



Department  
of Energy &  
Climate Change

# Annex C

## Capacity Market: Design and Implementation Update

November 2012

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# Executive Summary

- The changing nature of the electricity market means we could face significant risks to security of electricity supply in the medium term. As such, The Government will take powers in the Energy Bill to run a Capacity Market. The Capacity Market, if required, will incentivise sufficient reliable capacity (both supply and demand side) to ensure a secure electricity supply even at times of peak demand.
- The Government is minded to run the first auction in 2014, for delivery of capacity in the year beginning in the winter of 2018/19. A final decision will be taken subject to evidence of need. This will be informed by updated advice from Ofgem and National Grid which will consider economic growth, recent investment decisions, the role of interconnection and energy efficiency, as well as consideration of the outcome of the review of the 4th Carbon Budget.
- If implementing the Capacity Market the Government also intends to run pilot auctions for delivery of DSR and storage from 2015 – 18, to provide additional capacity during this period.
- In the Capacity Market, both generation and non-generation providers of capacity such as DSR and storage will receive a predictable revenue stream for providing reliable capacity, and face financial penalties if they fail to do so. In this way a Capacity Market will ensure adequate investment to minimise the chances of blackouts.
- The Energy Bill contains the powers necessary to design and implement the Capacity Market. This document sets out further key proposals on the detailed Capacity Market design.
- If it is initiated, the Capacity Market will include the following key design features:
  - Capacity to contract: To ensure new capacity can participate in the primary capacity auction, the lead time between the auction and delivery year will be four years.
  - Auction and eligibility
    - Low carbon plants that receive support through the Feed-in Tariff with Contracts for Difference (CfD) will not be able to participate in the Capacity Market, at least while CfD prices are set administratively.
    - To enable the equitable participation of DSR and storage in the Capacity Market, there will be transitional arrangements designed to address any initial barriers to their participation.

- We expect existing capacity to have access to one year agreements, but longer agreements of around ten years to be available to new build plants, and for existing plants in need of a certain level of capacity payment (e.g. to undergo significant refurbishment) to be able to access longer term agreements.
- If the Capacity Market rules make any differentiation between new and existing plants, plants that begin construction between May 2012 and the first capacity auction will have the option of being treated as new. This will ensure that we do not provide a disincentive to investment now.
- Delivery: In return for a predictable revenue stream, capacity providers will be obliged to deliver energy at times of system stress (rather than simply declaring themselves available at particular times). They will be penalised if they fail to deliver energy at times of system stress.
- Payment: We will introduce a settlement agency model for coordinating and making the payments for capacity that will flow between suppliers and capacity providers. Under this model, parties sign up to a single set of rules, which will be enforced by Ofgem.
- Figure 1 summarises the currently proposed Capacity Market design consistent with existing GB electricity market conditions, and more detail is included in the appendix. The Capacity Market design may need to evolve over time. Government will continue to monitor these design proposals to ensure they are compatible with changing market conditions (e.g. cash out reform) that may occur between now and the first auction.
- The Government recognises the importance of clarity for investors on the forward process for the Capacity Market, and will aim to publish final detailed design proposals on the Capacity Market by May 2013, and alongside this, provide further details on the possible timing for a 2014 capacity auction.

**Figure 1: Summary of Capacity Market Design**

Design area	Current position
<b>Initiating the Capacity Market</b>	<ul style="list-style-type: none"> <li>The Government is minded to run the first auction in 2014, for delivery of capacity in the year beginning in the winter of 2018/19. A final decision will be taken subject to evidence of need. This will be informed by updated advice from Ofgem and National Grid which will consider economic growth, recent investment decisions, the role of interconnection and energy efficiency, as well as consideration of the outcome of the review of the 4th Carbon Budget.</li> <li>If implementing the Capacity Market the Government also intends to run pilot auctions for delivery of DSR and storage from 2015 – 18, to provide additional capacity during this period.</li> </ul>
<b>Setting the volume of capacity to contract for</b>	<ul style="list-style-type: none"> <li>The net amount of capacity needed to ensure security of supply (which is likely to be informed by an enduring reliability standard) will be decided by Ministers in advance of the auction.</li> </ul>
<b>Timing of auctions relative to delivery year</b>	<ul style="list-style-type: none"> <li>Competitive central auctions for capacity will be held four years before the delivery year. Secondary auctions are likely to be useful to contract for additional capacity nearer to delivery if required.</li> </ul>
<b>Eligibility of capacity to participate</b>	<ul style="list-style-type: none"> <li>Generation and non-generation approaches such as DSR will be able to participate in the capacity auction.</li> <li>All generation plants, including existing plants, will be eligible to participate in this auction, with some exceptions (e.g. low carbon plants receiving CfDs).</li> <li>Transitional arrangements for DSR and storage will be developed to remove barriers to their participation.</li> <li>All participants will be subject to pre-qualification checks.</li> </ul>
<b>Penalties for non-delivery</b>	<ul style="list-style-type: none"> <li>Providers of capacity successful in the auction will enter into capacity agreements, committing to provide electricity or reduce demand for electricity when needed in the delivery year/s (in return for steady capacity payments) or face financial penalties.</li> </ul>
<b>Payment</b>	<ul style="list-style-type: none"> <li>A settlement agency will coordinate payments for capacity between suppliers and capacity providers. The costs of the capacity payments will be shared between electricity suppliers in the delivery year.</li> </ul>

# Document Overview

1. This document sets out Government's position on the Capacity Market. The first section covers the current challenges facing the electricity market, and explains what a Capacity Market is and the rationale for intervention.
2. This is followed by more detail on the most recent modelling of the security of electricity supply outlook, which influences when the first capacity auction should be held.
3. The third section covers the costs of introducing a Capacity Market, and what this means for consumer bills.
4. The fourth section covers the design of the Capacity Market in more detail, and sets out a number of new design proposals and the rationale for these. This is followed by sections setting out forthcoming work, our arrangements for working with stakeholders, and the application of the Capacity Market in the Devolved Administrations.
5. The appendix includes a summary table setting out the design proposals we have made to date and when the remaining design proposals will be made.

# Why we need a Capacity Market

6. Maintaining security of electricity supply is a Government priority. In this context, this means ensuring there is sufficient reliable capacity in place to meet demand.
7. Historically, our electricity market has delivered secure supplies, largely due to competitive markets underpinned by robust independent regulation.
8. However, the market faces significant changes in the coming years which create challenges to security of supply, both in terms of resource adequacy (i.e. enough overall capacity on the system to meet demand) and operational security (i.e. enough responsiveness to ensure real time balancing of supply and demand). These changes include:
  - We have already seen significant power plant closures in the last two years, and around a fifth of capacity available in 2011 has to close by the end of the decade. For example, the Large Combustion Plant Directive means around 8GW of existing coal power stations will need to close by the end of 2015.
  - Despite improvements to energy efficiency, demand for electricity is expected to increase significantly over the long term, driven in particular by the increased electrification of heat and transport.
  - At the same time, we aim to rapidly decarbonise our electricity supplies. This means moving to a system with a much higher proportion of intermittent wind, and inflexible nuclear, which makes it important that we have enough flexible capacity to provide electricity, for example during a run of still, cold days.
9. These changes to our market create an investment challenge, in particular for plants such as gas which have higher operating costs relative to most low carbon plants. As such, these plants will run less often and be increasingly reliant on high prices in short periods to recover their costs of investment. This may act as a disincentive to investment and result in insufficient reliable capacity being on the system to meet demand.
10. The forthcoming Gas Generation Strategy will help provide certainty for both gas and renewable investors by setting out Government's view of the role for gas in the coming years. But while in theory the electricity market should provide incentives for investment in sufficient reliable capacity, there are a number of market failures which mean that might not be the case.
11. Customers cannot select their desired level of reliability when choosing a supplier (because individual customers cannot be disconnected at times of scarcity). Moreover demand for electricity is highly inelastic and domestic customers do not adjust their level of demand in response to real-time conditions of scarcity because they are not directly exposed to real

time prices. This means that significant wholesale price spikes at times of scarcity may be needed to maintain adequate reliability (i.e. incentivise sufficient investment in capacity) and to avoid having to disconnect consumers.

