SCOTTISHPOWER

[redacted]

Matt Wieckowski
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5 October 2011

Dear Matt,

POSSIBLE MODELS FOR A CAPACITY MECHANISM

Thank you for the opportunity to respond to DECC's thoughtful consultation on this subject. It is clearly of crucial importance to ensuring the future security of electricity supplies as Britain progresses with the decarbonisation of our power system. I enclose a summary response and a set of answers to your questions.

We welcome the Government's readiness to consider the role of a market-wide Capacity Mechanism which we consider to be essential to maintain cost-effective security of supply in the face of new challenges. To draw out a few key points:

- We note the work that has been done in the Consultation Paper on developing a more detailed targeted capacity mechanism, namely, a Strategic Reserve. However, we consider that this is still subject to the fundamental problems associated with a targeted mechanism. A Strategic Reserve would not be an efficient solution to the under-investment caused by the 'missing money' problem. Also, it would deter the vital investment needed due the regulatory uncertainty surrounding procurement of Reserve capacity and its dispatch. Indeed, there is likely to be a 'slippery slope' effect with Reserve plant increasingly displacing market plant.

- Whilst we consider that a well-designed market-wide Capacity Mechanism is needed, we do have significant concerns about the complexity and potential unintended risks and consequences arising from the reliability contracts model set out in the Consultation Paper. There are important issues around how reliability contracts would interact with the existing market, especially the forward market. We also consider that the clawback design under reliability contracts would not deliver the necessary investment signals. By linking the clawback to energy prices, the design of the reliability option gives the contract no additional value above that of any other energy contract and suffers from the same deficiencies, including 'missing money'. Moreover, the uncapped market risk resulting from the limitless clawback mechanism is likely to deter capacity from entering the mechanism.

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- We believe that the Government should look seriously at a relatively straightforward market-wide capacity payment option that would be unambiguous in its effect on investment signals delivering greater security of supply. In addition, by operating within the framework of the existing market it would have the significant advantage of being a self-correcting mechanism avoiding the need to decide the precise amount of capacity that government or an agency would need to contract for. In calculating the Best New Entrant cost level needed to be met, an allowance for market returns could be deducted. This should reduce the risk of the capacity mechanism encouraging over-investment. An effectively-designed market-wide Capacity Mechanism would in any event have a dampening effect on wholesale prices and, together with a reasonable deduction for market spreads, should substantially avoid any "double reward" problem.

We believe that the forthcoming capacity challenges are such that the Government should proceed with paving provisions for a market-wide Capacity Mechanism in an Energy Bill in May 2012, allowing for the mechanism to become operational from 2015. We look forward to continuing our engagement with the Government on this important issue in the lead up to decisions in the Technical Update document at the year end and beyond.

In the meantime, if you have any questions please contact me using the details printed on the previous page or [redacted].

Yours sincerely,

[redacted]

Director of Regulation

CAPACITY MECHANISM: SCOTTISHPOWER RESPONSE – EXECUTIVE SUMMARY

1. The Government's White Paper rightly emphasises that a major challenge in the early 2020s will be long periods of low wind generation in winter when there is a high volume of wind on the system. This particular challenge was highlighted by the analysis from NERA that we submitted with our original response to the Government's December 2010 consultation on EMR. We welcome the Government's readiness to address this issue and in particular to consider the role of a market-wide Capacity Mechanism which we consider to be essential to maintain cost-effective security of supply in the face of new challenges.

2. In an energy-only market, incentives to invest depend on the value of capacity during times of peak demand. This value may emerge as a "scarcity rent" in peak electricity prices, which may become less predictable and more at risk from possible regulatory interventions in a system dominated by intermittent wind output. Reflecting those uncertainties, the difference between revenues that investors can be sure of obtaining in an energy-only market and the returns required for long-term investment is known as the 'missing money'. We outline below in more detail the way in which a market-wide Capacity Mechanism might be introduced to the existing GB electricity market so as to ensure security of supply cost-effectively and without losing the benefits of our market-based system.

3. We consider that the forthcoming capacity challenges highlighted in the White Paper are such that the Government should proceed with paving provisions for a market-wide Capacity Mechanism in an Energy Bill in May 2012, allowing for the mechanism to become operational from 2015. Delivering on this timetable is important given existing plant closures, the constraints placed on existing coal plant under the Industrial Emissions Directive ("IED") and by virtue of the high level of the unilateral Carbon Price Support introduced at the last Budget. The introduction in 2015 of a market-wide Capacity Mechanism could allow for optimisation of IED running hours for existing coal plant through to 2023, avoiding a short term need for investment in replacement plant that would not be needed in the long run, and ensuring cost-effective security of supply to the benefit of the consumer. Depending on its level, it could also provide an opportunity for some coal plant to be upgraded to meet IED NOX requirements, so providing a peaking/reserve capability in the 2020s that is not dependent on gas.

<u>A targeted capacity mechanism: strategic reserve</u>

4. We note the work that has been done in the Consultation Paper on developing a more detailed targeted capacity mechanism model, a Strategic Reserve based on economic dispatch. However, we remain of the view that a targeted mechanism will be insufficient to meet the coming capacity challenges in an effective way. It is still not apparent to us that a Strategic Reserve would effectively address the 'missing money' problem. Indeed, we consider that market investors are likely to perceive the introduction of a targeted capacity mechanism as placing an additional unpredictable cap on prices and thereby creating greater investor uncertainty. Moreover, the regulatory uncertainty associated with a targeted mechanism, in particular around the price at which strategic reserve will be dispatched into the market as well as the amount of plant needed, is, in our view, inconsistent with establishing a stable investment climate.

5. Figure C6 in the Consultation Paper suggests that the "slippery slope" problem can be remedied by suitable setting of the volume of plant procured and the despatch price. But this depends on there being an appropriate balance within the Strategic Reserve between:

(a) 'incremental capacity' – that is plant that is newly built, or defers its closure plans, so as to provide additional capacity; and

(b) 'segregated capacity' – that is plant that would continue to operate in the market in the absence of the Strategic Reserve.

6. It is only by withdrawing the segregated capacity from the market – a process which is not adding to security of supply but intervening to raise prices – that it is possible to create market space for the incremental capacity without depressing market prices. Otherwise the result will simply be displacement of market plant through the price mechanism. In short, the proposed scheme is likely to result in a delay in market investments pending clarity on Strategic Reserve availability and dispatch price, substitution of market investment by plant in the Strategic Reserve, and even lower investment in plants with a lead time longer than that considered for the Reserve. This is likely to result in a 'slippery slope' effect and could increase prices for consumers as well as having significant implications for the generation mix.

7. Another problem intrinsic to a targeted mechanism as considered in the Consultation Paper is that of economic inefficiency. A Strategic Reserve limits the operation of the reserve plant to exceptional circumstances, so it involves holding plant back, even when it would be economic to run it. This hinders optimal dispatch and use of plant.

8. Finally, the scheme depends on a fairly accurate view of the shortfall in capacity to be provided by the market. We think that this number will be very difficult to assess with any precision.

9. In summary, we consider that a targeted mechanism such as the Strategic Reserve would not be an efficient solution to the under-investment caused by the 'missing money' problem and would in turn have the unintended consequence of deterring vital investment due to the regulatory uncertainty necessarily surrounding procurement and dispatch decisions under a Strategic Reserve.

