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4th October 2011

Dear [redacted],

DECC Consultation on possible models for a capacity mechanism, July 2011

Drax is an independent power generation business responsible for meeting some 7-8% of the UK's electricity demand. The Company also owns Haven Power, an electricity supplier serving the needs of business customers.

Drax is the owner and operator of the 4000MW Drax Power Station in North Yorkshire, which is the largest, cleanest, most efficient and most flexible coal-fired power station in the UK. As such, Drax is committed to playing its part in reducing its carbon footprint and that of UK power generation. To this end, in summer 2010 we commissioned the largest biomass co-firing facility in the world at the power station.

With the capability to produce 12.5% of the station's output from sustainable biomass – equivalent to the output of over 700 2MW wind turbines – Drax is now by some distance the largest renewable generating facility in the UK. In 2010, Drax produced around 7% of the UK's renewable power, more than twice that of the next largest facility.

Drax is pleased to have the opportunity to participate in the latest EMR White Paper consultation on capacity mechanisms. As a key provider of flexible generation and system support services to the GB System Operator and a very significant investor in renewable electricity generation from biomass, Drax believes it is well placed to comment.

A full response to the questions raised in the consultation can be found in Annex 1. In addition, we have included a 'strawman' proposal for an alternative capacity mechanism which we consider merits consideration in Annex 2. The main points from these two Annexes are as follows:

- A capacity mechanism is required to incentivise the development and maintenance of long-term investment in both new and existing plant to ensure there is enough capacity available to meet a mixture of future demand requirements and scenarios. Such a mechanism needs to:
    - ensure long-term capacity investment signals are visible to all market participants;
    - enhance the ability of investors / developers to finance generation investment in both new and existing plant (bankability);

- provide an opportunity for all technologies that can provide reliable capacity provision to participate, including generators, Demand Side Response and storage providers (thereby promoting innovation); and
- deliver a least cost solution for UK consumers by ensuring that a competitive, market-based approach endures for the provision of both capacity and energy.

Against that background our key comments on the two proposals put forward by DECC are as follows:

- A Strategic Reserve mechanism would be the least desirable approach to a capacity mechanism, as it:

  - will only target low load factor (peaking) plant, therefore failing to deliver long-term signals to invest in plant other than that directly contracted by the Strategic Reserve mechanism;
  - would be difficult to define the required volume to be contracted outside of the market;
  - would be difficult to set the usage criteria or the price at which plant should be dispatched without distorting wholesale market prices (i.e. it effectively sets a price cap, which distorts operating and investment signals for plant not contracted under a Strategic Reserve);
  - is at risk of political intervention if a rigid volume of contracted capacity or the price set to dispatch plant is later considered to be incorrect (creating investor uncertainty); and
  - would almost inevitably lead to a reduced role for the existing energy-only market, further eroding the attractiveness of investment and thus leading to a position where further contracted capacity will be required within the Strategic Reserve (the slippery slope).

- Unfortunately, the lack of clarity on how a Reliability Mechanism would actually work has made this model difficult to assess, as a number of assumptions must be made prior to appraisal. However, overall Drax believes that the Reliability Mechanism fails to deliver an adequate solution to a potential capacity shortfall for the following main reasons:

  - the proposed 'call option' is incompatible with risk management and forward financial and physical hedging:
    - generators are incentivised to trade in short-term markets (i.e. where they have sight of the market index price), further damaging market liquidity and investment signals;
    - those that sell forward run the risk of unlimited exposure to the "reliability contract pay-back" (i.e. movements in power and / or fuel prices);
  - participants are open to the risk of unlimited exposure in two separate areas of the market, i.e. "reliability contract pay-back" *and* energy cash-out;
  - pricing of the option would be challenging as the product is highly complex and non-standard;
  - the short-term nature of trading would:
    - make it expensive to hedge fuel prices and difficult to manage fuel delivery;
    - render the product unbankable;
  - the reference market is likely to be based on a short-term product, which will mean that already poor forward wholesale market liquidity will be further undermined; and
  - it does not appear to fit well with the existing market structure (i.e. it is more suitable to a pool structure, such as that found in the Colombian market and elsewhere).

  Given the above shortcomings, Drax suggests an alternative approach that aims to ensure long-term security of supply via 'capacity adequacy contracts'. Further details are set out in Annex 2, but the key features of this strawman are:

- it is market-based, which allows for auto-correction of investment signals in the event of under / over capacity. As the volume and price is driven by competition and market fundamentals, rather than being arbitrarily set, this process should substantially reduce the cost to customers as well as the risk to investors of future political intervention;
- it is open to any party (physical / financial, new / existing, subsidised / non-subsidised; supply / demand etc.) and technology and location neutral, incentivising innovation in all forms of reliable capacity;
- it is centrally administered by a new body, who will procure the appropriate capacity for each forward period, ensuring all parties have equal and transparent access to the capacity market;
- contracts would be secured via an annual reverse auction for a single, standard annual (financial) capacity adequacy product over multiple tenures starting 3 years ahead of the auction (eg. annual rolling auctions for 1, 5 and 10 year periods), thus providing investment signals to new and existing providers and flexibility to adjust for annual changes in supply and demand;
- has a secondary market in the financial capacity adequacy contracts, allowing participants to optimise their capacity position up to 2 years ahead of the contract year (T-2);
- beyond this point (ie. at T-2), specific physical plant would have to be nominated for the delivery of the financial contracts and there would then be a capacity re-nomination process with the System Operator from T-2 to real time;
- it has penalties which would be levied for unavailability or non-delivery at times of peak demand in the relevant contract year, incentivising plant to be available when most required; and
- it aims to ensure efficient cash-flow and settlement timescales for investors / capacity providers, while smoothing payments from suppliers / customers, with a mechanism that aims to replicate processes that already exist in the current market structure and are compatible with the CfD FIT administration and settlement processes.

We hope you find this response helpful, and particularly our suggested strawman. We look forward to discussing this and next steps with DECC officials as part of the process for developing a practical, robust and effective capacity mechanism. In the meantime, if you would like to discuss any of the views expressed in this response, please feel free to contact me.

Yours sincerely,

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Annex 1: Response to Specific Consultation Questions

Targeted Capacity Mechanism

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?