12. However, prices in the electricity wholesale market may not send the correct market signals to ensure optimal security of supply. This is the 'missing money' problem and may be caused by two factors:
  - Due to the current imbalance settlement pricing system (cash out) the scarcity price of electricity does not rise high enough to reflect the costs of actions taken to balance the system, or the true value of preventing power cuts to consumers; and
  - at times when wholesale electricity market prices peak to high levels, investors fear that either the regulator or Government will act on a perceived abuse of market power, for example through the introduction of a price cap.
  
13. Government is taking a number of steps to address these challenges and ensure consumers can continue to count on secure electricity supplies. These include:
  - Supporting Ofgem's work to reform cash out. Imbalance pricing or 'cash-out' provides market participants with incentives to ensure the volumes of electricity they sell or consume match the volumes they have contracted to sell or consume. Ofgem has identified a number of aspects of the arrangements that may be dampening or distorting incentives and is considering reform of the balancing arrangements to better reflect costs at times of scarcity. Some of the considerations may help address part of the missing money problem in the electricity market by providing generators with greater opportunities to recover their fixed costs. Ofgem is currently in the initial consultation phase of a Significant Code Review (SCR). It intends to publish a draft decision document in spring 2013.
  - Reducing the level of future peak electricity demand both by reducing overall electricity requirements, for example through the Green Deal and Energy Company Obligation, and by enabling a more price responsive demand side to the electricity market through smarter networks and smart meters, which could incentivise electricity use to be shifted to periods where prices are lower. Further action on permanent demand reduction is also being considered through the Electricity Demand Reduction Project, and a consultation on potential policy approaches to unlock the potential for demand reduction has been launched alongside this document<sup>1</sup>.
  - Ensuring we have a diverse mix of electricity supplied from different sources. For example, the Feed-in Tariffs with Contracts for Difference (CfDs) being introduced as part

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<sup>1</sup> Electricity Demand Reduction: Consultation on options to encourage permanent reductions in electricity use: [http://www.decc.gov.uk/en/content/cms/consultations/edr\\_cons/edr\\_cons.aspx](http://www.decc.gov.uk/en/content/cms/consultations/edr_cons/edr_cons.aspx)

of Electricity Market Reform (EMR) aim to bring forward significant levels of investment in new low carbon generation, which will reduce our dependence on fossil fuel imports.

- The forthcoming Gas Generation Strategy will set out Government's view of the role for gas over the coming years, and allow generators to invest with confidence. Setting a cap on the Levy Control Framework provides certainty for renewables investors by providing a long term financing commitment and ensuring funding is set at a sustainable and affordable footing. Together this provides a clear picture for power generators and reinforces the Government's commitment to providing a stable investment environment.
- Continuing to support and influence the European Commission's work towards a better functioning and more integrated single European energy market. The single market should deliver lower costs for consumers (e.g. by facilitating trade between competing suppliers and generators), greater security of supply (by reducing the need for GB 'backup' capacity), and lower carbon emissions by enabling more efficient use of renewables. Greater levels of interconnection across Europe should benefit the area as a whole, but DECC will be undertaking further work to better understand the costs, benefits and risks to GB of electricity interconnection. This work will take into account the impacts both on GB prices and GB security of supply (in particular during periods of system stress), in the context of our carbon objectives.

14. While all of these measures can help improve security of electricity supply, they may not be sufficient to secure our supplies in the medium and long-term. The Government therefore recognises the need for powers to intervene if needed to ensure secure electricity supplies as part of EMR.
15. That is why we are introducing legislation for a Capacity Market, in which generation and non-generation providers of capacity like DSR and storage will receive a predictable revenue stream for providing reliable capacity. In return, capacity providers will be obliged to deliver energy at times of system stress, and will be penalised if they fail to do so. In this way a Capacity Market will directly tackle the missing money in the electricity market by explicitly paying for resource adequacy and ensuring adequate investment in reliable capacity to minimise the chances of blackouts. The Capacity Market will work alongside the energy market, which will continue to provide the signals for despatch of energy under normal market conditions.
16. We have looked at a number of options to address the security of supply problems facing Great Britain, including various forms of capacity mechanisms and other approaches such as greater interconnection and enabling a more responsive demand side. Other forms of capacity mechanism either do not provide sufficient certainty that they can deal with the problems facing the GB market (e.g. a Strategic Reserve), or are unlikely to be cost-effective (e.g. a Capacity Payment model where a price for capacity is set administratively and paid to all providers in the market). And interconnection and the demand side are not sufficiently developed to deal with a security of supply problem in the short to medium-term.

17. A Capacity Market therefore offers the best solution given current market conditions. However, we recognise that GB and European markets will continue to evolve (e.g. with imbalance settlement reform, increasing interconnection, a developing demand side and potential evolution of the CfD), and that the Capacity Market described in this document may need to evolve to reflect changing market conditions. We will therefore ensure that the Capacity Market governance arrangements enable its evolution over time.

### Cash out

- Imbalance pricing or ‘cash-out’ provides market participants with incentives to ensure the volumes of electricity they sell or consume match the volumes they have contracted to sell or consume. Ofgem has identified a number of aspects of the arrangements that may be dampening or distorting incentives and is considering reform of the balancing arrangements to better reflect costs at times of scarcity.
- We welcome Ofgem’s decision on 28 March 2012 to conduct a Significant Code Review (SCR) on electricity cash out arrangements, which could provide better signals for investment and increase security of supply, and could also provide a useful reference price for the penalty models that employ market-based penalties. We will continue to work closely with Ofgem to ensure consistency between the EMR policy proposals and the electricity cash out SCR, and will carefully consider the interactions between the EMR Capacity Market and any electricity cash out reforms.
- The eventual design of cash out impacts on the cost and effectiveness of the Capacity Market, as it alters (a) the level of revenue that generators might expect to receive in the electricity market, and therefore the cost of their bids in the Capacity Market and (b) the level of incentive they have to deliver energy at a particular point, which influences the decision on the preferred penalty model.
- Ofgem is currently in the initial consultation phase of the SCR. It intends to publish a draft decision document in spring 2013.

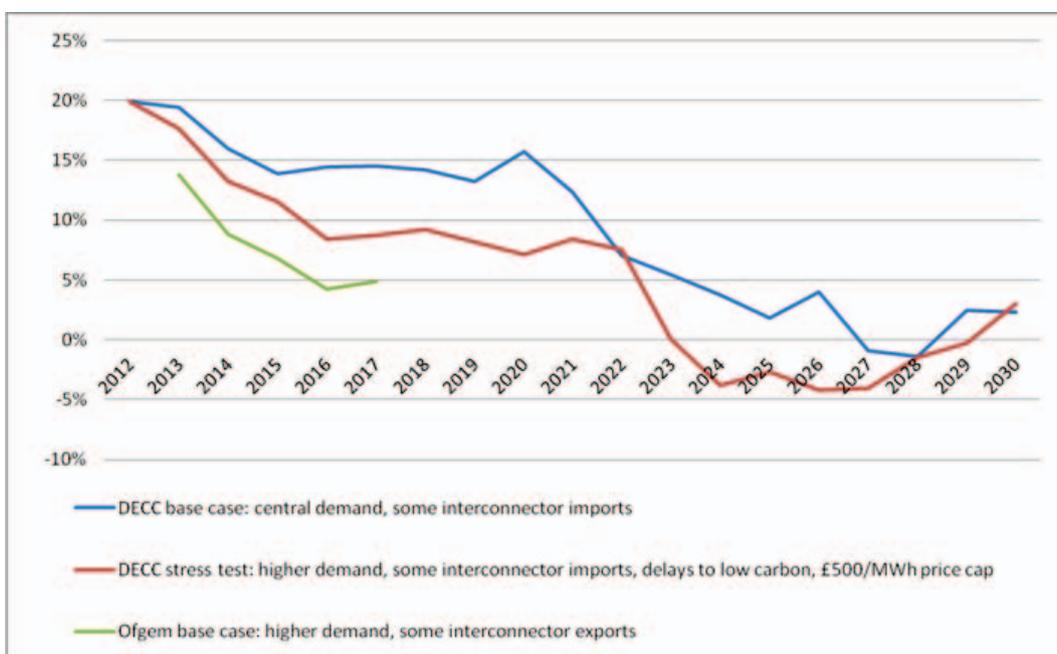
## Security of Supply Outlook

18. To monitor security of electricity supplies, we model possible future changes in de-rated capacity margins (the gap between reliable electricity supply and peak demand)<sup>2</sup>.