<u>A market-wide capacity mechanism: overview</u>

10. We believe that a well-designed market-wide Capacity Mechanism is needed to ensure signals for new investment are strong enough and stable. For it to be successful, the following key design criteria should be met:

1. A mechanism that effectively incentivises cost-effective and timely investment by addressing the 'missing money' problem for all plant;

2. As transparent and objective a scheme as possible, using stable rules and procedures to avoid the unintended risks and consequences of subjective choices;

3. A stable scheme to promote investment, with any flexibility to respond to new challenges being bound by narrowly defined design principles or duties, to minimise the risk of devaluing or stranding investments;

4. A system that allows for DSR and storage participation through proper monitoring and enforcement;

5. A system that satisfies any concerns over 'double reward', avoids distortions of market prices, and prevents gaming opportunities.

11. The Consultation Paper places great emphasis on the question of "strategic bidding". While it is important to ensure that any mechanism is not open to manipulation, it is worth noting that many of the strategies discussed would require a degree of market power which does not exist in the UK wholesale market. For example, if the proposed mechanism is no

more susceptible to withdrawal of capacity than the existing energy-only market, this should be acceptable, since the existing market shows no evidence of such strategies being successfully deployed. This balance should be kept in mind when designing mechanisms, as there is a potential risk that otherwise good designs could be ruled out unnecessarily.

A market-wide capacity mechanism: reliability contracts

12. Whilst we consider that a market-wide Capacity Mechanism is needed, we do have significant concerns about the complexity and potential unintended consequences arising from the reliability contracts model set out in the Consultation Paper. In particular, we consider that there are fundamental issues around how reliability contracts would interact with the existing market, especially the forward market.

13. We believe that a capacity mechanism based on reliability contracts would need to be based on a short-term reference market so as to ensure proper signalling in times of system stress. However, this would then have significant negative implications for the forward market. This is because a generator party to a reliability contract could no longer enter the forward market with sufficient confidence; having sold the output at a fixed price over a longer duration, the generator would be unprotected against the clawback payment if the market were to spike during the contract period. Accordingly, generators would be likely to shift their trading to the short term market where there is more certainty around the clawback risk.

14. We note that there has been some suggestion that the compatibility of reliability contracts with forward trading might be addressed by a 'netting-off' of forward trade volumes from the clawback mechanism. However, we consider that any such arrangement would be almost impossible to implement with the existing market framework. For example, in a company with an actively traded forward book, it would be difficult to establish whether or not there were offsetting trades or options which cancelled out the 'netted off' trade – and any effective scheme for preventing them would be both onerous and detrimental to liquidity. It might also be necessary to regulate the terms of contracts eligible for netting off, which might entail efficiency losses.

15. More generally, we consider that the clawback design under the reliability contract model could be highly problematic in terms of delivering effective investment signals. By linking the clawback to energy prices, the design of the reliability option gives the contract no additional value above that of any other energy contract, and suffers from the same deficiencies ('missing money' in particular). The clawback is limitless under the proposed model and might expose small generators to very high risks, if they happened to be unavailable during a peak period. (Independent generators currently protect themselves against such risks by signing contracts with availability targets they can meet, and penalties they can tolerate.) We consider that this unlimited market risk is likely to deter capacity from entering the capacity mechanism. Of course, we recognise that there need to be penalties for non-availability. However, we believe that there would need to be a cap on such potential costs, such as in the PJM and ISO-New England capacity market, so as to ensure that the necessary investment is brought forward.

16. In the event that forward trading issues could be overcome, we consider that there would have to be two components to the value under any reliability contract. To bring stability to the market and bridge concerns about the gap between SRMC-prices and LRMC-incentives, the average price of a reliability contract over a period of time would need to include first a high proportion of the investment cost and second an estimate of the average amount a generator would have to payback due to the clawback. We consider that attempts could be made to price in the investment costs associated with a Best New Entrant (BNE) under a reliability contract. But a workable approach would need to involve long lead times

and long contract durations in respect of new plant. In the face of these risks, new plant would require additional returns in respect of clawback to provide greater confidence. Estimating the required contract price would be complex and subjective.

17. In summary, we believe that the reliability contract model set out in the Consultation Paper, with clawback and the associated complexities, would not bring the stability needed to foster effective investment decision-making.

<u>A market-wide capacity mechanism: an administrative approach</u>

18. Our preferred approach towards a market-wide Capacity Mechanism is a well-designed administrative system under which an independent central body sets capacity values based on an analysis of future system needs but leaves the market to decide what investment is optimal. The contract would be based on actual generator capacity, rather than on energy output. Such a market-based system would allow for feedback adjustments to be made on a dynamic basis so that there was no need to decide the precise amount of capacity that government or an administrator would need to contract for. We consider that this kind of de-risking of an energy-only market could offer the stable investment environment that is needed.

19. A high level summary of a possible design of an administrative market-wide Capacity Mechanism is set out below:

- The central body takes a view of the capacity required in the market
- Then multiplies this by the annual figure of the fixed costs per unit of a BNE less an allowance for market returns[1]
- The total value of capacity payments in each year and its division into monthly totals are determined in advance by the central body and other regulatory authorities
- The breakdown into monthly totals is done in advance of each year under a formula based on demand forecasts
- This breakdown is given further granularity by dividing the monthly pots into half hourly blocks
- These payments are then given to all plant based on its availability
- In the GB market this capacity payment would not be paid to generators providing supply under a FiT, to avoid double remuneration of their capacity
- The centrally administered payments would be financed by a levy on suppliers

20. Under such a system, generation would be incentivised to be available and to take outages in an efficient way. Also, under a centrally administered system with a fixed pot, any uniform reduction in capacity payments should mean that the least efficient plant is most likely to be the first to come off. In calculating the BNE cost level needed to be met, an allowance for market returns can be deducted. This should reduce the risk of the capacity mechanism encouraging over-investment. An effectively-designed market wide Capacity Mechanism would in any event have a dampening effect on wholesale prices and, together

[1] This recognises that some element of fixed costs is likely to be recoverable in the energy-only market through scarcity rents by analogy with other markets involving fixed costs. However, those markets can more effectively recover fixed costs because they are stabilised through the much easier ability to hold stocks.

with a reasonable deduction for market spreads, should substantially avoid any “double reward” problem.

21. There is also the issue that simply not receiving capacity payments as a penalty for not being available at times of stress might be an insufficient price signal to encourage true reliability. Therefore, the penalty mechanism might include the reclamation of a multiple of capacity payments, either multiples of the capacity payment in the period when the plant is unavailable, or the sum of capacity payments over a number of preceding periods. The severity of this penalty could be linked to the extent to which the system was under stress. In this way, the penalty would reflect energy market conditions, but it would not simply mimic them, as the scheme is intended to strengthen market incentives. Investors will, of course, consider expected penalties as part of their investment decision and high penalties will deter investment. So, it is important to reach a balance between availability related-penalties and attracting investment.

22. There is a separate impact from the proposed mechanism on those renewables continuing to receive support under the RO, in that it will put a downward pressure on wholesale prices and therefore returns. Renewables investors will expect a suitable solution to this.