Drax does not believe that a Strategic Reserve approach is appropriate, as it:

- will target low load factor (peaking) plant, therefore fail to deliver long-term signals to invest in plant other than that directly contracted by the Strategic Reserve mechanism;
- would be difficult to define the required volume to be contracted outside of the market, as this requires a detailed knowledge of the load duration curve, which will be difficult to calculate;
- would be difficult to set the usage criteria or the price at which plant should be dispatched without distorting the wholesale market price (i.e. it effectively sets a market price cap);
- is at risk of political intervention if a rigid volume of contracted capacity or the price set to dispatch plant is later considered to be incorrect (creating investor uncertainty); and
- there is the potential for an inefficient interaction between STOR and the Strategic Reserve, as they could both be providing incentives to similar generation capacity.

The wholesale market currently fails to signal a need for investment in new and existing non-subsidised plant. The Strategic Reserve approach does not address this issue. In fact, the proposal further undermines the market and certainty in regulatory arrangements. Whilst further detail has been provided in Figure C3 on the proposed mitigation approach, the issues highlighted above remain major concerns.

The process of setting a dispatch price on a volume of capacity held outside of the market will effectively set a market price cap. It will be extremely difficult to set this figure in a way that does not distort the wider market, in terms of (a) setting the price too low and capping the value that marginal plant can achieve within the market, and (b) setting the price too high with the consequential cost being borne by the consumer.

Given the difficulty of setting the price, it is proposed that modification to the price cap may take place via a defined change process. There is also mention of a periodic review to determine if the price has been set correctly. This will be of great concern to investors, particularly those looking to invest in peaking plant, as the potential for change to the Strategic Reserve volume and dispatch price would be an important consideration in future investment decisions.

The proposal to reflect the use of Strategic Reserve plant in cash-out prices may have the potential to signal the need for investment in capacity. However, the signal would be extremely short-term and it is highly unlikely that a financier would lend the required capital for investment on the back of such a short-term signal (i.e. it is not bankable).

Moreover, it has been suggested that under a Strategic Reserve model, a central body could determine the technology mix of the contracted capacity. Such an approach risks the central body procuring an inefficient mix of technologies to meet the required demand for reliable capacity.

Strategic Reserve capacity models in Australia and New Zealand have been criticised for introducing unacceptable levels of moral hazard. It is thought that market participants are dis-incentivised from providing adequate capacity, rather assuming that this obligation to have passed to the regulatory body. In addition, the offer prices have not been high enough to provide adequate financial incentives to invest in new generation capacity, as they have tended to reflect the cost of providing a service, rather than the value or opportunity cost of energy.

Question 2: How long should the lead time for Strategic Reserve capacity procurement be and why?

Drax does not believe that the Strategic Reserve approach is appropriate, for the reasons set out in answer to Question 1.

When determining the procurement lead time for capacity, it is important to be mindful of the investment timescales surrounding the planning and construction of new plant. The four year forward reliability level proposed for the Strategic Reserve in Annex C is insufficient when considering the average development lifecycle for new plant is in the region of seven years. The chosen capacity mechanism must provide investment signals that reflect the time required to develop new plant.

Drax proposes a wider, market-based mechanism that involves a competitive auction process. The aim of the auction is to secure the provision of capacity over a rolling ten year period. Further details can be found in Annex 2 of this response.

Question 3: Should the length and nature of contracts procured by the Strategic Reserve procurement function be constrained in any way?

Drax proposes a wider, market-based mechanism that involves a competitive auction process. The aim of the auction is to secure the provision of capacity over a rolling ten year period. Further details can be found in Annex 2 of this response.

Question 4: Which criteria should providers of Strategic Reserve be required to meet?

Drax does not believe that the Strategic Reserve approach is appropriate, for the reasons set out in answer to Question 1.

The capacity mechanism should aim to address the issue of resource adequacy (available MW). As such, a wider capacity mechanism would be more appropriate. The mechanism should be open to all technologies that are able to provide reliable, controllable output, including those with a CfD FIT contract. However, it is recognised that appropriate arrangements would be required to avoid the issue of "double dipping". This is covered further in answer to Question 21 and in Annex 2 of this response.

Flexibility services should be handled via separate, existing market arrangements, such as National Grid's Short-Term Operating Reserve (STOR) service.

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?

It will be important to ensure that such technologies are able to compete on the same basis as generators. This could be achieved by ensuring all participants in the capacity mechanism are bidding for a single, standard product. Drax proposes a wider, market-based mechanism that involves a competitive auction process for a standard capacity (MW-year) product. Further details can be found in Annex 2 of this response.

Question 6: Government prefers the form of economic despatch described here. Which of the proposed despatch models do you prefer and why?

Drax does not support either approach. Setting an economic dispatch price effectively introduces a market price cap. This will place a limit on the ability of marginal plant to capture value from the market over a low number of running hours. However, setting the figure at VoLL will introduce an extremely high upper limit that must be reached prior to plant dispatch.

It would be extremely difficult to determine an economic dispatch price that avoids market price distortion *and* provides value for money to consumers. In fact, it would be extremely difficult to value both the LRMC (applicable to the industry as a whole) and the VoLL.

It is accepted that, in the economic dispatch model, generator revenue will be lost in the wholesale market when the price ceiling is reached. The consultation states that the lost revenue will be offset due to the dispatch price (i.e. the market price cap) being reached more frequently. However, there is no guarantee that the initial lost revenue will be offset and we continue to believe that investment incentives will be damaged if the market price is capped.

An additional concern is that introducing a price cap in a market that is interconnected with other European markets may lead to energy being exported at times of high demand (such as during anti-cyclonic weather conditions). This would further risk the security of GB supply.

Question 7: How would the Strategic Reserve methodology and despatch price best be kept independent from short-term pressures?

Any process for changing the dispatch price will be of concern to investors. Changing the parameters of the Strategic Reserve dispatch process will have a direct consequence for those parties that operate in the traded market, particularly for marginal plant. It is difficult to see how this could be adequately addressed, given that political intervention is always an option.

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?

Potentially, however any process for changing the dispatch price will be of concern to investors, particularly for those looking to invest in peaking plant. The Strategic Reserve dispatch process would be an important factor in such investment decisions. Any change to the parameters of this process has the potential to affect the economics of the investment.

