

Consultation on Possible Models for a Capacity Mechanism

Response form

Responses are welcome by email or post. You may find this document helpful for structuring your response, but can reply in a separate document if you prefer. If replying in a separate document please make clear which questions you are answering.

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Tick this box if you are requesting non-disclosure of your response. ☐

Please return by 4 October 2011 to:

Department of Energy & Climate Change,
Electricity Market Design – Security of Supply
4th Floor, Area D
3 Whitehall Place,
London, SW1A 2AW

You can also submit this form by email to:
DECC.capacity.mechanism@decc.gsi.gov.uk

Consultation questions

Note: the references in square brackets refer to page and figure numbers in the consultation document where more information can be found, and the questions are set out in context. The consultation document is Annex C of the Electricity Market Reform White Paper, and is available here:

http://www.decc.gov.uk/en/content/cms/consultations/cap_mech/cap_mech.aspx

Targeted mechanism

Consultation question	[page 167]
1	<p>Does this table [see Figure C3] capture all of your major concerns with a targeted Capacity Mechanism? Do you think the mitigation approach described will be effective?</p>
Response	<p>While the table broadly captures concerns of market efficiency and operations, and accommodation of different types of resources, the table does not address sustainability of DSR resources once they become operational. Sustainability is an important consideration in building a capacity mechanism that will properly incentivize new, adequate, mixed resources to be built, including DSR.</p> <p>If it is selected and implemented, the Strategic Reserve should be designed in the context of a separate but permanent market mechanism to the current electricity market. While it is certainly prudent to design periodic reviews into any electricity market construct, that review should be the basis for improvements rather than conditioned approvals for continuance. To the extent that the Strategic Reserve is subject to highly variable year to year changes in participating volumes, or to extent that it is predicated on a year-to year decision to continue, the Strategic Reserve model will not be attractive to resources that seek and need continuity for investment, or in the case of DSR, sustainability. While this may not be apparent, it is absolutely true for DSR resources. DSR can be a very flexible resource, but one thing it is not: it cannot be a resource that is here today, gone tomorrow, and be back again the next day.</p> <p>Customers that provide DSR expect a market opportunity with continuity. Once they are engaged, made ready-to-respond, and enrolled, they will not be tolerant to a temporary suspension of the program, equivalent to "having the rug pulled out from underneath them". Once disengaged, they will not re-engage until that facility manager has retired from the business. A model that seeks to engage DSR resources on and off basis will not be the path to ensure that the demand side of the market becomes a vibrant part of the UK market.</p> <p>Another concern is how soon the Strategic Reserve market can be launched. One of the key advantages of a Strategic Reserves is that it can probably be launched more quickly than a market wide mechanism. Nevertheless, if the opportunity to participate is still several years away, it will be difficult to attract and maintain the interest of potential Strategic</p>

	Reserve participants in the development process to ensure that workable rules are developed. The Government should consider implementation of a transitional interim market opportunity for non-traditional resources such as DSR, so that it can gain invaluable experience with how such resources interact in the GB market.
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Consultation question [page 168]	
2	How long should the lead time for Strategic Reserve capacity procurement be and why?
Response	A lead time of between 1-3 years is satisfactory for DSR resources. The development DSR resources generally do not typically require significant lead time for development.

Consultation question [page 168]	
3	Should the length and nature of contracts procured by the Strategic Reserve procurement function be constrained in any way?
Response	It may be appropriate and advisable to provide for Strategic Reserve contracts for a term of several years. From the description in C2.5 – C2.9 it would appear that if the level of reliability is sufficient, no Strategic Reserve may be procured if it is not needed. This means that Strategic Reserve resources may or may not have the opportunity to earn revenue in a future year. Strategic Reserve resources will likely need more than a one year revenue stream in order to cover fixed costs of development of Strategic Reserve Resources.