23. We have also considered the possibility of output-based approaches to a market-wide Capacity Mechanism. However, there is no universal relationship between the output of conventional plant and the value of their capacity. An output-based approach would therefore place greater demands on the central administrator who must determine precisely the capacity needed at any given future date and are less flexible in terms of the feedback processes available. We, therefore, consider that the approach outlined above, based on a measure of availability, is the preferable one.

24. In summary, we consider that an administrative approach to a market-wide Capacity Mechanism offers an efficient solution to forthcoming capacity challenges consistent with the existing GB electricity market and providing a stable basis for investment decisions.

ScottishPower
4 October 2011

SCOTTISHPOWER

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CONSULTATION RESPONSE ON POSSIBLE MODELS FOR A CAPACITY MECHANISM

Introduction

ScottishPower is a major UK energy company with networks, generation and retail interests. ScottishPower Renewables is the UK's leading wind power developer. Both companies are part of the Iberdrola group, a major international utility and the world's leading renewables developer which also has significant nuclear interests. Our group is therefore a major player in the electricity market reform process and the drive to a low carbon electricity sector.

This response is on behalf of all Iberdrola's interests in the UK and references to "ScottishPower", "we" etc. should be read accordingly.

We welcome the Government's indication in the White Paper that a market-wide capacity mechanism is now being considered and not just a targeted mechanism. We believe that a major challenge in the 2020s will be long periods (up to 2 weeks) of low wind generation in winter when there is a lot of installed wind capacity on the system – efficient thermal plant will be very important in dealing with this. We believe that a stable and transparent market-wide Capacity Mechanism is needed to ensure signals for new investment are strong enough and that the 'missing money' problem is properly dealt with.

Question 1 - Does this table capture all of your major concerns with a targeted capacity mechanism? Do you think the mitigation approach described will be effective?

The table is a summary of some of the concerns that have been raised in respect of a targeted Capacity Mechanism. So, for example, the "market distortion" heading and the summary points beneath this reflect widely felt concerns that a targeted Capacity Mechanism will not adequately address the 'missing money' problem and indeed could exacerbate it. We also take it as an implicit reference to the significant risk that a targeted mechanism would suppress peak energy prices and crowd existing generation capacity out of the market. Thus, a targeted capacity mechanism would provide support to certain favoured generators, but would not be likely to increase the total amount of available capacity. Moreover, as existing capacity that was previously remunerated through the energy market closes, the need to procure reserve capacity under a targeted mechanism will increase. The original Consultation document referred to this problem as the 'slippery slope' effect.

Further, the 'transparency' heading in the table is taken to refer to the fact that there is significant regulatory uncertainty associated with a targeted mechanism: market players would perceive that there are major risks of unpredictable changes to design or operation of the scheme. The potential for the Government or other bodies to change their views about the scale, timing and other key parameters of the scheme will undermine any additional investment incentives it is intended to provide. In particular, the price at which Strategic Reserve capacity is offered into the market will materially influence investors' expectation of future power prices. The need for a Government agency to set this offer price therefore subjects investors to new regulatory risks. Hence, a targeted Capacity Mechanism does not help to establish a stable investment climate.

In addition, a number of industry participants have stated that a targeted mechanism based on economic dispatch would place an additional cap on prices and thereby create greater investor uncertainty. (Within Nordpool, the regulators of other participating countries expressed similar concerns about the risks imposed by the Swedish proposal to create a "reserve of last resort".) This regulatory uncertainty, in turn, contributes to the market distortions which reinforce the 'missing money' problem and exacerbate the 'slippery slope' effect. These are all major issues arising from a targeted mechanism and, in our view, remain challenges with the Strategic Reserve design set out in the Consultation document.

Moreover, there are other major challenges with a targeted mechanism and these are also problematic for the Strategic Reserve design set out in the Consultation Paper. So, for example, the Consultation Paper states that a key element of the Strategic Reserve is that a "central determination would be made of the required reliability level and whether the market is likely to deliver this". However, both elements of this task – ie determining the level of supply needed at some future date and estimating what the market will provide at that date – can be difficult to carry out in practice, and being the difference between two large numbers it will be subject to potentially large estimation errors to the cost of the consumer. Indeed, the timings make it particularly difficult to quantify a future shortfall with any accurancy, since decisions would need to be taken before other potential investors will have committed their funds.

Trying to judge the likely decisions of market investors in advance would also be made harder by the need to account for the likelihood that investment will be deterred through the additional regulatory risk the scheme creates. By contrast, a well-designed market-wide mechanism can allow for greater feedback processes which provide signals to all investors that make this task less challenging.

Another problem that is intrinsic to a targeted mechanism such as the Strategic Reserve design set out in the Consultation paper is that holding plant outside the market except in exceptional circumstances, even when it would be economic to run that plant, creates inefficiency in the short-term pattern of plant despatch. This problem particularly undermines the long-term credibility of a Strategic Reserve mechanism using last resort despatch, as future governments or regulators may be tempted to correct a perceived inefficiency by offering Strategic Reserve capacity into the market at its marginal cost, thereby changing the nature of the scheme, increasing risk and accelerating the industry's descent down the 'slippery slope'.

The practicalities of this type of targeted mechanism are also challenging. For example, if (as expected) power stations under the Strategic Reserve have very low load factors and long periods of inactivity, then the lead times and costs associated with ensuring plant is in a serviceable condition, tested and ready to run need to be fully understood to ensure that physical characteristics are adequately reflected in contracts.

One other practical aspect of a Strategic Reserve (which has the potential to exacerbate market distortions) is how exactly the Strategic Reserve would work in conjunction with existing services operated by National Grid, such as Short-Term Operating Reserve (STOR). Both services could be trying to secure generation for similar purposes, thereby competing against each other.

Finally, it is noteworthy that there is very little detail on the important issue of how a Strategic Reserve mechanism would procure the generation required. Thus, as well as the calculations that will be needed to procure the correct amount of generation, it may also be important to get the correct type of generation to ensure an effectively balanced energy system. This will present further challenges for the central planning approach that a Strategic Reserve implies.

Question 2 - How long should the lead time for strategic reserve capacity be and why?

The Consultation Paper anticipates that the Strategic Reserve would operate with a four year forward look at the security of supply level (i.e. projected demand and market supply) and that this would provide adequate time for the procurement of new plants if required. In principle, four years would offer a balance between allowing generators to have a good view of what is likely to be procured at any given time and minimising the risk of procuring too much capacity which is no longer required due to a reduction in demand levels. (Future demand is especially difficult to project far into the future.) However, in practice the time horizon from concept to build completion is likely to be longer. Indeed, six to seven years is likely to be a better benchmark. Four years is unlikely to be enough time to obtain all the appropriate consents, build the capacity and get connections to the grid. Additionally, it is worth noting that public tendering processes can lengthen procurement timetables. Of course, the longer the lead time between procurement and delivery, the more likely it is that the scheme will falsely identify a future shortfall (even though other investors would in fact have stepped in).

The key point is that it is intrinsic to a Strategic Reserve mechanism that there would be a close relation between investment in market plant and Strategic Reserve plant: the need for Reserve plant will be estimated considering the market plant expected to enter into operation within the lead time considered; at the same time, the market expectations around Strategic Reserve will be key for investors in making their estimations regarding future market price which in turn will be crucial for investment decisions for market plant. However, the uncertainties around this relationship could result in severe inefficiencies in the provision of generation and its mix.