<sup>2</sup> De-rating is an adjustment to take account of the availability of generating capacity, specific to each type of generation technology. It reflects the expected proportion of a source of electricity which is likely to be technically available to generate (even though a company may choose not to utilise this capacity for commercial reasons).

19. Ofgem has recently completed an assessment of future electricity capacity in the GB market over the next five winters, and set out the associated risks to security of electricity supply. DECC has also carried out modelling on future capacity margins.
20. Figure 2 shows the key outputs from different sets of modelling. Assessments of future capacity margins are inevitably subject to significant uncertainty as they are highly sensitive to key assumptions, for example on the level of demand, the amount of new capacity that will be built, and the contribution of current and planned interconnection to security of supply. These uncertainties become greater as we look further into the future.

**Figure 2: DECC and Ofgem modelling of de-rated capacity margins**



21. The differences in outputs from the models derive from the different assumptions used. The key assumptions are summarised below:
- The DECC base case assumes that demand will fall as a result of energy efficiency improvements over the next few years. The DECC baseline also assumes that our interconnectors will import at around 40 per cent of their potential capacity at times of system stress. Full details of the assumptions in the DECC baseline can be found in the Impact Assessment published alongside this document<sup>3</sup>.

<sup>3</sup> Capacity Market Impact Assessment:

[http://www.decc.gov.uk/en/content/cms/meeting\\_energy/markets/electricity/electricity.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/markets/electricity/electricity.aspx)

- The DECC stress test assumes higher demand than the DECC base case; that there is some missing money; and that there are delays to new nuclear build and offshore wind capacity in the early 2020s.
  - The Ofgem base case assumes demand is higher in 2016/17 than it is today. It also assumes that the net position on our interconnectors is that they are exporting around 25% of their potential capacity.
  - Ofgem has also undertaken sensitivity analysis of its base case which can be found in Ofgem's Electricity Capacity Assessment<sup>4</sup>.
22. Ofgem has modelled the potential impacts on consumers of the expected de-rated capacity margin in 2015/2016. In the base case, it assesses that the expected volume of demand that may not be met because of an energy shortfall in 2015/2016 is around 3400 MWh. For comparison, the typical annual loss of supplies arising from transmission and distribution outages at present is typically more than three times this amount.
23. The most likely implications of this level of unmet demand are small, occasional shortfalls which could be dealt with by National Grid through demand-side action, with little or no impact on domestic customers. However, Ofgem assesses that in 2015/2016 the probability of some customers being temporarily disconnected is 1 in 12 years. In these circumstances, it is likely that industrial customers would be disconnected first. However, in the event that it only affected domestic households, then up to 1.5 million households could be temporarily disconnected. It should also be noted that we experienced similar capacity margins to those projected for 2015/16 in the middle of the last decade<sup>5</sup>.
24. DECC's analysis for the middle of the decade projects higher margins than Ofgem's modelling, with lower risks to security of supply.
25. The uncertainty around the projections becomes greater as we look further into the future. However, all models predict a further tightening of capacity margins as we move towards the end of this decade and into the 2020s.

### Running the first capacity auction

26. Given the likelihood of margins falling over the coming years, the Government has carefully considered the implications for running the first Capacity Market auction, and for the first

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<sup>4</sup> Electricity Capacity Assessment 2012: <http://www.ofgem.gov.uk/Markets/WhlMkts/monitoring-energy-security/elec-capacity-assessment/Pages/index.aspx>

<sup>5</sup> Note that the similar margins in the middle of the last decade did not necessarily correspond with the same risks of disconnection we expect in 2015/16 because of differences in the composition of the generating fleet e.g. there will be a higher percentage of intermittent wind generation in 2015/16.

‘delivery year’ – i.e. the year in which capacity which is successful in the auction must be capable of delivery at times of system stress.

27. **The Government is minded to run the first auction in 2014, for delivery of capacity in the year beginning in the winter of 2018/19.** A final decision will be taken subject to evidence of need. This will be informed by updated advice from Ofgem and National Grid which will consider economic growth, recent investment decisions, the role of interconnection and energy efficiency, as well as consideration of the outcome of the review of the 4th Carbon Budget.
28. The Government believes this strikes the right balance between the need to provide industry certainty, the need for a Capacity Market to address security of supply concerns, and the need to ensure a competitive capacity auction by having long enough between the auction date and the delivery year to enable the participation of new market entrants.
29. The Government will provide further analysis on the evidence of need for a capacity auction, including in its first delivery plan. This will be published by the end of 2013 (subject to Royal Assent) and will be informed by evidence and analysis including Ofgem’s statutory Electricity Capacity Assessments for 2012 and 2013 and analysis provided by National Grid as the delivery body for EMR.
30. The Government recognises the importance of clarity for investors on the forward process for the Capacity Market, and will aim to publish final detailed design proposals on the Capacity Market by May 2013, and alongside this, provide further details on the possible timing for a 2014 capacity auction.
31. It would be possible to run the first capacity auction in 2014 with the first delivery year in 2015/16, i.e. with a compressed lead time. However this option carries significant risk – in particular, the lack of time between the auction and delivery year would exclude new capacity as it would not be able to build in time to compete. This could lead to an uncompetitive auction. We would also have to run several auctions in the first auction process (for delivery in 2015/16, and potentially also 2016/17, 2017/18 and 2018/19) if we wanted give the maximum possible lead times for bringing on any required new capacity before delivery was required. This would significantly increase the importance of the first auction process and as such there would be increased risks. As such, the Government is minded to run the first auction in 2014 for delivery in the year beginning in the winter of 2018/19.
32. If implementing the Capacity Market we do, however, intend to run pilot DSR and storage capacity auctions for delivery in the years before capacity from the primary auction is in place; namely 2015/16, 2016/17 and 2017/18. This will help to stimulate the market for these approaches (as has been seen overseas) and provide additional capacity during this period, which will help minimise security of supply risks. More details can be found at paragraph 65. DECC will also continue to monitor the security of supply outlook and will respond to an earlier problem if necessary.

33. We are considering how the Capacity Market interacts with State Aid rules, and will engage closely with the European Commission to ensure that the policy is consistent with those rules.

## Cost of the Capacity Market, and Impact on Electricity Bills

34. In theory, a perfectly functioning energy market should provide sufficient incentives for investment in new capacity. In this case a Capacity Market should not bring forward additional capacity to what the market would have anyway provided and so should have a minimal impact on prices and bills.
35. In practice we think there is a risk of market failure in the current GB market. Incentives for investment in new capacity may be insufficient as electricity prices cannot rise sufficiently at times of scarcity (the “missing money” problem), and because flexible plants with higher running costs will run less often in a system with more intermittent (wind) and inflexible (nuclear) low carbon generation. In this environment a Capacity Market could have a small impact on bills.
36. Modelling indicates that the Capacity Market should have a modest impact on bills. Modelling for the Impact Assessment published alongside this document forecasts an increase in bills of around £14 per annum for average domestic consumers after the Capacity Market is in place – effectively an insurance premium against the risk of blackouts. Previous modelling had indicated a small *reduction*, as the Capacity Market helps to reduce the high electricity prices that can occur in periods of scarcity<sup>6</sup>. However it should be noted that the bill impacts are uncertain given the difficulties predicting future capacity margins and bills without a Capacity Market. The Capacity Market could have a lower impact on bills, or even reduce bills, depending on the degree to which it reduces the financing costs for investment in new capacity and dampens wholesale electricity prices.