Consultation question [page 169]	
4	Which criteria should providers of Strategic Reserve be required to meet?
Response	The Strategic Reserve criteria should be developed to meet the resource need, not more or less, and balance that need with the capability of the resource. For example, if there is an identified need for capacity during peak periods which occur predominately during certain hours of the day of non-holiday week days, it would be advisable to establish an availability period for Strategic Reserve resources around the hours of likely potential dispatch during week days. Confining the availability requirement to the period of likely dispatch would increase the potential pool of eligible customers.

Consultation question [page 169]	
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?

Response	There are a number of factors which may affect the ability of DSR resources to participate in a Strategic Reserve. An important element of ensuring cost-effective participation of DSR is to set reasonable expectations for dispatch requirements. Potential DSR resources seeking to participate in Strategic Reserve will want to know as much as possible concerning: a) the expected frequency of dispatch; b) length of expected dispatch; c) the temporal distribution of dispatch (e.g. more than once in a week). These things can not be known for certainty in advance, but the Strategic Reserve requirements should be specific enough that comparisons with historical data can establish reasonable expectations concerning dispatch.
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Consultation question [page 175]	
6	Government prefers the form of economic despatch described here. Which of the proposed despatch models do you prefer and why?
Response	Last resort despatch models tend to ensure that DSR resources are not despatched so frequently as to create "fatigue" by participating customers (e.g. customers can find participation in DSR too burdensome if despatched too frequently or for too long a period). An economic despatch model is acceptable too, provided the despatch price is high enough to prevent too frequent despatch.

Consultation question [page 173]	
7	How would the Strategic Reserve methodology and despatch price best be kept independent from short-term pressures?
Response	The Government's proposal for a defined process before considering a change to the despatch price would be one way to prevent short-term pressures from impacting despatch pricing. It is important to provide reasonable certainty regarding despatch requirements to potential Strategic Resource bidders in any tender/procurement. Another way to ensure that the despatch price is independent from short-term pressures would be to only allow it to be changed from one tender/procurement to the next.

Consultation question [page 175]	
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?
Response	<p>The Strategic Reserve should be comprehensively reviewed on approximately 3 – 5 year intervals. More frequent reviews could result in too frequent changes that could create uncertainty regarding participation and raise costs. Aside from minor refinements, major changes to Strategic Reserve should be reserved to the comprehensive review process.</p> <p>The appropriate entity to carry out the review should be an entity that is not</p>

	a market participant and be in a position to facilitate stakeholder dialogue toward achieving consensus for reforms. The entity facilitating the review should likely not be Ofgem, as it will likely have to render a determination regarding disputed issues.
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Consultation question [page 176]	
9	Into which market should Strategic Reserve be sold and why?
Response	For DSR resources, if the Strategic Reserve resources are sold in a day ahead market, it likely would provide for greater despatch notice. The greater the dispatch notice opportunity to customers, the more customers can participate. If selling Strategic Reserve into the Balancing Mechanism would afford sufficient dispatch notice to enable DSR to participate, then selling Strategic Reserve into the Balancing Mechanism may be appropriate.

Consultation question [page 178]	
10	Do you have any comments on the functional arrangements proposed for managing a Strategic Reserve?
Response	No comments.

Consultation question [page 179]	
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?
Response	Yes, a Strategic Reserve is a workable model of a capacity mechanism for the Great Britain market. There are many details that would need to be resolved, but a key advantage of a Strategic Reserve is that it can be established quickly.

Market-wide mechanism

Consultation question [page 182]	
12	How and by whom should capacity in a GB market be bought and why?
Response	Capacity should be purchased via a central procurement authority. Models that provide for suppliers to procure capacity on a bilateral basis tend to be less transparent and illiquid, and generally do not send price signals to the market to signal a need for enhance investment.

