currently receive benefits from decreasing demand in real time is by bidding into the Balancing Mechanism or offering demand reduction to National Grid directly. In the balancing mechanism they will get their offer price if called upon to reduce demand.

Some BSC options that could assist in giving suppliers the real time value of demand reduction, which in turn would incentivise the supplier to give value to end customers for demand reduction, are:

- Reducing Gate Closure time further - offer prices are made at least an hour ahead of Gate Closure so will not necessarily reflect the true value of the demand reduction at the time.
- Amending the reverse imbalance price formulation at times of system stress. If a supplier gives involuntary or short-term load reduction against contract after Gate Closure which has not been taken as an Offer in the balancing mechanism, the reduction against contract will be valued at the reverse imbalance price. The value of a short notice demand reduction is not likely to be fully reflected in the reverse imbalance price (which is essentially set by trades made ahead of time and will not reflect short term system stress unless of sufficient duration to feed through into the forward markets).
- Paying suppliers and generators a marginal price for delivery of bids and offers in the balancing mechanism rather than "pay as bid" currently. Imbalance prices would not necessarily be changed because they are payments for not meeting contractual obligations, whereas accepted bids and offers are themselves contractual obligations.
- Ensuring that smart metering is used to its full potential. If smart meters were used to pass short term (post Gate Closure) price signals directly to end customers this would expose the supplier to potentially unpredicted demand reduction, and hence imbalance, as the contract volumes lodged at Gate Closure would not have taken account of this. Again, although the supplier would be paid the reverse imbalance price, this may not reflect the true value or cost of the unanticipated demand

reduction to the supplier. This is another reason to properly value short term demand reduction, i.e. that occurring after Gate Closure.

- Facilitating demand participation using smart appliances and teleswitching. These have a potential advantage to the supplier in that the demand reduction could be controlled by the supplier (i.e. time and volume) and do not require the customer to be actively monitoring prices, but again it is more efficient if the demand reduction is appropriately valued. Thus the supplier's exposure to imbalance is self controlled, although the current dynamic teleswitching arrangements can expose suppliers to imbalance risk which lessens their potential value.

Centralised Renewables Market

It is not necessary to have a separate renewables market to give different imbalance prices to different sectors of the market and thus provide a more benign price for renewables. This can be done within the BSC without the need to create another mechanism.

We recognise that some renewable generation can be unpredictable. The current arrangements were designed to target the costs of balancing the system on those that gave rise to those costs. Imbalance prices therefore, favour those parties which can predict their generation (and also demand) accurately and so impose least short term costs on the system. However, it is possible to amend the rules to change this in a way that would avoid the upheaval and cost of introducing a new and separate renewables market.

One method would be to have a different (low carbon friendly) imbalance price within the BSC to encourage certain types of generation. Consideration could even be given to applying this price to peaking plant. Other measures such as shorter Gate Closure could be introduced which should help increase the certainty of output levels and so reduce the imbalance risk. This could be introduced in respect of a certain category of generation/supply only.

The issue of incentivising the overall portfolio of generation operates to a different timescale to the short term question of incentivising generation from plant that has already been built.

Capacity Tenders and Ensuring Sufficient Capacity

Whilst we have no view on the policy we believe that ELEXON would be well-placed and with the relevant experience to support the design and implementation of a capacity tender process, should this option be adopted. We have produced some 'white papers' on the principle and we would be keen to discuss these with you in more detail.

We think that any such process should be simple and transparent. It should pay out for capacity delivered on time and include efficient arrangements for charging out the costs of capacity payments.

In general we think a capacity tender is best separated from day to day energy contracts and payments. The exception might be for peaking plant acting as an insurance policy for the whole market where no individual party might wish to have an energy contract with such a plant. The costs of both build and operation could be socialised as, for instance, a balancing service.

We would caution against complex half-hourly availability monitoring arrangements as part of the payment mechanism. We have experience of operating a comparable process under the Pool which led us to conclude that such an arrangement could be overly complex to understand and potentially open to manipulation. A measure of output delivered for a sustained period would be a better means of understanding the capacity delivered.

Summary

In summary, we believe the current short term markets can work without major change for any portfolio of available plant no matter what their characteristics or fuel source. This is not to say that modifications should not be made within the existing arrangements, particularly to look at imbalances caused by largely unpredictable plant such as wind.

ELEXON has extensive experience in designing and operating electricity settlement arrangements under NETA/BETTA, with a number of our staff uniquely having helped shape and evolve the trading arrangements since the onset of competition. We would welcome the opportunity to discuss how your policy preferences could be efficiently and effectively implemented within the existing framework and offer our experience and expertise in the design and operation of any revised arrangements whatever they are.

Yours sincerely

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