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<sup>6</sup> EMR Impact Assessment:

[http://www.decc.gov.uk/en/content/cms/legislation/white\\_papers/emr\\_wp\\_2011/emr\\_wp\\_2011.aspx](http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/emr_wp_2011.aspx)

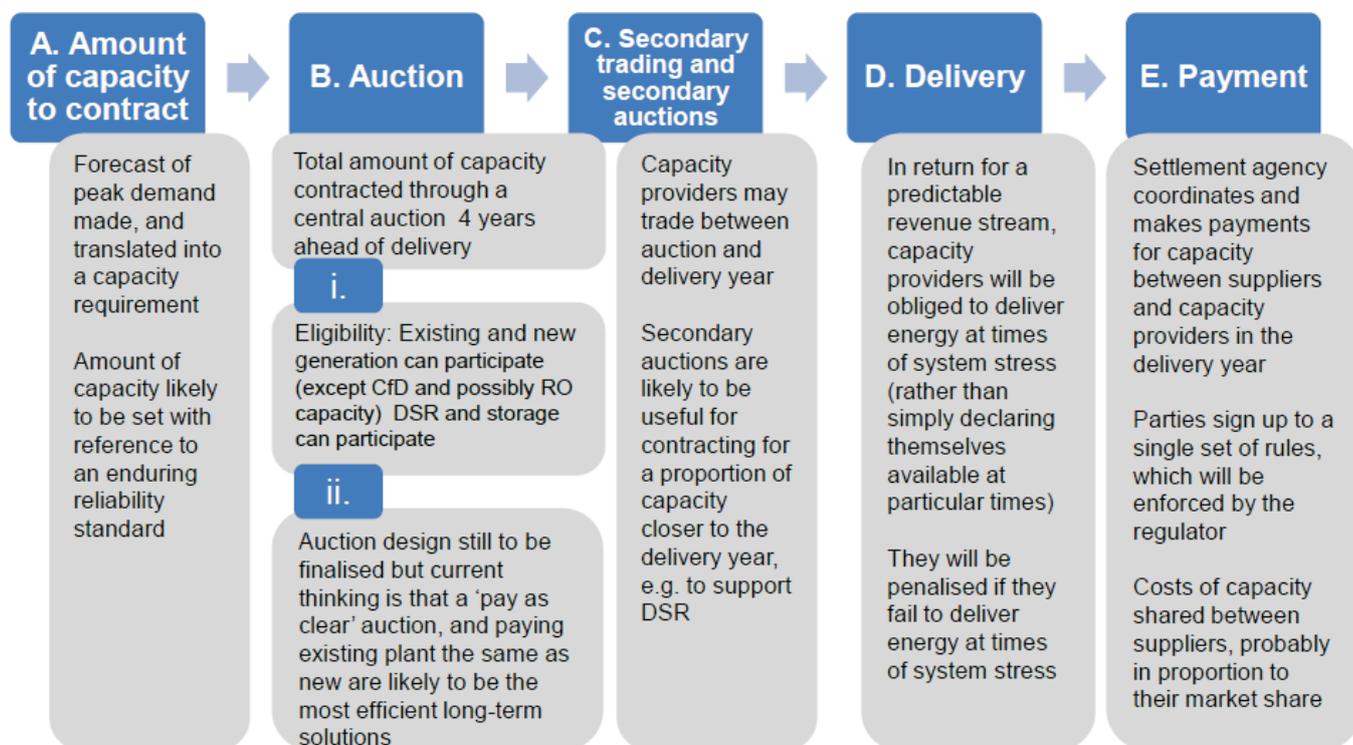
# Capacity Market Design

37. The Energy Bill includes the high level legislation to enable a Capacity Market that will work as follows:
- a forecast of future peak demand will be made, four years ahead of the delivery year in which it is needed;
  - the net amount of capacity needed to ensure security of supply (which is likely to be informed by an enduring reliability standard) will be contracted through a competitive annual central auction run by the System Operator;
  - generation and non-generation approaches such as DSR will be able to participate in the capacity auction. All generation plants, including existing plants, will be eligible to participate in this auction, with some exceptions (e.g. low carbon plants receiving CfDs);
  - providers of capacity successful in the auction will enter into capacity agreements, committing to provide electricity or reduce demand for electricity when needed in the delivery year/s (in return for steady capacity payments) or face financial penalties; and
  - the costs of the capacity payments will be shared between electricity suppliers in the delivery year.
38. This high level framework leaves scope for many detailed design choices. With the support of a Capacity Market Expert Group<sup>7</sup> (comprising external stakeholders, Ofgem and National Grid), Government has made further proposals on Capacity Market design, focusing on those design choices which are most important for industry and investor certainty. Figure 3 recaps the phases involved in delivering a Capacity Market, and summarises the proposals we are making now. This section follows the structure set out in Figure 3.
39. The Capacity Market design may need to evolve over time to reflect changing market conditions. This will prevent the Capacity Market being locked into an inefficient or ineffective design as the energy market evolves and improvements in the design of the Capacity Market are identified. Therefore, Government will continue to monitor these design proposals to ensure they are compatible with changing market conditions (e.g. cash out reform) that may occur between now and the first auction.

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<sup>7</sup> For more information on the Capacity Market Expert Group please see the 'Stakeholder Engagement' section below.

**Figure 3: Phases involved in delivering a Capacity Market, and design proposals Government is making now:**



## A: Amount of Capacity to Contract

40. The decision on how much capacity to contract will be taken by Ministers. We expect that this will be taken with reference to an enduring reliability standard – i.e. an objective for the level of reliability we seek to achieve in the GB market.
41. We expect that the reliability standard will be expressed in terms of loss of load expectation (LOLE). This is the metric that is used for many other countries which use reliability standards. For example, France assesses its level of capacity to be adequate if it is expected that there will be no more than three hours a year in which there is unmet demand. We intend to consult on options for the GB reliability standard in the draft delivery plan, in July 2013.
42. While we expect that the amount of capacity to contract will be informed by a reliability standard, it may be advantageous to have some flexibility to contract more or less capacity from year to year depending on cost. One way of providing for this, while also providing transparency to industry on the way in which the volume of capacity will be set, would be to publish a demand curve.
43. By setting out the volume we will contract for at different price levels, a demand curve can express the trade off between the benefits to consumers of additional security of supply and the costs to consumers of additional capacity. Our current thinking is that a demand curve is

likely to be useful, but we will consider this further along with other aspects of the volume setting process, and will set out final proposals by May 2013.

44. The process for deciding the volume of capacity to contract is being developed and final decisions have not yet been taken. However, an indicative process, if the first capacity auction is run in 2014, would be:
- an estimate of the amount of capacity to contract in the 2014 auction will be published in the first delivery plan by the end of 2013 (subject to Royal Assent on the primary legislation);
  - the final amount and any demand curve will be published shortly before the auction, based on the most up to date capacity assessment data, in July 2014;
  - the outcome of the 2014 auction and estimated volume of capacity to be contracted in the 2015 auction will then be published in the annual update to the delivery plan in December 2014. Details on the delivery plan publications and process can be found in Annex E.

## B: Auction

45. The primary capacity auction, held annually four years before the delivery year, will decide which market players will receive capacity agreements and participate in the Capacity Market. Auction design is, along with the penalty regime, the crucial element of Capacity Market design. Decisions for this phase involve both the eligibility rules for participation in the Capacity Market, and the format and function of the auction itself.