This problem with the Strategic Reserve derives from its plant-specific nature. For the scheme to have any effect on investment, it must make individual projects bankable. That requires a profit-specific contract at a very early stage in project development, and hence a long lead time. As discussed below, a market-wide capacity scheme offers a major advantage in this respect. Even though investors cannot secure any income for capacity before making plant available, a market-wide scheme provides the necessary incentives, if investors can be confident that the scheme will still be operating in its current form (broadly) once their generation project is commissioned. (At the same time, market participants in a well-designed market-wide scheme would take into account the plans of competitors when estimating potential returns on new investment so that over-investment would be deterred.)

Question 3 – Should the length and nature of contracts procured by the strategic reserve procurement function be constrained in any way?

New generation will require a contract duration adequate to mitigate uncertainty and ensure sufficient returns on investment. If this length of contract was not available then it is possible that new generation would not enter into the Strategic Reserve mechanism. Alternatively, shorter durations may lead to higher prices as generators need to look to secure returns during a shorter period of certainty.

Because the Strategic Reserve applies only to a selected portfolio of projects, participating capacity will require a project-specific contract. Existing capacity will require bespoke-length contracts depending on the scale of investment required to maintain availability at each plant. The need for a major investment in existing coal plant, such as selective catalytic reduction, would imply that generators would require a longer duration of contract, rather than a plant whose investment demands only involved regular maintenance.

The bespoke nature of each contract for existing capacity is one reason why auctions would not be a good system for this type of capacity mechanism. However, if bespoke contracts are negotiated for individual plants, the Strategic Reserve mechanism will be opaque and susceptible to lobbying and regulatory discretion. These factors will undermine incentives to provide investment outside of the scheme, and reinforce the 'slippery slope' effect. Moreover, in terms of bespoke contracts there may be issues arising in respect of European regulations governing capacity payments. It might be possible to standardise the contracts by imposing some kind of "banding" by technology (as is done for ROCs) but that would substantially increase the complexity of the scheme's design.

Question 4 – Which criteria should providers of strategic reserve be required to meet?

The precise nature of the criteria which providers of strategic reserve should be required to meet depends on the proposed use and design of the Strategic Reserve, which still needs to be defined. For example, if STOR continues to be used to balance the system on a regular basis, and the Strategic Reserve were only to be used for longer periods of running due to a lack of intermittent generation, then fast ramp rates would not be an important tendering criterion. Other criteria mentioned in the Consultation Paper such as availability periods, capability and duration for sustained running, and availability fees are all important and it would be imperative that the central body operating the Strategic Reserve mechanism should use these and possibly other criteria to procure the correct mix of generation within any targeted mechanism. In designing this central procurement process it would be essential that there are clear transparent rules and guidelines to minimise regulatory risk and thus the extent of uncertainty faced by investors regarding how the scheme will operate.

Question 5 – How can a strategic reserve be designed to encourage the cost-effective participation of DSR, storage and other forms of non-generation technologies and approaches?

Demand Side Response (DSR) can be useful to shift demand from one period to another, and we look forward to the possibility for future developments in DSR, such as through the development of electric vehicles and new types of electrical heating, as reflected in the Poyry paper recently published by DECC ("Demand Side Response: Conflict Between Supply and Network Driven Optimisation" Poyry, November 2010). However, it is important to note that current DSR options can only operate for limited periods and may not be able to address extended periods of low wind generation. (Storage has similar features.) Moreover, the availability of some types of DSR can be difficult to forecast far into the future. It follows that DSR and storage could be more suited to STOR than to larger scale and strategic capacity needs.

That said, it is important that any capacity mechanism is able to work in a system involving DSR and storage, whether these options participate directly in the capacity mechanism or are supported by separate more specific arrangements. In any event it would be crucial to ensure that there are proper monitoring, qualification and enforcement systems in respect of DSR given that it can be challenging to prove that a reduction in demand would not have occurred anyway. Finally, we agree with the view expressed in the White Paper that a targeted mechanism may be less effective in developing the wider use of non-generation approaches such as demand side participation compared to a market wide capacity mechanism.

Question 6 – Government prefers the form of economic despatch described here. Which of the proposed dispatch models do you prefer?

There are clear flaws in both of these despatch methods. The Consultation Paper sets out a preference for economic despatch. However, this could significantly impact the case for new generation, as if the despatch price is set too low then the level of 'scarcity rent' through peaking prices that thermal generation relies on will not be available. Identifying the optimal despatch price level and amount of GWs needed in the Reserve, is in practice likely to be very difficult. Indeed, it is only possible to avoid displacing market plant by balancing the new plant procured (or existing plant whose closure is averted) by contracting with a further quantity of plant that would otherwise remaining the market. Judging these quantities accurately will be difficult.

On the other hand, if it is subject to 'last resort' despatch at artificially high prices, the Strategic Reserve looks expensive for limited security gain. Indeed, if it were despatched at the Value of Lost Load (VOLL) – i.e. the price at which consumers are indifferent between purchasing supply and being cut off, then it would offer no return at all for the investment. Furthermore, there would be significant regulatory uncertainty around whether the reserve might in the event be despatched at lower prices thereby undermining market investment.

In short, both forms of despatch are problematic and are likely to 'crowd out' market investment.

Question 7 – How would the strategic reserve methodology and dispatch price best be kept independent from short term pressures?

Regulatory uncertainty surrounding the conditions governing dispatch of the Strategic Reserve is clearly a major problem for the design of any targeted mechanism. One important aspect of this is the role of the government and how it interacts with the central body procuring the capacity. For example, there would be likely to be significant uncertainty about what would happen at a time of system tightness, when prices were very high but not high enough to activate dispatch of the capacity in the Strategic Reserve. This could lead to very strong pressure to release the idle capacity to assist consumers.

It follows that there would need to be maximum transparency around the rules governing dispatch and any change process in respect of these rules. However, it is our view that it will be very difficult to establish the necessary regulatory certainty even with transparent rules.

Question 8 – Do you agree that a strategic reserve should be periodically reviewed? If so, who would be best placed to carry out the review and how often should it be reviewed?

With the many issues that surround this type of mechanism, including the risk of procuring the incorrect amount of capacity at the wrong strike price, we agree that it would be useful to review periodically the operation of a Strategic Reserve mechanism. Any such periodic review would need to carry out pre-determined tests to establish whether the Strategic Reserve was functioning effectively. That said, it is an aspect of any such review process that it has the potential to undermine investment signals, causing a hiatus in needed investment whilst the outcome of the review is awaited. This tension serves to underline the difficulty in designing an effective targeted mechanism: on the one hand, there is a need for flexibility to improve the mechanism when needed; yet, on the other hand, having such a review process will create uncertainty.

Question 9 – Into which market should strategic reserve be sold and why?

The two options under consideration in the Consultation Paper are the Balancing Mechanism and the day-ahead market. Whilst selling into the Balancing Mechanism would seem to be an obvious option, it might not allow enough time for generation within the

Reserve to respond when required, particularly given that plant in the Reserve may not have run for some time. Of course, this would depend on the criteria set out in the procurement of Strategic Reserve, such as ramp rate etc and also on the arrangements for ordering up plant. Thus, the system operator might order plant in advance to give it time to prepare, even if its output is eventually sold into the Balancing Mechanism.