The advantage of a market-based approach (such as that proposed by Drax in Annex 2) is that it would be self-correcting in the event of changing supply and demand fundamentals. The Strategic Reserve approach would require direct intervention via a defined change process / periodic review in order to adjust rigidly set parameters. These processes will do very little to maintain investor confidence.

Question 9: Into which market should Strategic Reserve be sold and why?

Drax does not believe that the Strategic Reserve approach is appropriate, for the reasons set out above. Drax proposes a wider, market-based mechanism that involves a competitive auction process. Further details can be found in Annex 2 of this response.

Question 10: Do you have any comments on the functional arrangements proposed for managing a Strategic Reserve?

No comment.

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?

No. Drax does not believe that the Strategic Reserve approach is appropriate, for the reasons set out above. Drax proposes a wider, market-based mechanism that involves a competitive auction process. Further details can be found in Annex 2 of this response.

Market-wide Capacity Mechanism

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

How should capacity be bought?

The capacity mechanism should take a "resource adequacy" approach that aims to ensure long-term security of supply. The mechanism should be market-based, which would allow for self-correction of investment signals in the event of under / over capacity. This approach would substantially reduce the risk of future political intervention as volume and price is controlled by market fundamentals, rather than being arbitrarily fixed.

Parties should compete in a reverse auction, effectively placing bids to provide a resource adequacy service. There should be a standard capacity (MW-year) product over multiple tenures (for example, one, five and ten year strips). The value of payments should be profiled across the year to encourage availability when generation is most required.

By whom should capacity be bought?

The auction should be administered by an independent central body. A supplier obligation approach is not compatible with a market that is dominated by six large vertically integrated businesses (as has occurred in the PJM market). It is essential that the issue of self-supply, which is already a significant issue in both the wholesale electricity and ROC markets, is avoided. The central buyer approach ensures all parties are able to see the same capacity investment signals.

Furthermore, it may be difficult to determine if capacity adequacy had been achieved, and enforce penalties for non-delivery, if the process is not centrally managed.

The chosen ICMA should:

- possess a good credit rating;
- have a good knowledge of cost structures and settlement calculation processes;
- must be capable of market related forecasting (if this is not provided by another agency);
- must be able to handle revenue collection / distribution; and
- have the ability to ring-fence arrangements to minimise risk exposure.

There may by synergies with other industry processes that could be advantageous. The parameter setting and administration processes may be similar to those performed for the CfD FIT. As such, it may be appropriate for both the capacity mechanism and the CfD FIT to be administered by the same central body.

With regards to cash-flow management and settlement processes, an industry code administrator with existing contractual relationships could provide contract settlement services. Elexon currently provides a cost recovery service to the industry and all suppliers and generators have an existing contractual relationship for settlement processes via the BSC.

Further details on Drax's preferred capacity mechanism model can be found in Annex 2 of this response.

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

When determining the procurement lead time for capacity, it is important to be mindful of the investment timescales surrounding the planning and construction of new plant. The average development lifecycle for new plant is in the region of seven years. The chosen capacity mechanism must provide investment signals that reflect the time required to develop new plant.

Drax proposes a wider, market-based mechanism that involves a competitive auction process. The auction should take place three years prior to the first point of delivery and cover a ten year period. It is proposed that capacity is auctioned in one, five and ten year strips.

Further details on Drax's preferred capacity mechanism model can be found in Annex 2 of this response.

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

Please refer to the answer for Question 13.

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

Participants should be able to trade on their capacity obligation (acquired via an auction) via a secondary market and there should be no restrictions on participants. The ability to trade the product post-auction may be required for a number of reasons, including:

- a change in market conditions, where existing plant decide it is more economical to sell on the obligation and close;
- the commissioning date for a new plant may be delayed; or
- the holder of the obligation may be a financial participant and may need to sell the capacity to a physical party.

There should be a single, standard product over multiple tenures. The product should be capacity (MW-year) auctioned in one, five and ten year strips. This approach would ensure that the same product can be traded by generators, DSR providers and storage providers.

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?

A supplier obligation approach is not compatible with a market that is dominated by six large vertically integrated businesses. It is essential that the issue of self-supply, which is already a significant issue in both the wholesale electricity and ROC markets, is avoided in the design of the capacity mechanism. Furthermore, it may be difficult to determine if capacity adequacy had been achieved, and enforce penalties for non-delivery, if the process is not centrally managed.

A transparent central buyer approach would ensure that the same capacity investment signals are visible to all parties. It will also ensure that a consistent approach is taken for all capacity contracts, in terms of the product procured, payment terms, credit arrangements, etc., regardless of the type of service provider.

Determining the capacity that can be offered into the market by each generator

Drax believes that all plant (including those with CfD FIT contracts) should take part in the capacity auction process. This would ensure that the calculation of required (procured) capacity includes all plant that is able to provide reliable, controllable capacity. Certain plant will need to be able to flag that they are unable to provide reliable, controllable capacity, such as wind generators, and there must be arrangements to avoid plant being rewarded twice for the capacity is delivers (i.e. "double-dipping"). This is covered further in answer to Question 21.

Determining the criteria for being available

Delivery (i.e. eligibility for payment) should be based upon the availability of the capacity provider during the highest demand periods of the year. The generator should be considered available if they:

a) deliver generation equal to or greater than the level of their capacity obligation during the assessment period; or
b) were available for dispatch by National Grid 12 hours' prior to the assessment period and their Maximum Export Level (MEL) remains equal to or greater than the level of their capacity obligation during the assessment period.

Determining the penalties for non-availability

Should the capacity provider fail to meet the delivery criteria (defined in the previous section), then:

- the capacity payment for that delivery period should be forfeited; and
- a penalty should be payable for not meeting the associated obligation.

Drax believes that the central body should attribute a value to a number of targeted delivery periods. The targeted periods should be the expected highest peak demand periods for a given year. The targeting of specific hours, and the associated payment forfeiture and penalty, should aim to incentivise availability when capacity is needed most. This ensures value for money for the end consumer. However, it should be noted that penalties must not be so punitive that parties consider the financial risk too high to participate in the mechanism.