### B.i. Eligibility Rules

46. Eligibility rules determine the types of capacity that can participate in the Capacity Market auction.
47. The Capacity Market is designed to be a market wide capacity mechanism in which all forms of reliable capacity, both generation and non-generation, can participate, with some limited exceptions.
48. Both existing capacity currently participating in the electricity market, and capacity that has not yet been built, will be able to participate, and the auctions will be held far enough in advance of delivery to enable the construction of new capacity if required.
49. We propose to contract a single capacity product and allow the market to bring forward the appropriate mix of capacity<sup>8</sup>.

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<sup>8</sup> We will also look at how balancing services are procured and how this fits with the auction process for the Capacity Market.

50. To ensure reliable capacity is likely to be ready for the delivery year, the System Operator will undertake pre-qualification checks in advance of the primary auction. These checks will confirm the existence of the capacity, and for example check the volume of capacity bid by the operator does not exceed a plant's maximum rated capacity. The development status of any new capacity will also be checked to ensure it meets any eligibility criteria – such as possession of a development consent. We have further work to do to determine which eligibility criteria and pre-qualification checks will apply, and will set out more detail on this by May 2013.
51. Although the Capacity Market is market wide, we need to ensure that capacity receiving direct support through other mechanisms is not overpaid. This means special consideration is needed for whether low carbon capacity receiving support through the CfD and Renewables Obligation (RO) can participate. We have also specifically considered whether interconnected capacity (i.e. capacity located in other markets connected to GB via interconnectors) can participate, and how non-generation capacity, such as DSR and storage, can participate.

### Participation of CfD Capacity

52. For plants receiving the CfD, our view remains that such plants should be excluded from the Capacity Market while technology-specific CfD strike prices are set administratively. There are two main reasons for this:
- First, that the CfD is, in itself, partly a capacity payment. The CfD pays on energy delivered and so provides a strong incentive for plants to generate; moreover the payment is referenced against a forward market price, providing real-time incentives for CfD plants to generate to earn any scarcity rents in the spot market that weren't present in the reference price.
  - Second, that investors are fully remunerated through the CfD. The CfD will initially be set administratively according to the technology levelised cost and so will fully remunerate investors for building the capacity. If providing additional support through the Capacity Market, we would need to reduce the amount provided through the CfD. Given the various differences between the two mechanisms (such as contract length and lead time), this would in practice be extremely difficult to do, and be likely to lead to overpayment and/or increased investor risk.
53. The rationale for aligning the CfD and the Capacity Market may be stronger over the longer term once the strike price for CfDs is determined through technology neutral auctions.
54. We will also want to further explore the opportunities for Carbon Capture and Storage (CCS) plants to contribute to security of supply by turning off their carbon capture technology at times when the extra output this allows could help meet demand when the market is tight. This could increase output by as much as 20 per cent. We will need to ensure arrangements do not lead to double payment of CCS capacity through the CfD and Capacity Market.

55. More detail on the long term vision for EMR is set out in the EMR Overview Document.

### Participation of Renewable Obligation Capacity

56. We recognise this is a complex issue and so Government will continue to carry out further analysis on this, including the engagement of industry through our Capacity Market Expert Group, and will publish a decision by March 2013.
57. The level of support for plants receiving the RO is determined through the RO banding process. This includes consulting on the appropriate level of support, modelling what level of support is needed to keep the UK on target to meeting its renewable generation target, and then obtaining State Aid approval from the European Commission for changes to support levels, which involves demonstrating that the banding levels set do not constitute overpayment.
58. We want to treat all capacity equitably within the Capacity Market, but at the same time want to ensure that capacity receiving other forms of support isn't overpaid if also allowed to receive a capacity payment.

### Participation of Interconnected Capacity

59. There are a number of potential benefits from enabling interconnected capacity (capacity located outside the GB market but connected to GB via interconnectors) to participate directly in the Capacity Market – in particular, to maximise incentives for efficient trading of electricity between interconnected markets and to maximise competition.
60. In principle DECC is therefore supportive of allowing interconnected capacity to participate – so long as it is able make the same contribution to GB security of supply as domestic capacity.
61. However, our work with the Capacity Market Expert Group, and discussions with the European Commission and other EU Member States, have identified a number of difficulties with allowing interconnected capacity to participate on equal terms to GB capacity. The principal difficulty is establishing that the interconnected capacity face the same incentives to sell energy into the GB market as GB plants, which may require the capacity to demonstrate physical transmission rights. There are further potential practical difficulties with allowing interconnected capacity to participate. The interconnected capacity would have to be able to demonstrate it is not receiving a capacity payment from another EU Member State, that it meets the pre-qualification criteria for the GB capacity market, and that it has delivered energy when needed.
62. An alternative possible approach would be to allow interconnectors to participate directly in the Capacity Market. This approach could support market incentives to build interconnectors if they contribute to GB security of supply. However our work to date suggests that it is not

appropriate for interconnectors to participate directly in a Capacity Market as interconnectors are primarily transmission infrastructure and therefore do not directly provide capacity.

63. We will continue to work closely with industry, the European Commission and EU Member States on this issue. We will look to establish principles which, if met, would enable interconnected capacity to participate within the GB Capacity Market. We will also look to ensure that arrangements are consistent with the development of the EU single market for energy and the implementation of the Target Model. However given the complexity of energy trading arrangements between markets it may in practice prove too difficult for interconnected capacity to participate in the Capacity Market.
64. Regardless of whether interconnected capacity participates in the Capacity Market, we will take into account the contribution that current and planned interconnected capacity can make to GB capacity at times of system stress when setting the total volume of capacity to contract for through the Capacity Market. Government will aim to contract the level of capacity needed to ensure security of supply in GB, and so minimise any impacts to the efficient functioning of the single market and maintain incentives for further investment in interconnection.

### Participation of DSR and Storage

65. DSR has the potential to offer reliable capacity that can make a valuable contribution to security of supply. Increased development of DSR is also an important step towards a better functioning market where participants respond to price signals appropriately by reducing demand when electricity is scarce and prices high. Storage also contributes to a better functioning market by allowing energy to be stored for use at times when generation exceeds demand (e.g. high wind output at times of low demand), and used when energy is scarce. In a system with a higher proportion of intermittent generation, this role will be increasingly important.
66. Given the advantages of DSR and storage, Government is keen to help the industries develop and play an increasing role in ensuring security of supply. Both DSR and storage will be able to participate in capacity auctions alongside generation capacity. In addition, we will develop transitional arrangements to support the development of DSR and storage and better enable their participation in the Capacity Market.
67. This is because there are two main barriers that prevent the potential contribution of DSR and storage from being fully realised if they are only eligible to participate in the main capacity auctions:
  - The first is the four year lead time between the capacity auction and the year capacity is required to be available (delivery year). While a lead time of this length is necessary to ensure there is sufficient time to build new generation capacity, it is difficult for DSR providers to forecast their ability to provide capacity this far ahead.

- The second is the requirement to provide capacity for potentially open ended scarcity periods (i.e. for any period of scarcity across a whole delivery year). This can potentially be a problem for both DSR and storage. DSR can often only be exercised for limited periods of time. Additionally, DSR has the greatest potential to reduce demand on the grid at times when demand is greatest. While scarcity events often coincide with peak demand, they can also occur at other times when DSR's ability to respond may be lessened. Similarly, storage can both release stored energy or stop drawing energy from the grid very quickly during scarcity events, making it very versatile. However storage has a maximum amount of capacity it can release before the reserves are depleted and scarcity events may extend beyond this, exposing the provider to a penalty.

68. New build storage shares many of the requirements of new build generating plants, for example a need for revenue certainty to reduce the cost of finance. We anticipate that the arrangements for new build plants will be equally suitable for new build storage.