Using the day-ahead market would address the problem of not giving Reserve generation sufficient time to respond. Also, relying on signalling in the day-ahead market is likely to provide a stronger link to forward markets than using the Balancing Mechanism. However it is unclear what type of day-ahead product Strategic Reserve would be based on. If a baseload product is used, there are likely to be several occasions where within-day prices go above the dispatch price whilst the baseload price would remain below this level.

It may well be that the optimum approach would depend on the type of plant and its characteristics, with a mixture of the Balancing Mechanism peak/off-peak pricing or possibly EFA block prices reflecting the best technical option.

Question 10 – Do you have any comments on the functional arrangements proposed for managing a strategic reserve?

Whilst there is an outline of the functional arrangements for managing a Strategic Reserve mechanism in the Consultation Paper, there is a lack of clarity on how the Government would fit in this system and what authority it would exercise in respect of the process. The need for clarity and transparency in this area would be crucial to helping to establish credibility for any central body and to try to alleviate concerns around regulatory uncertainty. Also, the central body would need strong credit credentials to allow for contracts of sufficiently long duration. In addition, as explained in other answers, there would be a need for further clarity on how the dispatch mechanism would function in practice and how it would interact with STOR which is operated by National Grid. Clarity on how these mechanisms would interact would be essential given the challenges presented by balancing the system through two different mechanisms. Finally, arrangements for differentiation of technologies in the mechanism would need to be avoided where possible. Where required, such rulings should be transparent and objective.

That said, we consider that there is an intrinsic regulatory uncertainty associated with a Strategic Reserve option which it will not be possible to remove by design.

Question 11 – Given the design proposed here and your answers to the above questions, do you think a strategic reserve is a workable model of capacity mechanism for the GB market?

For the reasons outlined above, there are too many challenges associated with the Strategic Reserve model to enable it to be a credible solution to the challenge of designing an effective capacity mechanism. In particular, the Strategic Reserve model does not adequately address the ‘missing money’ problem and is likely to lead to the ‘slippery slope’ effect whereby reserve plant increasingly displaces market plant. Another key problem surrounds the lack of clarity about how it would operate over time and even with additional transparency there would still be a high degree of regulatory uncertainty associated with it. A part of this uncertainty relates to the process of determining the dispatch price, since any effects of the scheme work through its impact on energy market prices. Moreover, calculating the amount of capacity required within the mechanism is also a very complex task, especially the further into the future these predictions are made and taking into account the existing relations between the amount of Strategic Reserve and market plant (as considered in the response to Question 2 above).

Figure C6 in the Consultation Paper suggests that the “slippery slope” problem can be remedied by suitable setting of the volume of plant procured and the despatch price. But this depends on there being an appropriate balance within the Strategic Reserve between:

(a) ‘incremental capacity’ – that is plant that is newly built, or defers its closure plans, so as to provide additional capacity; and
(b) ‘segregated capacity’ – that is plant that would continue to operate in the market in the absence of the Strategic Reserve

It is only by withdrawing the segregated capacity from the market – a process which is not adding to security of supply but intervening to raise prices – that it is possible to create market space for the incremental capacity without depressing market prices. Otherwise the result will simply be displacement of market plant through the price mechanism. In short, the proposed scheme is likely to result in a delay in market investments pending clarity on Strategic Reserve availability and dispatch price, substitution of market investment by plant in the Strategic Reserve, and even lower investment in plants with a lead time longer than that considered for the Reserve. This is, in our view, likely to result in a ‘slippery slope’ effect and could increase prices for consumers as well as having significant implications for the generation mix.

Other concerns include how a Strategic Reserve would interact with current mechanisms such as STOR especially if they are to be operated independently. There would also be challenges associated with the physical restrictions on dispatch of plant (i.e. ramp rates, minimum time-on, minimum production levels etc).

In short, whilst we consider that the Strategic Reserve model is a more developed version of a targeted mechanism, in our view, it is still subject to the problems associated with a targeted mechanism. The fundamental problem is that any targeted intervention will crowd out other investment, so that it distorts the choice of plant without increasing security of supply for the market as a whole. Moreover, the risks of over-supply are likely to become greater on this ‘slippery slope’ so that there is also a significant risk that consumers could be paying for capacity which is not providing them with any service.

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Question 12 – How and by whom should capacity in GB market be bought and why?

In our view, the best solution is to provide additional market-wide incentives for investment and then to leave individual decisions about procurement to market participants. For instance, an independent central body could administratively set the amount and value of capacity in relation to the costs of a Best New Entrant ("BNE") within a market-wide capacity mechanism. The cost would then be allocated to suppliers who would be under an obligation to cover these costs. (See response to Questions 25 for further detail on this kind of possible model.) We consider that such a model could deliver on the following key design criteria:

1. A mechanism that effectively incentivises cost-effective and timely investment by addressing the 'missing money' problem for all plant
2. As transparent and objective a scheme as possible, using stable rules and procedures to avoid the unintended risks and consequences of subjective choices
3. A stable scheme to promote investment, with any flexibility to respond to new challenges being bound by narrowly defined design principles or duties, to minimise the risk of devaluing or stranding investments
4. A system that satisfies any concerns over 'double reward', and prevents gaming opportunities

Such a system could naturally include storage (subject to limitations reflecting the running time available before re-charge). For DSR, it would be necessary to consider the best implementation route, taking account of verification issues.

Question 13 – What contract durations would you recommend for a Capacity Market?

To increase investor confidence it would be vital that long term commitments are available to new generation. These commitments should cover a period of at least ten years. Such long term commitments could be offered through contracts, in which case they should also be accessible to existing plant which requires major investments. For instance, these contracts might cover plants which would have to invest in selective catalytic reduction (SCR). It could be necessary to adjust the contract durations for existing plant to take account of other lifetime issues.

Alternatively, investors may be persuaded to accept a shorter term commitment, if they can have confidence that the scheme will continue to operate in its current form (broadly) for ten years or more. The advantage of contracts is that they are legally binding; a process such as a capacity mechanism must be backed up by some similar source of stability and predictability.

However, we do have concerns about auctioning, especially if shorter-term contracts are used, as the results are likely to follow cyclical "Energy Only" market type returns. Moreover, previous experiences of auctions in relation to building plant for the UK energy market have not been positive. For example, the Non Fossil Fuel Obligation (NFFO) auctions were a clear example of successful bids not always leading to construction of generation: in fact, only 25% of winning projects were actually built. This was due to projects in their early stages putting in unrealistic bids before any capital has been spent, then being cancelled later in the building process as it was realised that the project would no longer be viable. This meant that projects which bid at an appropriate level never got accepted and therefore were also cancelled or at least delayed until the next auction.

Question 14 – How long should the lead time for capacity procurement be? Should there be special arrangements for plants with long construction times?

(See also points made in response to Question 2 above.)

In our favoured approach of a capacity payment, the question of procurement does not arise as investment decisions remain for the market.

In any system which depends on making a demand forecast, there clearly is a balance to be struck between the accuracy of the forecast and giving generation a lead time to allow it to build plant. Nonetheless, long lead times are required to give the market clear signals on not only whether generation is required, but also what technology is needed. It should also be noted, that it is unlikely that the four year period stated in the Consultation Paper will provide enough time to build either OCGT or CCGT, as construction time plus time to get all the consents necessary, on average, takes longer than this. In a procurement-based model, the risks involved in a strategy of procuring capacity far in advance of the contract period can be mitigated by offering shorter contracts to existing plant and DSR.