Consultation question [page 183]	
13	What contract durations would you recommend for a Capacity Market?
Response	<p>DSR is not a capital intensive resource, and is not as dependent upon capital markets for investment in new resources. DSR typically involves bilateral contracts between the aggregator and the customer of 3-5 years, and that same contract duration for a Capacity Market would provide flexibility and certainty to DSR customers. Longer contract durations have little influence on the decision process and the potential participation of DSR.</p>

Consultation question [page 184]	
14	How long should the lead time for capacity procurement be? Should there be special arrangements for plant with long construction times?
Response	<p>The importance of lead time is that it allows for the building of a new resource between the time of taking a primary position in the market, and delivering against that position. Similar to the above answer to Question #2, a lead time of between 1-3 years is satisfactory for DSR resources. EnerNOC recognizes the need for longer lead times for some resources, and suggests that a flexible design with variable lead times should be explored.</p> <p>However, subjecting all resources to the same lead times for procurement will neither benefit all resources nor benefit the market. We recommend that the design account for the value of short lead time resources, like DSR. Short lead time is one of the key characteristics of DSR. A portfolio of DSR of tens, and even hundreds, of MWs can be procured and made ready-to-respond in one to two years, compared to typically much longer times for generation resources, including renewable resources. A capacity market mechanism that does not appropriately reward this characteristic is missing a key opportunity to reduce the market risk of inaccurate demand projections and risk of over-procurement.</p> <p>This could be accomplished by having a secondary market that allows for market changes close in to the delivery period. Since DSR has a relatively short lead time in comparison to other types of generation resources, allowing for a secondary market open to DSR will improve market efficiency and flexibility by ensuring a more competitive landscape for DSR, as well as reduce risk for consumers.</p> <p>As a point of commonality, it is difficult to see why there should be any difference in the primary lead time for a Strategic Reserve model versus that of a Reliability Capacity model.</p>

Consultation question [page 185]	
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15	Should there be a secondary market for capacity? Should there be any restrictions on participants or products traded?
Response	<p>Yes, there should be a secondary market for capacity. See our response to Question 14 above.</p> <p>Liquidity in the markets is essential for market efficiency. But it is both necessary and appropriate to place restrictions on participants and products traded. For example, requiring participants to post financial assurance to cover the market risk of their transactions is an appropriate restriction.</p>

Consultation question [page 166]	
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?
Response	<p>The advantages of a centralized approach far outweigh the disadvantages for participation of DSR in a Capacity Market mechanism, as discussed herein and in answers to Questions #17 and 18 below.</p> <p>It is important for market transparency that common technical parameters are employed to determine both the capacity that can be offered, and the basis for assessing and incentivising availability of that capacity. Central administrative rules ensure that transparency and commonality, and this will be critical to participation of DSR.</p> <p>The outline for this process follows:</p> <ol style="list-style-type: none"> (1) Resource capacity that can be offered determined by a robust qualification process that provides details of the resource and measurement criteria based on accepted industry practice, including for new resources a development plan with defined critical milestones. Resource capacity obtains an obligation in the Capacity Market at no more than its qualified capacity. Embedded in this process is allowance for the appropriate de-rated capacity of the resource based on the historical performance of those type resources, such as wind (this is not to be confused with the forced outage characteristics of the resource, which are typically accounted for by adjustments in the calculation of the required system capacity to reliably meet demand); (2) Availability criteria determined on basis of periods of time, or "system events" triggered by real time system conditions of inadequacy that deplete balancing supplies below appropriately determined levels for ensuring system reliability. For example, this might be when there is a depletion of reserves in the balancing market below predetermined levels for a specified period of time; and (3) Penalties determined on a per event basis. If the resource is despatched in the case of the above event, and it does not show up and deliver its obligated capacity, it is penalised some portion of its capacity payments. Such penalties are designed not to be punitive,