The value recovered from the application of penalties (or posted credit, where the payment is not honoured) should be deducted from the charges levied on consumers. This would lower the overall cost of the mechanism when a party fails to deliver its obligation.

Further details on Drax's preferred capacity mechanism approach can be found in Annex 2 of this response.

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?

Drax does not believe that a Reliability Market approach is appropriate, as:

- the call option is incompatible with forward hedging:
  - generators are incentivised to trade in short-term markets (i.e. where they have sight of the market index price), further damaging market liquidity and investment signals;
  - those that sell forward run the risk of unlimited exposure to the "reliability contract pay-back" (i.e. movements in power and / or fuel prices);
- participants are open to the risk of unlimited exposure in two separate areas of the market, i.e. "reliability contract pay-back" *and* energy cash-out;
- valuing the option would be challenging as the product is highly complex and non-standard;
- the short-term nature of trading would:
  - make it expensive to hedge fuel prices and difficult to manage fuel delivery;
  - render the product unbankable; and
- the proposed mechanism does not appear to complement the existing market structure (i.e. it is more suitable to a pool structure, such as that found in the Colombian market).

Unfortunately, the lack of clarity on how a Reliability Market would work has made it difficult to assess this model, as a number of assumptions must be made prior to appraisal. However, it is clear to see that if the reference market is based on a short-term product, then there is a high risk that forward liquidity will be detrimentally impacted. This would worsen the ability of market participants to hedge their investments and could lead to early closure for generators that fail to successfully secure a capacity

payment. This is a particular issue for independent generators that do not have generation portfolios or large domestic supply businesses with which to hedge their investments.

The Reliability Market approach does not appear to be a natural fit with the existing GB wholesale electricity market structure. It is more suited to a market that is capable of using a short-term reference price, such as a pool structure, similar to that found in the Colombian market.

Drax proposes a wider, market-based mechanism that involves a competitive auction process. The aim of the auction is to secure the provision of capacity over a rolling ten year period. Further details can be found in Annex 2 of this response.

Question 18: For a Reliability Market, how should the strike price be determined? If using an indexed strike price, which index should be used?

Drax does not believe that the Reliability Market approach is appropriate, for the reasons set out in answer to Question 17. Drax proposes a wider, market-based mechanism that involves a competitive auction process. Further details can be found in Annex 2 of this response.

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?

Drax does not believe that the Reliability Market approach is appropriate, for the reasons set out in answer to Question 17. Drax proposes a wider, market-based mechanism that involves a competitive auction process. Further details can be found in Annex 2 of this response.

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?

Vertical integration is a cause for concern in a number of areas in the electricity market. The ability to self-supply energy requirement in the wholesale electricity market and self-fulfil the ROC requirement under the Renewable Obligations arrangements leads to market foreclosure. The inability for independent participants to access liquidity for a given product stifles competition and acts as a significant barrier to new entry.

It is essential that the capacity mechanism avoids the issues experienced by independent generators in other areas of the market. The most effective way to achieve this is to ensure that the procurement of capacity takes place via an independent central body.

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?

Some CfD FIT plant, such as nuclear, biomass and fossil fuel with CCS, will be able to provide capacity adequacy. By allowing this plant to participate in the capacity mechanism, it will self-select its ability to contribute to capacity adequacy, making the calculation much easier for the central body. If such plant were not to take part in the auction, the central body would be required to estimate the expected contribution from non-bidding CfD FIT generators, then subtract the figure from the volume of capacity to be auctioned. The latter may prove difficult over the multi-year auction period.

There should be no "double-dipping" for parties that participate in the two mechanisms. However, it will be important to incentivise CfD FIT generation to bid in the auction to signal its ability to contribute towards capacity adequacy. Incentivising such plant helps to avoid over-insuring potential capacity needs. For example, if CfD FIT plant were excluded from the auction, the central body may over-contract conventional generation, even though a proportion of this conventional generation could have been

displaced by plant receiving CfD FIT payments. In addition to providing an incentive to take part, the plant should be held accountable for non-delivery by paying an associated penalty payment.

As such, Drax proposes that those parties receiving CfD FIT payments are able to submit bids into the auction (similar to conventional plant), although the bid must contain a price that equals zero. This allows the central body to take account of the volume available, but it stops the plant from influencing the cleared auction price. There should be a payment received and penalty paid by CfD FIT plant, although these payments should be a fixed rates, rather than the cleared auction price.

Drax proposes a wider, market-based mechanism that involves plant receiving a CfD FIT payment and proposals on how they should be remunerated. Further details can be found in Annex 2 of this response.

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?

It will be important to ensure that such technologies are able to compete on the same basis as generators. This could be achieved by ensuring all participants in the capacity mechanism are bidding for a single, standard product (MW-year).

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

As detailed in the consultation, the functions required to set the parameters of the mechanism and administer the associated processes could be fulfilled by one or multiple organisations. However, the oversight of the process should fall within the remit of a separate organisation.

It will be important to ensure that parameter setting and administration of the process is performed by a competent central body (or bodies). The chosen organisation(s) should:

- possess a good credit rating;
- have a good knowledge of cost structures and settlement calculation processes;
- must be capable of market related forecasting (if this is not provided by another agency);
- must be able to handle revenue collection / distribution; and
- have the ability to ring-fence arrangements to minimise risk exposure.

There may by synergies with other industry processes that could be advantageous. The parameter setting and administration processes may be similar to those performed for the CfD FIT. As such, it may be appropriate for both the capacity mechanism and the CfD FIT to be administered by the same central body.

With regards to cash-flow management and settlement processes, an industry code administrator with existing contractual relationships could provide contract settlement services. Elexon currently provides a cost recovery service to the industry and all suppliers and generators have an existing contractual relationship for settlement processes via the BSC.

Oversight of the market should fall within the remit of the market's independent economic regulator, Ofgem.

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?

No. A capacity mechanism should be implemented as early as possible.

The mechanism should be market-based, which will allow for self-correction of investment signals in response to market fundamentals. If designed correctly, an oversupply should result in a very low value for capacity, potentially collapsing to zero.

In addition, the self-correcting nature of a market-based mechanism would substantially reduce the risk of future political intervention due to the volume and price being responsive to market fundamentals, rather than being arbitrarily fixed (as under a Strategic Reserve approach).