#### **Participation of DSR and storage: How will the transitional arrangements work?**

- We are developing tailored arrangements for storage and DSR, since they have different characteristics to generation.
- Time-banded products, each specifying delivery parameters such as duration and hours of operation, will be developed and offered to DSR and storage in a secondary auction closer to the delivery year (see paragraph 81 for more on secondary auctions). This approach will be reviewed after a set period, perhaps five years, and a decision will then be made on whether to make the pilot arrangements an enduring part of the Capacity Market or whether DSR and storage capacity have developed to the extent that they could compete fairly alongside generation capacity.
- Three preparatory auctions may also be held for delivery of DSR and storage in 2015 – 2017, should a capacity auction be implemented in 2014. These auctions would be restricted to DSR and storage and would assist those industries in building their capacity and capability before the first 'live' secondary auction takes place in 2017. This would result in three years of operation of a DSR/storage only capacity market.
- There are some challenges remaining in designing the pilot; including how to avoid gaming when setting baselines for DSR, how to provide incentives in the preparatory auctions that ensure capacity is delivered (since there are less likely to be scarcity events to incentivise delivery during this period), and how to generate reliable estimates of the future capacity DSR and storage could provide. We will continue to work with stakeholders to ensure a robust design.
- DSR and storage capacity could also elect to participate alongside generation in the primary

auction held four years ahead of the delivery year.

- There may need to be some limitations on storage capacity eligible to participate in the transitional arrangements. For example, it may not be appropriate for all existing storage providers to be included and there may need to be some limitations on the size of storage installations that can participate in any specific DSR and storage preparatory auctions. The transitional arrangements are intended to build up the parts of the storage and DSR industries that are not currently in a position to participate directly in the Capacity Market. We anticipate that some storage providers will already be capable of participating directly, in which case including them could disadvantage those providers in need of the transitional arrangements. We will do further work to identify any limitations and exceptions, and will publish more detailed proposals for DSR and storage by May 2013.

### The Electricity Demand Reduction Project

- The DECC Electricity Demand Reduction project was set up to assess what incentives there are to encourage permanent reductions in electricity demand and whether the Government should do anything more. Following internal work and some expert analysis from McKinsey and Co, we believe that there is significant potential to use electricity more efficiently in the UK and that current and forthcoming policies will capture only a part of this<sup>9</sup>.
- We are currently considering which policy approaches might unlock this potential and have launched a consultation to gather input to this process<sup>10</sup>.
- One set of possible options explored in the consultation document is the provision of a financial incentive to encourage greater take up of electricity efficiency measures. This could be delivered through a number of mechanisms, one option (among others) would be involvement in the Capacity Market.

## B.ii. Auction Design

69. There are several options for how the auction operates and what revenue and contract lengths participants can receive. These decisions are critical to the overall efficiency of the Capacity Market. On most areas of auction design we intend to do further testing and

<sup>9</sup> See 'Capturing the full electricity efficiency potential of the UK':

<http://www.decc.gov.uk/en/content/cms/emissions/edr/edr.aspx>

<sup>10</sup> Electricity Demand Reduction: Consultation on options to encourage permanent reductions in electricity use:

[http://www.decc.gov.uk/en/content/cms/consultations/edr\\_cons/edr\\_cons.aspx](http://www.decc.gov.uk/en/content/cms/consultations/edr_cons/edr_cons.aspx)

development before finalising decisions, but we have set out our current thinking on the following auction design choices in this section:

- *Auction lead time*: the length of time between the auction and the year that capacity has to be in place.
- *Auction format*: Which auction design model is most cost efficient?
- *Participation of new and existing plants in the auction*: should new build plants and existing plants in need of a certain level of capacity payment (e.g. to undergo significant refurbishment) receive more revenue from the auction than existing plants? How should existing plants be required to participate (i.e. should their prices be regulated?) and should they be price takers (i.e. not able to bid into a pay as clear auction)?
- *Capacity agreement duration*: what length of capacity agreements should be offered, and should new plants be offered longer capacity agreements than existing plants?
- *Treatment of plants that begin construction between May 2012 and the first capacity auction*: should these plants have the option of being treated as new if a distinction between new and existing plants is made?

### Auction Lead Time

70. Government has chosen a four year lead time between the capacity auction and the year capacity is required to be available (the delivery year). This will ensure a contestable auction, and allows relatively accurate forecasting of the level of capacity required.
71. A short lead time (e.g. one year) would enable more up to date and therefore accurate demand forecasts to be used to set the level of capacity to contract, but would preclude new investment from entering an auction (or at least force developers to take the risk of financially committing to a project well in advance of being able to bid into the capacity auction and getting the certainty of a capacity agreement).

### Auction Format

72. Government's initial thinking is that a pay-as-clear auction may deliver the best long-term outcome for consumers by minimising opportunities for gaming and establishing a single fair price for capacity. However, we are continuing to test this position and aim to make final proposals on auction design by May 2013.
73. We are considering two basic types of auction:
- Pay-as-bid: every successful provider is paid the price it has bid.
  - Pay-as-clear: every successful provider is paid the clearing price set by the most expensive successful provider that bid into the auction.
74. Although it appears that every bidder except the most expensive would be paid less under pay-as-bid, this is generally not the case. The difficulty in comparing the two auctions is that bidders will generally enter higher bids in a pay-as-bid auction as they try to guess the level

of the highest acceptable bid. This tends to make the pay-as-bid auction more expensive than one would expect and to counteract the effect of paying only the bid price instead of the clearing price. Moreover a pay-as-clear auction should not give an advantage to those best able to guess the clearing price, which is likely to be big portfolio players, and so supports competition in the market.

### Participation of New and Existing Plants in the Auction

75. Government's initial thinking is that treating all capacity providers the same in relation to the payment they receive from the auction is likely to be the right approach, i.e. a pay as clear approach for both new and existing plants. As is the case with other aspects of auction design, however, we will be doing further work on this question in the next phase.
76. Since the capacity product is homogenous, it seems appropriate for all providers to receive the same payment (i.e. for new and existing plants to receive equal payment for providing the same service as they would in an energy market). This creates the efficient signal for new capacity to be created or existing capacity to be retired if unable to cover its forward looking costs. Distorting the market by limiting the price that can be set by existing capacity, risks, if poorly designed, forcing existing capacity to retire only to be replaced by more expensive new capacity, and could create an additional risk for new capacity as it is unsure over its future revenues. It is also worth noting that the Capacity Market will reduce peak electricity market prices by bringing on additional capacity, so will reduce the revenue of existing plants if they are unable to access a capacity payment.
77. However, we need to ensure all participants receive an efficient and appropriate level of payment, including those plants that have fully sunk their costs and can meet their ongoing costs of generating electricity (fuel costs, staff costs, transmission charges, etc) through energy market revenues. We are carrying out further work to ensure the Capacity Market provides an appropriate level of payment to all plants.

### Capacity Agreement Duration

78. Our current thinking is that although most existing plants should only have access to a one year price and obligation, it would be beneficial to allow new plants (and existing plants in need of a certain level of capacity payment, e.g. for refurbishment) to choose the most appropriate length of agreement for them, before the start of the auction. This is because longer term capacity agreements are required to provide certainty of investment returns and reduce the cost of capital. Longer agreements should also reduce the potential for providers to front load cost, pushing up the price of capacity.
79. Our current thinking is that these providers could choose a capacity agreement length of between one to around ten years. We intend to make final proposals alongside other aspects of auction design by May 2013.

## Treatment of Plants that Begin Construction Between May 2012 and the First Capacity Auction

80. If the Capacity Market does differentiate between new and existing capacity then investors who begin construction between May 2012 and the first auction will have the option of being treated as new plants, if a distinction between new and existing plants is made. This is to reduce any disincentives to invest in advance of the first capacity auction.

## C. Secondary Trading and Secondary Auctions

81. We have made no new proposals on secondary trading in this document. We recognise that parties will wish to engage in trading and hedging to manage their exposure to risk, and will do further work to consider whether Government can facilitate this.
82. The introduction of secondary capacity auctions to be held a year ahead of delivery appears to offer a useful mechanism to purchase additional capacity if necessary. This is because the primary auction will be based on a forecast of demand four years out and fine tuning will be necessary year-ahead.
83. The secondary auction is likely to include an amount of capacity reserved from the primary auction, for example for DSR. We will do further work on this over the coming months.