As discussed above, a scheme could address the problem of lead times either by offering contracts well in advance of delivery, or by offering a sufficient commitment or guarantee that a capacity scheme will still be operating in (broadly) its current form in ten or twenty years time.

Question 15 – Should there be a secondary market for capacity? Should there be any restrictions on participants or products traded?

The issue of a secondary market appears to be one of particular relevance for the reliability contracts model considered under Questions 17 to 20 below. The answer set out below is on this assumption.

A secondary market is virtually an essential component of the scheme. It would allow generators to review their profiles as their generation schedule changes. It could also facilitate the development of new products such as shorter term contracts which might provide a greater opportunity for technologies such as DSR to become involved in the capacity market.

It is also worth noting that that this type of trading would be likely to happen anyway, to allow generators to hedge any unforeseen outages. So there could be merit in facilitating the development of an official platform with transparent rules and regulations governing its operation. This could also enable traders without physical assets to enter the market, but without risking the main objective of the capacity mechanism, as all trades would be backed by a physical asset which entered the primary market.

Question 16 – What are the advantages and disadvantages of making a central administrative determination of (i) the capacity that can be offered into the market by each generator, (ii) the criteria for being available; and (iii) the penalties for non-availability? In outline, how would you suggest making these determinations?

We think that the owner of a power station should be given some discretion in a downward direction as to the amount of capacity offered into the market, as the owner is best placed to assess the unit's reliability and ability to sustain full output for an extended period.

However, we think that there do need to be central rules about the maximum amount of capacity that can be offered by a plant. Given the purpose of a capacity mechanism, it is important that there is real capacity behind offers and not simply financial pledges that would be worthless if called. The maximum levels of capacity that can be put in the mechanism could therefore be related to the "nameplate" capacity of the installation according to fixed factors by technology type.

A key advantage of this kind of administrative approach is that the consumer can be confident that the appropriate physical assets are being procured. Operationally, generators can be confident that the same transparent rules are being applied to everyone. It will also allow for a robust prequalification and monitoring process for procurement of capacity which is not yet built.

Under such a scheme, availability should be judged as being a station that is able to generate the full amount of the capacity stated in the contract or agreement. For plant that continues to perform poorly the central administrator could have a set of predefined transparent rules that introduce a restriction on the level of capacity that can enter the scheme.

Penalties for non-availability should be transparent and defined by the central administrator so as to foster investor certainty. Such penalties must not be so high as to deter investment; and should not be focussed too narrowly on individual incidents, but spread over a prolonged period of non-availability. If the penalty for a single incident is set too high, then the revenue risk would deter investment. This would be especially true for small independent generators.

Question 17 – How should the reference market for reliability contracts be determined and what would be an appropriate reference market if it is set by the regulator? How could any adverse effects of choosing a particular option be mitigated?

Whilst we consider that a market-wide capacity mechanism based on a central administrative approach is needed (as set out in response to Question 25 below), we do have very significant concerns about the complexity and potential unintended consequences arising from the novel reliability contract option set out in the Consultation Paper. We consider that the financial model set out in the Consultation Paper raises fundamental issues about how reliability contracts would interact with the existing market, especially the forward market, and is significantly flawed. Our answers to questions 17 to 20 below should be read in this context. Moreover, given the complexities and challenges associated with reliability contracts, we consider that if this option were to be developed further, then it would be essential to take forward work in this area in a step-by-step approach with frequent reviews so as to minimise the risk of adverse effects.

We consider that a capacity mechanism based on reliability contracts (as set out in the Consultation Paper) would need to be based on a short-term reference market so as to ensure proper signalling in times of distress. It is difficult to be more specific without further detail on the proposed design.

However, one very important point in this context that should be recognised is that under the outlined form of the reliability contract design, whatever short-term reference market is chosen will have significant impact on liquidity in the forward market. This is because a generator, as a party to a reliability contract, could no longer enter the forward market with confidence.

Clawback under the proposed model could go as high as VoLL less the strike price, which would be a very severe penalty. Of course, this could be negated to a certain extent by being available and capturing this price, but if energy is sold in the forward market this clawback would have extreme effects on the revenue stream. This risk would be likely to deter capacity from entering this mechanism or else from trading on forward markets. Such risks could damage liquidity and/or increase the cost of capital for investment in new plant.

More generally, we consider that the clawback design under the model set out in the Consultation Paper is highly problematic. There are two particular aspects to this: first, the fact that the clawback is a limitless penalty for generators; second, the fact that this penalty makes no differentiation between plant that is available and that which is unavailable. Of course, we do recognise that there should be penalties for non availability. However, we believe that there would need to be a cap on such potential costs, as in the PJM and ISO-New England capacity markets, so as to ensure that the necessary investment is brought forward.

In addition, reliability contracts could distort the dispatch of plant away from an economically optimal approach. For instance, plant such as pumped storage (or hydro) which has a fixed volume of energy available but can choose when to deploy it could lose the incentive to run at the most beneficial time for the system as a result of the strike price cap under the clawback mechanism of the reliability contracts scheme.

Question 18 – For a reliability market, how should the strike price be determined? If using an indexed strike price, which index should be used?

As a starting point, we should reiterate that we do not consider that the outlined form of reliability market, as designed, would deliver an effective capacity mechanism capable of meeting the design objectives set out in our response to question 12 above. However, if a strike price were to be determined under a reliability market option, or any other option, we consider that it should be through transparent rules with a clear statement of how it would be indexed in future years. However, this is only part of the equation, as it is just as important that the premium that the capacity under a reliability contract would be paid as an availability fee is set correctly.

Under the proposed design, the lower the strike price is set, then the larger the premium that would be needed as there is more chance of reaching the strike price level on a regular basis and so being subject to clawback. (Under a design where generators were only subject to penalties for non-availability there would be a prospect of a lower premium since generators confident in their reliability would consider there to be a lower risk of unanticipated penalties.)

The Consultation Paper states that the strike price would represent the boundary between normal system operation and scarcity conditions, both of which are conditions which are difficult to define precisely and have wide ranges surrounding them. It would, in any case, be essential to have clear and transparent rules governing the process of strike price setting so as to minimise regulatory uncertainty and provide the right signals for investors.

We think that it would be necessary to index the strike price for reliability options, at least if fuel costs fell outside a reasonable range. Otherwise there is the possibility, if there was an upward excursion in fuel input prices, that power plants could be operating in a scenario where the strike price was below their marginal operating costs.

Question 19 – For a reliability market, what level of physical back up (if any) should be required for reliability contracts and how should it be monitored?

We consider that in order to ensure that the necessary capacity is provided, all primary trades in a reliability market should be based on physical assets or capacity (including qualifying DSR and storage). To ensure reliability in respect of the contracted capacity it might be tested at pre-determined times to check that it is able to provide what it is contracted to do, with possible derating ramifications if it is unable to perform to a standard.

To add liquidity, financial trades could be allowed in a secondary market provided that the original trades were all based on a physical asset. Such a secondary market would also allow generators to manage their risk exposure as their running regimes become clearer over time.

Question 20 – Do you agree that a vertically integrated market potentially raises issues for the effectiveness of a reliability market? If so, how should these issues be addressed?