Question 25: What is the most appropriate design of Capacity Market for GB and why?

A wider, market-based capacity mechanism would be the most appropriate design. Participants would compete to provide resource adequacy at least cost to the consumer. If designed and implemented appropriately, a wider capacity mechanism will:

- ensure long-term capacity investment signals are visible to all;
- enhance the ability to finance generation investment (bankability);
- provide an opportunity for all generation technologies to participate (thereby promoting innovation); and
- deliver a least cost solution by ensuring that a market-based approach endures for the provision of both capacity and energy.

The mechanism should include the following key features:

- Centrally administered: ensuring all parties have equal access to the market;
- Reverse auction: where parties compete to provide capacity adequacy;
- Single, standard product available over multiple tenures: providing investment signals to new and existing plant;
- Technology and location neutral: incentivising innovation in reliable capacity;
- Penalty for unavailability: incentivising plant to optimise their outage strategy; and
- Secondary market: allowing participants to optimise their capacity position.

Bids would be placed for a single, standard capacity (MW-year) product over multiple tenures (e.g. one, five and ten year strips). If designed correctly, a market-based mechanism will allow for self-correction of investment signals in the event of under / over capacity. The mechanism should not procure short-term balancing / flexibility services, as these services should continue to be procured via separate arrangements, such as National Grid's Short-Term Operating Reserve (STOR) service.

Generators would receive payments based upon their availability over the highest peak demand periods of the year. Payments should be profiled across targeted peak demand hours to encourage availability when generation is most required. Consumers would be protected when parties fail to deliver available capacity by means of forfeited capacity payments *and* the application of a penalty.

This approach aims to ensure efficient settlement timescales for investors, with a mechanism that aims to replicate cash-flow processes that already exist in the market and are compatible with the CfD FIT process.

Further details on Drax's preferred approach can be found in Annex 2 of this response.

Capacity Mechanism Assessment

Question 26: What are your views on the costs and benefits of a Capacity Mechanism to industry and consumers?

The quantitative cost benefit analysis commissioned by DECC is very sensitive to changes in input assumptions (such as the VoLL and wholesale energy prices) and the interpretation of the capacity mechanism design. Further quantitative assessment of different capacity mechanisms may be required when more information is available on the potential design(s) to be taken forward.

Question 27: Which Capacity Mechanism should the Government choose for the GB market and why?

A market-based mechanism should be introduced, as outlined in answer to question 25. Further details on Drax's preferred approach can be found in Annex 2 of this response.

Annex 2: Drax Capacity Mechanism Strawman

Overview of Proposal

The proposed capacity mechanism takes a "resource adequacy" approach to capacity provision that aims to ensure longer-term security of supply. The mechanism does not attempt to procure or address short-term energy balancing / flexibility services, as it is considered that such services should continue to be procured via a combination of Short-Term Operating Reserve (STOR) contracts and Balancing Market activity.

The proposed mechanism is market-based and competitive, which allows for auto-correction of investment signals in the event of under / over capacity. This should substantially reduce the cost to consumers and the risk of future political intervention as the volume and price is driven by competition and market fundamentals, rather than being arbitrarily set.

Parties (new and existing generators, Demand Side Response (DSR) and storage) compete in an annual reverse auction, placing bids to provide a capacity adequacy service. The bids are for a single, standard capacity product that is available annually over multiple year tenures starting 3 years after each auction. The process is administered by an independent central agent.

Capacity providers receive payments when they are available for the targeted delivery periods during the April-March contract year. Eligibility for payments (ie. contract revenue) is profiled across the year and targeted at peak periods to encourage availability when capacity is most required. Consumers are protected when parties fail to deliver their contracted capacity by means of forfeited payments and the application of a penalty.

The model aims to ensure efficient cash-flow and settlement timescales for investors, with a mechanism that aims to replicate processes that already exist in the current market structure and are compatible with the CfD FIT administration and settlement processes.

Capacity Mechanism Structure

There are a number of elements to the capacity mechanism structure that are detailed below. The key features of the proposed mechanism are:

- Administered by an independent central agency (the buyer);
- Parties offer to provide the service via a rolling annual reverse auction process which is open to all generators, DSR and storage providers;
- All winning participants receive the cleared auction price for the year in question;
- The contract is:
  - A standard annual financial product;
  - technology and location neutral;
  - contracted over multiple tenures (e.g. one, five and ten year periods) starting 3 years ahead of each auction;
- The financial product goes physical two years prior to the delivery period;
- Parties are paid for their annual availability during peak periods;
- Parties pay a penalty if not available; and
- Parties can trade the product via a secondary market.

Product

The product bought by the central auctioning body is capacity (MW-year). For simplicity, a single, standard annual product is auctioned regardless of the type of plant (or DSM) participating in the auction. Eligibility to participate is covered in a later section of this document.

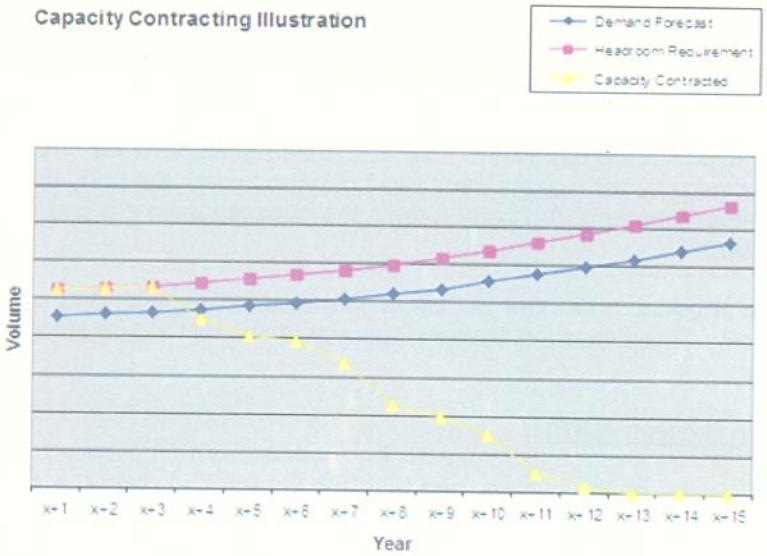
Investors that require project financing are unable to guarantee a source of income from a capacity mechanism that does not provide a signal until near real time (i.e. the point of delivery). For this reason, the product should be sold in annual blocks over both single and multiple year periods (for example, one, five and ten year strips). The development of a long-term signal to invest, where the capacity value is known in advance, allows investors to leverage income from the capacity mechanism to secure finance.