## D. Delivery

### Delivered Energy Model

84. The major choice here is on what capacity providers are required to do to meet the terms of their capacity agreement, and how they are penalised if they fail to do so. This design choice is sensitive to other market conditions, particularly cash out reform. Therefore Government will keep these proposals under review and ensure compatibility with the latest position on cash out where possible.
85. Government has chosen a delivered energy model for Capacity Market penalties, to be compatible with current market conditions. In this administrative form of Capacity Market, capacity providers are obliged to deliver energy or reduce demand whenever needed to ensure security of supply, i.e. in real system stress situations. In the delivery year, they receive the payment for their capacity that was set in the capacity auction. When there is system stress, if they are not delivering energy or reducing demand up to the full level of capacity they offered in the auction, they face a financial penalty. This model could also include additional checking by the System Operator given the relatively low likelihood of system stress events occurring<sup>11</sup>.

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<sup>11</sup> In its simplest form this could just involve checking a generator runs a number of times per annum.

86. The delivered energy model reinforces energy market signals for capacity to be reliable and delivering when needed (thus directly reducing the risk of blackouts), as well as reducing gaming risks, and so this is the model that Government will proceed with. We will further develop this model over the next few months, including work on how the risks associated with this model can best be mitigated, but are minded that:
- system stress periods will be defined after the event to minimise gaming – and are likely to be based on load shedding or brown outs due to System Operator instructions to Distribution Network Operators;
  - capacity obligations will be profiled in relation to actual demand, which may help minimise risks to participants<sup>12</sup>; and
  - total annual penalties should be capped (i.e. related to the size of the capacity payment) in order to ensure that risks on investors are proportionate and quantifiable.
87. We intend to work further on any additional risk mitigation measures such as secondary markets, considering whether there should be any exceptions when penalties would not be applied (e.g. instantaneous loss of a generator), and whether capacity providers could reduce their obligation at times of excess capacity to allow time for maintenance. We also note the potential for some degree of overpayment to capacity providers because the electricity price is not capped in this model, and will continue to work on additional risk mitigation measures to prevent overpayment.

### Other Penalty Options Considered

88. We also considered a reliability market, and another variation of an administrative capacity market called a declared availability model.
89. **Reliability Market:** In this model, the agreement signed with providers of capacity is a financial option. This gives the capacity provider an obligation to deliver energy (i.e. supplied electricity, or a reduction in demand) at a set price (the strike price) at times of scarcity. If market prices in a chosen reference market rise above the strike price in the option contract, providers of capacity effectively have to pay the difference between the price in the reference market and the strike price. This provides a strong incentive to deliver – because if they are not delivering energy, the capacity provider must still pay the difference between the strike price and the reference price, but will not recover the revenues to cover this from the energy market – leaving them at a loss.

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<sup>12</sup> Providers' obligations in periods of system scarcity will be profiled on the basis of system demand at that time, with each provider being required to deliver their full obligation, as cleared in the auction, only where a scarcity event coincides with annual peak demand. As an example, if sufficient capacity is procured to cover an 80GW peak demand, then providers will be required to deliver only 50 per cent of their respective volumes for a summer scarcity event where demand is 40GW. This approach should minimise risks to participants by facilitating maintenance planning and enabling secondary trading.

90. A Reliability Market would theoretically be cost efficient as the payback mechanism would insure consumers against price spikes and provide generators with a stable revenue stream. However, a Reliability Market is unlikely to work effectively in the GB market as currently structured. In particular, there is no clear reference price for the financial option in the existing market. It would also constitute a major change to the market, leading to disruption and associated cost, and could undermine the liquidity of forward markets as all market participants are incentivised to trade around the reference price. It also places high levels of risk on capacity providers, who potentially face very high penalties when they fail to deliver. These barriers to implementation may lessen as the energy market evolves.
91. Declared availability: In this administrative model providers of capacity receive a capacity payment for any periods in which they declare themselves available to the System Operator. They are deemed to have met their obligations if they declare themselves available to deliver energy. Providers are penalised if they declare themselves available, but fail to deliver when called; or if they fail a spot check by the System Operator. So unlike in the delivered energy model, providers would not face a penalty if they have declared themselves available but did not ultimately deliver energy (for example because of long ramp-up times), even if this coincides with a period of system stress.
92. The declared availability model would be relatively straightforward to implement, and has the lowest risk of unintended consequences for the wider market in the short-term. However, it also comes with a number of downside risks – in particular, it increases the risk that capacity will not be delivering when needed by incentivising availability rather than the delivery of energy (meaning that capacity providers may not be penalised even if blackouts occur); and it has the potential to lead to some degree of overpayment to capacity providers because the electricity price is not capped<sup>13</sup>. The declared availability model is also susceptible to gaming because capacity payments are made for the declaration of availability rather than the verifiable delivery of energy.

## E. Payment

### Choice of Payment and Regulatory Framework Model

93. The payment model and regulatory framework for the Capacity Market are the basis on which capacity providers receive payments in the delivery year.
94. We intend that the regulatory framework for the Capacity Market will be a single set of rules and capacity providers who are successful in the auction will be issued agreements containing key terms, for example the price won in the auction, any indexation, the quantity

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<sup>13</sup> Although prices in the wholesale market should be lower and less volatile than they would have been without a Capacity Market, participants in the Capacity Market may still be rewarded by high prices in the energy market at times of scarcity, as well as by capacity payments.

of capacity to be delivered and the length of the agreement. This is similar to the bilateral connection agreements in the Connection and Use of System Code (CUSC). This would provide investor certainty regarding payment levels and the length of the obligation.

95. To provide reassurance in the stability of the rules underlying capacity agreements, any changes to Capacity Market rules contained in codes or licences would be controlled by a formal governance process. We are investigating ways to provide certainty on Capacity Market rules created in regulations.
96. We intend to proceed with a settlement agency payment model for the Capacity Market. It is envisaged that the settlement agency would make back-to-back payments (i.e. within day) between suppliers and capacity providers. This is different to the counterparty body model proposed for the CfD. This would be underpinned by collateral held by the settlement agency and mutualisation of any payment defaults by a supplier so that the settlement agency is always in a position to pay capacity providers<sup>14</sup>. We appreciate the need to ensure financial requirements and risks to participants are manageable, and will seek to minimise collateral requirements and employ strong governance procedures to provide stability. This mirrors arrangements under the Balancing and Settlement Code (BSC), which have a proven track record that should provide investor confidence and provide a full reconciliation process.
97. Enforcement of the obligations on suppliers and capacity providers to make payments under the Capacity Market are likely to be similar to the enforcement processes of the BSC. The settlement agency would administer day to day payment flows, with Ofgem providing oversight as part of its regulatory role. As with the BSC, it is possible that appeals would be heard by an independent panel with a final appeal to the Electricity Arbitration Association.
98. There are a number of reasons why this model is appropriate for the Capacity Market:
- Ofgem will enforce the obligations on suppliers and the agreements on capacity providers. With this approach, providers and suppliers would not need to enforce the terms themselves, or pursue suppliers for non payment, since they could rely on Ofgem's enforcement to ensure payments are made;
  - The Capacity Market aligns closely with overall energy market operation. It therefore makes sense to align the arrangements for the Capacity Market with existing industry processes, for example on how changes are made to the BSC;
  - The Capacity Market will need to evolve over time, which the use of agreements, regulations and codes allows. This flexibility is a fundamental requirement of the policy design and will prevent the Capacity Market being locked into an inefficient or

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<sup>14</sup> In other words, if a supplier is unable to make payment and their collateral is not sufficient to cover the debt, other suppliers will be charged a proportionate share of the outstanding payment.

ineffective design as the energy market evolves and improvements in the design of the Capacity Market are identified; and

- Some of the key terms of longer term capacity agreements (e.g. price) can be protected from changes, thus providing investors with the certainty they need while also maintaining the flexibility for the Capacity Market to evolve over time. Such protection can come in the form of placing terms in the bilateral agreement, a strong governance framework for changing rules contained in codes and limiting retrospective changes to rules.