We do not agree that this is an issue. To the extent that costs or benefits from the reliability market flow to affiliated retail businesses, they will flow equally to other retail businesses in the market and thence, through the operation of competition, to the consumer. A vertically integrated business would assess the impact of reliability options on the basis that the supply business would be neutral to them and it should look at the generation implications only.

Exactly the same logic applies to the renewables obligation, under which the vertically integrated generators are the major UK developers. Under the logic set out in the Consultation Paper, integrated generators would be reluctant to invest in renewables because ROC income would have to be paid for by supply businesses. This reticence is however not observed and, for example, ScottishPower is the UK's largest onshore wind developer.

Question 21 – What could we do to mitigate interactions between a Capacity Market (especially if a reliability market) and Feed-In-Tariff with Contract for Difference without diluting the effectiveness of either?

A FiT structured as a CfD is a mechanism designed to help to stabilise the revenues for low carbon generation thereby increasing investor certainty so as to promote investment in these technologies. The issue of how this mechanism might interact with a market-wide Capacity Mechanism is a very important one.

In the future, when intermittent generation will be a large percentage of total generation, there is likely to be a high correlation between times of system stress and periods of low generation from intermittent plants. It follows that to include intermittent plant in a capacity market mechanism would place it at significant risk of incurring non-availability penalties, which would have the effect of undermining the revenue stabilisation benefits of a FiT with a CfD. Therefore, it would appear to make the most sense to have intermittent generation under a CfD operating without receiving any payment from the capacity market mechanism (although its capacity should of course be recognised in any calculations).

Nuclear capacity providing baseload generation under a CfD would not be affected in the same way as intermittent generation. However, the FiT with a CfD will have a set strike price intended to allow each plant to receive an appropriate return for its investment. A capacity mechanism, by adding another variable, namely the payment of an additional premium, could result in nuclear generation being over-rewarded with consequent unnecessary cost to the consumer. To address this problem, the strike price in the FiT with CFD could be lowered, however this addition of another variable to possible returns could increase complexity and hinder investor certainty. Therefore, it would also appear to make the most sense to have nuclear baseload generation under a CfD operating without receiving any payment from the capacity market mechanism (although its capacity should of course be recognised in any calculations).

Other types of flexible generation which may operate under a FiT with a CfD, such as Biomass and Carbon Capture and Storage, might in principle be more suitable to operate under a capacity mechanism. However, the design complexity and risk of over-rewarding generation under two mechanisms could argue in favour of a choice between one or the other mechanism. We consider that further work is needed in this area to fully consider the issues.

Question 22 – How can a Capacity Market be designed to encourage the cost-effective participation of DSR, storage and other non-generation technologies and approaches?

All other things being equal, it would be beneficial for DSR and storage to be able to participate in a capacity mechanism in as similar a way as possible to the treatment of generation plant. However, there are alternatives if this leads to disproportionate design complexity. So long as DSR and generation are incentivised to comparable levels, it is not necessary for the same mechanism to be used if there was a better technical solution.

In any event, a key aspect will be to ensure that there are effective monitoring and enforcement systems in respect of DSR since proving additionality can sometimes be challenging. Thus, the capacity of both DSR and storage should be measured under predetermined, transparent rules and should be tested to check the accuracy of measurements. Also, penalties similar to those imposed on generators should be applied to these methods of non-generation where there is a failure of delivery in accordance with contract or agreement.

A key problem with DSR is monitoring its prior commitment to consume energy, against which a demand reduction is measured. In an energy market, that commitment is represented by the volume of firm energy contracts held by the consumer. In a capacity market, commitments can only be measured by some kind of proxy for intentions to consume, such as the consumer's previous average demand by time of day. However, setting up the database and technology needed to calculate, monitor and update such proxies will take time.

In a first stage, DSR could be supported separately from any capacity market until ready to participate. But this issue should not delay the introduction of capacity payments because they are needed for power system security.

Question 23 – Do you have any comments on the functional arrangements proposed for managing a Capacity Market?

Whilst we consider that the functional groupings outlined in the Consultation Paper provide a useful summary of the functional issues associated with a market-wide Capacity Mechanism, we recognise that there is a need for much more detailed work in light of the particular market design adopted. The development of a transparent and stable design will be crucial in fostering the necessary regulatory certainty. However, we consider that achieving this certainty is significantly easier with a market-wide capacity mechanism than with a targeted scheme.

Question 24 – Do you think that a trigger should be set for the introduction of a capacity market? If so, how do you think the trigger should be established and how should it be activated?

We would discourage the use of market conditions, such as the prospect of high energy prices, as a trigger for introducing a capacity market. Such a trigger would inevitably descend into a selective and opportunistic rule, whereby generators' capacity was rewarded either by a capacity mechanism or by peak energy prices, whichever was the lower. This outcome would detract from incentives to invest, instead of strengthening them as intended. Any start date should be determined neutrally, by reference to the legislative calendar and implementation work plan.

We consider that the forthcoming capacity challenges are such that the Government should introduce provisions enabling a market-wide Capacity Mechanism in an Energy Bill in May next year at the start of the next Parliamentary session. This would allow for the Capacity Mechanism to become operational with effect from 2015. We consider that delivering on this timetable is important given existing plant closures and the constraints placed on existing coal plant under the Industrial Emissions Directive ("IED") as well as the impacts of the Carbon Price Support mechanism introduced in the UK at the last Budget.

The implications of all this for flexible thermal capacity is such that there is a need now for capacity payments under a market-wide Capacity Mechanism to incentivise the necessary investment in both existing and new plant. For example, the introduction in 2015/2016 of a market-wide Capacity Mechanism could allow for optimisation of IED running hours for existing coal plant through to 2023 ensuring cost-effective security of supply to the benefit of the consumer. Given the need to progress on these timescales, we certainly do not see the merit of introducing a trigger mechanism which would increase regulatory uncertainty and hinder investment decisions.

Question 25 – What is the most appropriate design of capacity market for GB and why?

For the reasons outlined in our response above, we do not consider that a Strategic Reserve option (or any 'targeted' scheme) is a viable solution to the forthcoming capacity challenges in the GB market. We consider that these challenges can be best met with a market-wide Capacity Mechanism. Whilst a reliability contracts model (as set out in the Consultation Paper) represents a positive step forward to a market-wide Capacity Mechanism, we have concerns about the complexity and possible unintended consequences arising from this model. In particular, we are concerned about how it would operate with the existing market, including forward trading, and we consider that it is likely to hinder efficient investment decisions.

In the event that forward trading issues could be overcome, there would be further issues with the reliability market. If the value of the reliability option were defined solely by back-up from the energy market, it will not add any value above existing energy contract prices, no matter what volume is procured. To strengthen investment incentives, the reliability option should be backed up by specific plant capacity and penalties for non-availability of that capacity. (The payments and penalties would still be common to all plant in the market.)

To bring stability to the market and bridge SRMC and LRMC concerns, the average price over a period of time would need to include both a high proportion of the investment cost and also an estimation of the average amount a generator would have to payback due to the clawback design. On the basis of the outlined model in the Consultation Paper (which appears to assume an annual product), we envisage periods in the market where the value of the option will be traded down to a value that simply reflects the lost revenue in the peaks. The option design in the Consultation Paper, with clawback and associated complexities, therefore poses a large risk without bringing additional stability to investment decision-making. In our view, the market would continue to follow the cyclical nature of the energy only market.