Auction Process

The auction takes place annually three years prior to the first year of delivery and covers periods up to ten years ahead. Before each auction, the central body determines (or is provided with) a multiple year demand forecast. This process could be similar to that currently undertaken by National Grid in their annual Seven Year Statement. There could also be incentives placed on the forecasting "service provider" to predict demand as accurately as possible, thus ensuring the most efficient outcome.

A headroom requirement is then set above the demand forecast; this is the maximum volume that can be bought by the central body. A profile of capacity to be auctioned is then determined for the ten year auction period. An example of an auction profile is provided in Figure 1.

Figure 1: Example capacity profile



This process is an annually rolling one - with incremental volumes of capacity being released across the curve in each auction. The central body is also able to adjust the volume to be sold, in line with the latest demand forecast. It is proposed that Year+3 would be fully contracted.

The auction is cleared at the highest price bid to deliver the required annual capacity. It is open to all new and existing market participants, including generators, DSR and storage providers. Parties could be free to choose over which period they wish to place bids in any annual auction. Alternatively, there could be defined strips of capacity sold in separate auctions (i.e. a single year, a five year and a ten year auction), which may be aimed at different types of investor, for example:

- Single year auction: existing parties with a small level of capital expenditure;

- Five year auction: existing parties with a large level of capital expenditure (e.g. significant investment plans); and
- Ten year auction: investment in new generation projects.

It is critical that new entrants are able to secure capacity prior to building new plant. They should also able to trade on their obligation via a secondary market (covered in a later section of this document), should there be any delays in commissioning new plant.

All successful bidders receive the cleared auction price. As this is a competitive, market-based mechanism, the price that participants bid will depend upon their cost of remaining in / entering the market, along with market fundamentals (i.e. if there is an oversupply, the bid price could collapse to zero). The price of the product (i.e. the value received in return for delivering availability) is fixed once the auction has closed.

Secondary Market

Successful auction participants are able to trade on their financial capacity contracts via a secondary market which runs up to 2 years ahead of the year of delivery. The ability to trade contracts (and the associated capacity payment) may be required for a number of reasons, including:

- a change in market conditions, where it is decided that it is more economical to close existing plant and trade on contract;
- the commissioning date for a new plant may be delayed; or
- the holder of the contract may be a financial participant and may need to sell the capacity to a physical party.

Trades in the secondary market must be notified to the central body.

Going Physical

Prior to the point of delivery, the financial product must go physical. It is proposed that the product goes physical two years prior to the point of delivery. At this point, the capacity provider must nominate the specific physical asset to which the capacity will be associated going forward. If the capacity provider is unable to nominate a physical asset (i.e. the plant has not been built or the party has failed to trade on the obligation via the secondary market), the party forfeits the capacity payment and pays a defined penalty (defined in a later section).

Once the product goes physical, no further trading is permitted in the secondary market; this is the point of capacity "gate closure". This allows the System Operator, National Grid, to efficiently plan and manage the transmission system.

Capacity Re-nomination Process (CRP)

Once capacity contracts have gone physical, and both the central body and the secondary market have fulfilled their roles, the position is handed over to National Grid. As the system operator, National Grid may then adjust the contracted capacity positions via a post gate closure capacity re-nomination process, the CRP.

Any physical capacity provider (generators, DSR and storage) may provide bids and offers to reduce or increase capacity into the CRP. National Grid may choose to accept these bids and offers, provided that the total volume of contracted capacity is maintained. This allows National Grid the opportunity to reduce the cost of capacity provision to customers and optimise its running of the system.

There is no obligation on capacity providers to post bids and offers in the CRP. Equally, there is no obligation on National Grid to accept a bid or offer in the CRP, although they would have an obligation to reduce total capacity payments, where possible. Effectively, transactions in the CRP only occur when all the parties involved stand to gain from the situation (e.g. a generator wishes to exit the market and a new DSR provider wishes to enter the market).

Determining Availability (Delivery)

Delivery (i.e. eligibility for payment) is based upon the availability of the participant during the annual targeted delivery periods (covered below). The provider is considered available if they:

a) deliver generation (or DSM) equal to or greater than the level of their capacity obligation during the delivery period; or
b) were available for dispatch by National Grid 12 hours' prior to the assessment period and their Maximum Export Level (MEL) remains equal to or greater than the level of their capacity obligation during the delivery period.

Penalty for Non-delivery

Should the capacity provider fail to meet the delivery criteria (defined in the previous section) in the targeted delivery periods during the contract year, then:

- the capacity payment for the relevant delivery periods is forfeited; and
- a penalty is payable for not meeting the associated obligation.

The central body attributes a value to a number of targeted delivery periods. The targeted periods are the expected highest peak demand periods for the delivery year. The targeting of specific hours, and the associated payment forfeiture and penalty, aim to incentivise availability when capacity is needed most. This ensures value for money for the end consumer. However, it should be noted that penalties must not be so punitive that parties consider the financial risk too high to participate in the mechanism.

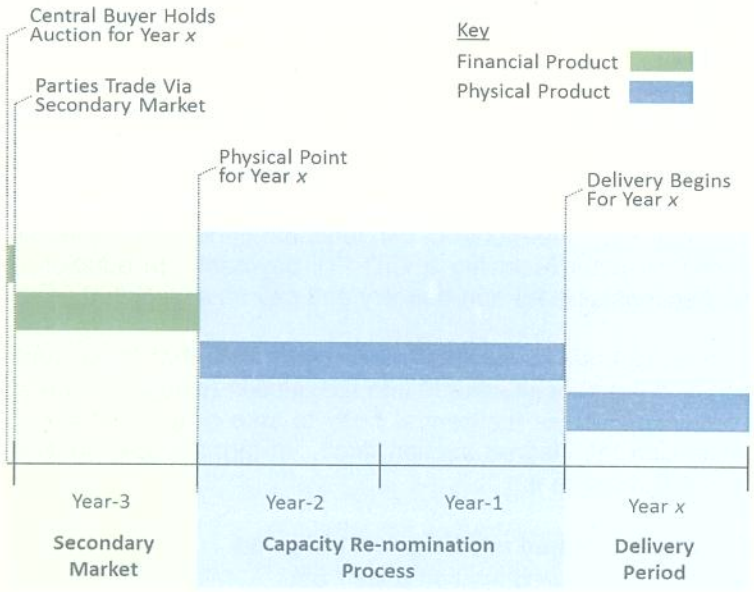
It is proposed that, following an end of year reconciliation process, the participant must pay to the central body:

a) the total value attributed to the settlement periods in which the participant failed to be available (i.e. forfeiture of payment); and
b) an additional penalty of [5]% * the value of a).