### Recovering Monies from Suppliers

99. We are considering how best to apportion the costs of the capacity payments to suppliers according to proportionality, the stability of the payment amounts and avoiding unintended consequences such as dampening competition.
100. There are a number of ways in which a supplier's obligation could be calculated. These include, for example, apportioning costs to suppliers based on their market share, taking account of, for example:
  - scarcity periods;
  - peak demand - estimated, future or historical;
  - half hourly demand or annual demand; or
  - number of customers and customer profiles.
101. We intend to appraise these options with support from industry experts from supply businesses, and will make final proposals on cost apportionment by May 2013.

## Devolved Administrations

102. The Capacity Market will not apply in Northern Ireland, since Northern Ireland is part of a separate capacity mechanism covering Ireland and Northern Ireland. We will however continue to work with colleagues in Northern Ireland on relevant design issues.
103. The Capacity Market will extend to Scotland and Wales. We will continue work with colleagues in the Scottish and Welsh Governments to ensure we develop the best possible design for the GB market as a whole.

## Forthcoming Work and Next Steps

104. Although the design proposals set out here are significant, particularly on the penalty model and eligibility rules, there are still a number of areas in which further design choices are needed before the Capacity Market can be implemented. These include:
- Finalising the auction design. As is clear from the text on auction design above, there are a number of choices still to make on auction design, including the most efficient auction format and the appropriate contract lengths for new and existing plants;
  - Finalising the detail of the penalty model. Now that Government has chosen an energy delivered penalty model, there are further choices to make including on the capping of liabilities, whether capacity is profiled, whether to include maintenance windows and the arrangements for secondary trading. We are also doing further work to develop solutions that help mitigate risks and increase the efficiency of this model;
  - Further development of the payment and regulatory framework model. In particular, how capacity costs will be recovered from suppliers, collateral requirements for suppliers and providers and governance of changes to the rules;
  - Development of a reliability standard which will guide the level of capacity to contract in each auction process. We will consult on any reliability standard for the Capacity Market as part of the consultation on the draft delivery plan in July 2013;
  - Making proposals on institutional arrangements for overseeing the Capacity Market. This includes the various roles and responsibilities of the relevant organisations, and analysis that will inform the delivery plan (see Annexes D and E); and
  - Developing more detailed eligibility rules, such as how exactly the proposed transitional approach for DSR and storage will work, whether RO plants can participate and any minimum eligibility criteria (e.g. size).
105. Once the design is further advanced, we will also need to prepare and test draft capacity agreements.
106. We are continuing to work with the Capacity Market Expert Group on these issues, and our engagement with other EU Member States.
107. The Government recognises the importance of clarity for investors on the forward process for the Capacity Market, and will aim to publish final detailed design proposals on the Capacity Market by May 2013, and alongside this, provide further details on the possible timing for a 2014 capacity auction.

108. We will develop the detailed secondary legislation and code and licence changes necessary to introduce the Capacity Market over summer 2013.
109. If running the first Capacity Market auction in 2014, we intend to consult on the final proposals and detailed rules from October 2013 onwards.

# Stakeholder engagement

110. We have established an expert group to test and help develop Capacity Market design proposals. The group meets every 2-3 weeks and includes representatives of:
- Government;
  - Ofgem;
  - National Grid;
  - Energy companies;
  - Demand side response; and
  - Consumers.
111. Members were selected on the basis of their expertise and are not bound by the views expressed in the group's discussions<sup>15</sup>.
112. We will continue to work with the experts in this group to develop and refine the design of the Capacity Market. We will also continue to work formally and informally with other stakeholders, including, if running a capacity auction in 2014, through a consultation on the detailed design of the Capacity Market in October 2013.

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<sup>15</sup> The full terms of reference for the expert group is available here:

[http://www.decc.gov.uk/en/content/cms/meeting\\_energy/markets/electricity/emr\\_expert/emr\\_expert.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/markets/electricity/emr_expert/emr_expert.aspx)

# Appendix: Full Summary of Capacity Market Design Proposals

Operational Phase	Design Area	Position	Further work / proposals to be made by May 2013
<b>A – Setting volume of capacity to contract</b>	When will the first auction and delivery year be held?	<p>The Government is minded to run the first auction in 2014, for delivery of capacity in the year beginning in the winter of 2018/19. A final decision will be taken subject to evidence of need. This will be informed by updated advice from Ofgem and National Grid which will consider economic growth, recent investment decisions, the role of interconnection and energy efficiency, as well as consideration of the outcome of the review of the 4th Carbon Budget.</p> <p>If implementing the Capacity Market the Government also intends to run pilot auctions for delivery of DSR and storage from 2015 – 18, to provide additional capacity during this period.</p>	
	How will we decide the volume of capacity to contract for?	<p>The decision on how much capacity to contract for will be taken by Ministers.</p> <p>We expect that this will be taken with reference to a reliability standard – i.e. an objective for the level of reliability we seek to achieve in the GB market.</p> <p>We expect that the decision will also be taken with reference to a demand curve so that cost and security of supply can be traded off against one another.</p>	Confirm whether there will be a reliability standard, and if so, consult on an appropriate standard as part of the consultation on the draft delivery plan in summer 2013.
<b>B – Eligibility and auction</b>	How will DSR and storage participate?	<p>Through the main capacity auction.</p> <p>Through transitional arrangements designed to encourage the</p>	<p>Fully develop the tailored pilot.</p> <p>Develop the approach to secondary</p>

		<p>participation of DSR and storage.</p> <p>Through secondary auctions closer to the delivery year.</p>	<p>auctioning.</p>
	How will interconnected capacity participate?	To be decided; at a minimum, contribution of interconnected capacity will be deducted from total capacity requirement to minimise impacts on single market	Finalise proposals for participation of interconnected capacity; keep arrangements for participation of interconnected capacity under review as the European and GB electricity markets develop.
	How will CfD capacity participate?	Since the CfD already incentivises plants to be available when needed, CfD plants will be excluded from the Capacity Market while technology-specific CfD prices are set administratively.	
	How will RO capacity participate?	To be decided.	Decide whether RO plants should be eligible to participate in the Capacity Market.
	What format will the auction take?	To be decided: current thinking is that a pay as clear auction is likely to deliver the best overall outcome by minimising gaming and establishing a single fair price for capacity.	Decide which auction format is most appropriate.
	How will new and existing plants participate in the auction?	To be decided: current thinking is that treating all capacity providers the same in relation to the payment they receive from the auction is likely to be the right approach.	Decide whether new and existing plants should be treated differently, and if so how.
	How long should capacity agreements last?	To be decided: current thinking is that existing plants should take one year agreements, and new plants or those requiring significant refurbishment should be able to choose contracts of up to around ten years.	Proposal on the length of agreements for new and existing plants.
	How long should the lead time between the auction and delivery year be?	Four years.	

	Will plants that begin construction between May 2012 and the first capacity auction have the option of being treated as 'new'?	Yes.	
<b>C – Secondary trading</b>	Should there be secondary auctions and trading for capacity?	Secondary auctions and trading are likely to be useful for efficiently ensuring security of supply.	Proposals on arrangements for secondary auctioning and trading.
<b>D – Delivery of capacity</b>	What are capacity providers required to do in the delivery year, and how will they be penalised if they fail to meet their obligations?	Participants will need to deliver energy or reduce demand whenever needed to ensure security of supply, and will face a penalty if not delivering in real system stress situations.	Further development of the penalty model, including proposals on the capping of liabilities, whether capacity is profiled, whether to include maintenance windows, and more detail on the interactions with the System Operator's balancing role.
<b>E - Payment</b>	What payment model will be used to oversee and enforce capacity payments between suppliers and generators?	We intend to introduce a settlement agency model.	Further develop the payment and regulatory framework model. In particular, how capacity costs will be recovered from suppliers, collateral requirements for suppliers and providers and governance of changes to the rules.

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