We consider that attempts could be made to price in the investment costs associated with a Best New Entrant (BNE) under a reliability contract. But a workable approach would need to involve long lead times and long contract durations in respect of new plant. However, long lead times and long contract durations under a reliability contract option, as modelled in the Consultation Paper, would bring greater uncertainty in estimating the level of clawback. It follows that new plant would seek additional returns in respect of clawback risk to provide greater confidence in project returns. Estimating the required contract price would be complex and subjective.

In short, therefore, we consider that the reliability contract model set out in the Consultation Paper, with clawback and the associated complexities would not bring the stability needed to foster effective investment decision-making.

Our preferred approach towards a market-wide capacity mechanism is a well-designed administrative system under which an independent central body sets capacity values based on an analysis of future system needs but leaves the market to decide what investment is optimal. Such a market-based system would allow for market feedback to be made on a dynamic basis so that there was not a need to decide the precise amount of capacity that government or an administrator would need to contract for. We consider that this kind of de-risking of an energy-only market could offer the stable investment environment that is needed.

Work on determining the capacity values would be informed by the annual supply report that Ofgem is due to provide under the current Energy Bill. This in turn would be informed by National Grid demand forecasts. We would also propose that a tag might be held in the Balancing Mechanism to facilitate the tracking of the amount of capacity made available to the capacity mechanism by each relevant plant.

A high level summary of a possible design of an administrative market-wide Capacity Mechanism is set out below. (The outline design of this capacity mechanism is intended to provide a stable set of investment signals from year to year but with the revenue targeted to those periods when capacity is most valuable to the system.)

- The central body takes a view of the capacity required in the market
- It then multiplies this by the annual fixed costs of a BNE less an allowance for market returns[1]
- The total value of capacity payments in each year and its division into monthly totals are determined in advance by the central body and other regulatory authorities
- The breakdown into monthly totals is done in advance of each year under a formula based on demand forecasts
- This breakdown is given further granularity by dividing the monthly pots into half hourly blocks
- These payments are then given to all plant based on its availability
- In the GB market this capacity payment would not be paid to generators providing supply under a FiT, to avoid double remuneration of their capacity
- The centrally administered payments would be financed by a levy on suppliers

Under such a system, generation would be incentivised to be available and to take outages in an efficient way. Also, under a centrally administered system with a fixed pot, any uniform reduction in capacity payments should mean that the least efficient plant is most likely to be the first to come off. In calculating the BNE cost level needed to be met, an allowance for market returns can be deducted. This should reduce the risk of the capacity mechanism encouraging over-investment. An effectively-designed market-wide Capacity Mechanism would in any event have a dampening effect on wholesale prices and, together with a

[1] This recognises that some element of fixed costs is likely to be recoverable in the energy-only market through scarcity rents by analogy with other markets involving fixed costs. However, those markets can more effectively recover fixed costs because they are stabilised through the much easier ability to hold stocks.

reasonable deduction for market spreads, should substantially avoid any "double reward" problem.

There is also the issue that simply not receiving capacity payments as a penalty for not being available at times of stress might be an insufficient price signal to encourage true reliability. Therefore, a penalty mechanism might include the reclamation of a multiple of capacity payments, either multiples of the capacity payment in the period when the plant is unavailable, or the sum of capacity payments over a number of preceding periods. The severity of this penalty could be linked to the extent to which the system was under stress. In this way, the penalty would reflect energy market conditions, but it would not simply mimic them, as the scheme is intended to strengthen market incentives. Investors would, of course, consider expected penalties as part of their investment decision and high penalties will deter investment. So it is important to reach a balance between availability-related penalties and attracting investment.

There is a separate impact from the proposed mechanism on those renewables continuing to receive support under the RO, in that it will put a downward pressure on wholesale prices and therefore returns. Renewables investors will expect a suitable solution to this.

Under this proposed approach, there may be some potential for secondary trading, though most of this is likely to be internal based on trading of the availability payment. If generators were able to switch this between plant, if the physical availability of a portfolio changes, this could facilitate efficient plant dispatch and use.

A further potential benefit of the proposed approach is that it would not be necessary to contract on an individual plant basis: thereby avoiding the complexity of varying contract durations depending on the plant. However, in order to ensure the necessary mechanism stability was achieved it would be important to enshrine it in primary legislation with grandfathering-type principles being entrenched where appropriate.

We have also considered the possibility of a market-wide Capacity Mechanism based on payments linked to the volume of output. However, there is no universal relationship between the output of conventional plant and the value of their capacity. An output-based approach would therefore place greater demands on the central administrator who must determine precisely the capacity needed at any given future date and is less flexible in terms of the feedback processes available. We, therefore, consider that the approach outlined above, based on a measure of availability, is the preferable one.

We should also note that the Consultation Paper places great emphasis on the question of "strategic bidding". While it is important to ensure that any mechanism is not open to manipulation, it is worth noting that many of the strategies discussed would require a degree of market power which does not exist in the UK wholesale market. For example, if the proposed mechanism is no more susceptible to withdrawal of capacity than the existing energy-only market, this should be acceptable, since the existing market shows no evidence of such strategies being successfully deployed. This balance should be kept in mind when designing mechanisms, as there is a potential risk that otherwise good designs could be ruled out unnecessarily.

In summary, we consider that an administrative approach to a market-wide Capacity Mechanism offers an efficient solution to forthcoming capacity challenges consistent with the existing GB electricity market and providing a stable basis for investment decisions.

Question 26 – What are your views on the costs and benefits of a capacity mechanism to industry and consumers?

An efficient market offers the best outcome for consumers, in terms of the maximum welfare (benefits less costs). However, the electricity market is not efficient if energy prices are subject to explicit downside pressures or implicit caps (the 'missing money' problem). Correcting for this inefficiency provides a net benefit to welfare by improving the efficiency of the market outcome and lowering costs in the long run.

The effect of a capacity mechanism will be to increase the amount of capacity on the system. This will put a downward pressure on wholesale prices, because the market will be well supplied, causing most of the gross value of the payments to flow back to consumers. An element of the capacity payments will remain with the generators and this will be needed to remunerate the fixed costs of plant that would close (or not be built) in the absence of the mechanism. It is difficult to assess whether any profits would also accrue to the generators, however it is clear from a number of studies (including our work with NERA responding to the original EMR consultation) that a well designed capacity mechanism could have a significant positive effect on welfare, by increasing the amount of capacity being made available and reducing load shedding.

Question 27 – Which capacity mechanism should the government choose for the GB market and why?

As set out in our response to Question 25, we consider that an administrative approach to a market-wide Capacity Mechanism offers an efficient solution to forthcoming capacity challenges consistent with the existing GB electricity market and providing a stable basis for investment decisions. For the reasons set above in response to Questions 1 to 11, we consider that a targeted mechanism such as the Strategic Reserve set out in the Consultation Paper would not be an effective solution to the under-investment caused by the 'missing money' problem and would in turn have the effect of deterring vital investment due to the regulatory uncertainty surrounding procurement and dispatch decisions under a Strategic Reserve. This would give rise to a 'slippery slope' effect with Reserve plant increasingly displacing market plant.

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