The value recovered from the application of penalties (or posted credit, where the payment is not honoured) is deducted from the charges levied on consumers. This should lower the overall cost of the mechanism when a party fails to make available the capacity it has sold.

Timeline

An illustration of the timeline for a one year auction is illustrated in Figure 2.



Central Body: Independent Capacity Mechanism Administrator (ICMA)

It is proposed that the auction is run by an independent central body (the ICMA). It would be difficult to determine if capacity adequacy had been achieved and to enforce penalties for non-delivery if the mechanism was not centrally managed. In addition, this transparent approach ensures that all parties are able to see the same capacity investment signals by avoiding the issue of self-supply, which has been a significant issue in both the wholesale electricity and ROC markets.

The chosen ICMA should:

- possess a good credit rating;
- have a good knowledge of cost structures and settlement calculation processes;
- must be capable of market related forecasting (if this is not provided by another agency);
- must be able to handle revenue collection / distribution; and
- have the ability to ring-fence arrangements to minimise risk exposure.

There may by synergies with other industry processes that could be advantageous. The parameter setting and administration processes may be similar to those performed for the CfD FIT. As such, it may be appropriate for both the capacity mechanism and the CfD FIT to be administered by the same central body.

With regards to cash-flow management and settlement processes, an industry code administrator with existing contractual relationships could provide contract settlement services. Elexon currently provides a cost recovery service to the industry and all suppliers and generators have an existing contractual relationship for settlement processes via the BSC.

Qualification for the Capacity Mechanism

Given the "wider" nature of the capacity mechanism, it is proposed that all parties are able to participate, including new and existing generators, and generators in receipt of ROC or CfD FIT payments. This would ensure the mechanism remains technology neutral, incentivising innovation in all technologies that can provide reliable capacity.

Some CfD FIT plant, such as nuclear, biomass and fossil fuel with CCS, will be able to provide capacity adequacy. By allowing this plant to participate in the auction, it will be easier for the central body to calculate the volume that it is able to contribute towards capacity adequacy. If it were not to take part in the auction, the central body would be required to estimate the expected contribution from non-bidding plant and then subtract it from the volume of capacity to be auctioned. The latter may prove difficult over the multi-year auction period.

However, there should be no duplication of payments or "double-dipping" for parties that participate in the capacity mechanism but are also receiving support for their fixed costs as renewable or low carbon generation. It will be important to incentivise such capacity to bid in the auction to signal its ability to contribute towards capacity adequacy, otherwise consumers may end up over-paying for secure supplies. For example, the central body may over-contract conventional generation, when some of this generation could have been displaced by plant receiving a CfD FIT payment. In addition, any plant that signals availability should be held accountable for non-delivery and pay an associated penalty payment.

This issue needs careful consideration, but it is initially proposed that those parties receiving CfD FIT payments have an option to bid a chosen volume into the auction (similar to conventional plant), but their bid price must equal zero. This allows the central body to take account of the volume available, but it stops the plant from influencing the cleared auction price. In terms of payments received and penalties paid by CfD FIT plant, it is proposed that:

- Payment for availability = cleared auction price * 5%; and
- Penalty for non-delivery = cleared auction price * 5%.

It is also proposed that financial institutions with no physical assets are eligible to take part in the auction. However, given that the product goes physical two years ahead of delivery, any party that sells capacity via the auction must have confidence that they will either build an asset or be able to trade the obligation to a third party that has an asset prior to the product going physical.

Any party that holds an obligation to deliver capacity that fails to nominate a physical asset will not receive a capacity payment and will be subject to the associated penalty for non-delivery. Similarly, any party that nominates a physical asset that is incapable of delivering firm (available) capacity will not receive a capacity payment and will be subject to the associated penalty for non-delivery.

It is not envisaged that interconnectors, or capacity trading across them, would be eligible to participate. The European Commission classes interconnectors as transmission assets; as such, interconnectors transport power to consumers and do not provide capacity adequacy. It should also be noted that flows on interconnectors are determined by the prevailing market conditions on each side of the connection. It is possible for interconnected markets to experience the same market pressures, such as weather patterns and fuel demand. As such, it is not proposed that generators in interconnected markets are eligible to participate in the GB capacity mechanism.

Revenue Collection and Payments

Collection from Consumers

It is proposed that revenue collection to fund the capacity payments follows a similar process to that of the CfD FIT mechanism. Suppliers are obligated (via a Licence condition or secondary legislation) to implement a Capacity Adequacy Levy:

- Step 1: Levy is charged as a fixed charge p / MWh invoiced:
  - ICMA calculates and sets the Levy for suppliers;
  - Levy is adjusted, but only as necessary, at a maximum frequency of every twelve months, in order to provide suppliers with tariff transparency / stability;
- Step 2: Levy collected by suppliers through their bills:
  - Works in a similar way to the current CCL (and proposed CfD FIT) process;
  - Collected over each billing cycle per kWh invoiced;
- Step 3: Levy is paid into a central account held by the ICMA:
  - Suppliers transfer invoiced amounts every three months, minimising supplier default risk;
- Step 4: Capacity providers receive Capacity Adequacy payments from the ICMA.

The ICMA should also have an obligation to review the Levy rate every twelve months and adjust it as necessary in accordance with the following principles:

- ensure efficient operation of the system, e.g. to avoid a cash reserve; and
- minimise disruption to suppliers and the competitive supply market.

The Levy rate would be reviewed by the ICMA, for the period in question, based upon the level of capacity contracted for the period and the level of penalty payments received from obligated parties during the previous period.

Payment to Capacity Providers

It is proposed that successful auction participants receive a regular, fixed monthly payment over the course of the year in which they have agreed to supply secure capacity (pro-rata). The payments are made between April and March each year, in line with the power market charging year. This provides a steady and predictable cash-flow for participants that should help the bankability of the product. The

receipt of a steady payment ahead of delivery also helps to remedy the credit position of those companies that do not hold an investment grade credit rating (covered further under "Credit Arrangements").

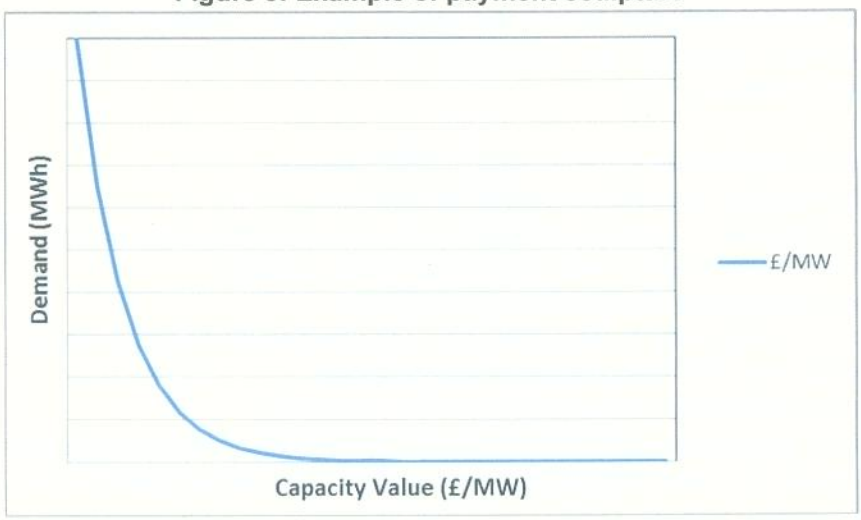
The ICMA will profile in advance the value to be associated with each settlement period across the relevant contract year. The values will be weighted, allowing the ICMA to attribute the highest value to those periods with the expected highest demand peaks. For example, the highest values could be attributed to the top 300 winter peak periods, with the remainder of the hours being valued at a lower rate or zero. The total value profiled across the targeted periods in a given contract year should equal the cleared auction price (MW-year).

The profiling of values across delivery periods aims to maximise capacity availability during the peak periods of the year, whilst encouraging planned outages to be scheduled in off-peak periods. The targeted periods and the value assigned to them will be fixed in advance ahead of each annual auction. It may be amended for subsequent auctions to reflect underlying changes in demand / generation patterns.

Penalties are calculated and settled on an ex-post basis following an end of year reconciliation process, i.e. once the availability of the participant has fully been assessed. The associated credit arrangements are covered in the next section.

Figure 3 provides an example of how payments could be sculptured across the highest demand periods.

Figure 3: Example of payment sculpture



Credit Arrangements

It is proposed that successful auction participants post credit against the payments they would be required to make should they fail to deliver. Credit support could be provided in a variety of ways, including credit ratings, Letters of Credit (LCs) or cash collateral. Participants must satisfy the credit requirements (i.e. prove that they are credit worthy) prior to the auction.

Within Year Credit Requirements

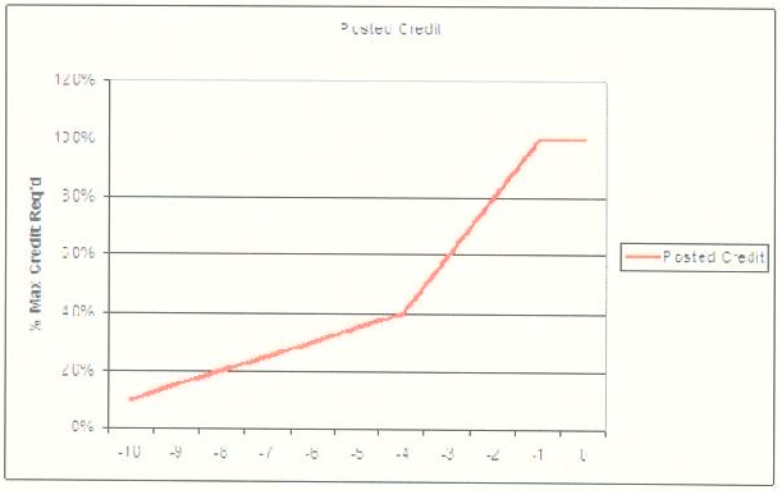
As participants receive fixed monthly payments across the year, they would (if no other route is available) be able to use the value received each month as cash collateral. This effectively allows participants (particularly small participants that do not have a credit rating) to build up their required credit position prior to the month of delivery.

Ahead of Year Credit Requirements

Credit must also be posted for penalty payments, i.e. the fixed percentage that is due *in addition* to forfeiting the capacity payment. It is proposed that a level of credit for penalty payments is posted soon after the completion of the auction. The amount of credit posted for penalty payments could be small at first, increasing over a period of time. This would incentivise parties (particularly those with no physical asset, e.g. new entrants and financial parties) to act early in the secondary market should there be a problem with delivering physical capacity. An example of how credit could be expected to increase over time (i.e. at the extreme for the final year of a ten year strip) is illustrated in Figure 4.

For the avoidance of doubt, the value of "100% maximum credit required" in Figure 4 is equal to the fixed penalty for non-delivery for a given delivery year.

Figure 4: Example of potential credit ramp rate



Term Sheet

The contractual and administrative terms would comprise two main elements. The first is an agreement between the successful bidding party and the ICMA. This would be an industry standard agreement that is compatible with the trading of power.

The second element would be an obligation on all licensed suppliers to recover a Capacity Adequacy Levy from their customers, similar to the way the Climate Change Levy (CCL) is managed at present (and similar to that proposed for the CfD FIT). This obligation could be established either by a Licence condition or through secondary legislation. The value recovered through the Levy would be paid by suppliers into an account held by the ICMA, from which it would make capacity payments to / receive penalty payments from capacity providers. Figure 5 demonstrates the cash-flows.

Figure 5: Cash-flows between the central body and the generator