	but if the resource did not show up consistently its revenue opportunity from the capacity market would be significantly eroded, including complete forfeiture.
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Consultation question [page 191]	
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?
Response	<p>The Reliability Model as described by the DECC in this consultation would be disadvantageous to DSR and likely not result in a robust demand side participation in the capacity construct. The reasons for this will be discussed below in response to Question #18.</p> <p>But if the Reliability Market model were to be adopted, the reference market should be determined by a regulator or central body for all contracts. This approach provides market transparency and liquidity, and ensures that price signals are sent to the market for enhanced investment (see our response to Question # 12).</p> <p>A supplier- based contract model would require aggregators to contract with different suppliers under completely different call-option contracts, each of which would require different contracts with customers and different technology software delivery platforms. This is a much more expensive procurement and delivery model, and less efficient. Essentially one customer would deliver to one set of rules, while another customer that might literally be next door, or at least in the same industry vertical market, would have another set of rules. This makes for confusion at the customer level, and more difficult for market penetration.</p>

Consultation question [page 192]	
18	For a Reliability Market, how should the strike price be determined? If using an indexed strike price, which index should be used?
Response	<p>As discussed below, the issue is not just the strike price, but additionally the construct by which the strike price is implemented into the capacity market.</p> <p>In a reliability capacity market with a strike price, the strike price is generally designed to effectively cap the energy price during times of scarcity pricing by means of a claw-back in the capacity mechanism. The design allows all the generation capacity that clears to be able to participate in the reference energy market at their short run marginal costs without triggering the strike price. The philosophy is that since all the capacity that was acquired is sufficient to meet the adequacy needs of the system, then all of it should be able to compete in the energy market at their short run marginal costs without triggering the strike price. Thus, when prices do exceed the strike price, as would be the case during periods of scarcity pricing due usually to some extraordinary or persisting weather conditions, or due to some system contingency or unexpected losses of supply that creates regional adequacy</p>

shortages, these generators are expected to be on line, garnering energy revenues, and thus hedging themselves against the claw-back of the revenues above the strike price in the capacity markets.

The issue this presents to DSR is due to the uniqueness of the opportunity costs for DSR resources, which are both highly diverse amongst DSR customers (even those of the same commercial or industrial type), and highly variable across hours of the day, days of the week, and weeks of the year for any single individual customer. Thus, the above construct does not work well for DSR because the strike price, if determined based on the highest DSR opportunity cost -- even if such cost were some weighed average of an individual customer's opportunity cost -- would likely be excessive.

The other aspect of the strike price is the methodology by which it is implemented. To facilitate the ability of DSR to participate and compete in the Reliability Market construct, it should represent a cap on the price of energy that DR would earn in the electricity market, rather than a claw-back in the capacity market. As such, it is not really part of the DSR capacity market, except that its presence in the electricity market is the direct result of the procurement of adequate supply in the capacity market.

The alternative is the methodology whereby the strike price is implemented only for the DSR that delivers energy in the energy market; if it chooses not to deliver, then it might be subject to availability penalties, but not to strike price claw-back.

Otherwise, the determination of the strike price, at whatever level, will only serve as effectively reducing the capacity market revenues for DSR without the opportunity for hedging against such claw-back by participation in the energy market. It will effectively represent a tax on DSR in the capacity market. In effect, it becomes a punitive penalty in the electricity market passed on as a penalty in the capacity market. It fundamentally does not work for DSR.

Instead, the construct should include an availability penalty in the capacity market sufficient to provide the appropriate incentive for supply resources that have a capacity obligation by virtue of an auction mechanism to provide energy (or in the case of DSR to reduce energy consumption) during a system reliability event. Employing a significant availability penalty will serve as the primary incentive for performance in the capacity market (see our response to Question # 16 above). This strike price mechanism becomes less of a penalty and more a cap on the net cost of energy to load in the electricity market.

Consultation question

[page 193]

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?

Response	<p>The critical consideration for DSR, regardless of the level of physical backup employed, is that DSR must be allowed to participate in acquiring a capacity commitment <u>prior</u> to having actual contractual relationships between the aggregators and the customers. To the extent that physical back up is a requirement, DSR should be allowed to present a detailed procurement plan, including the measurement and verification approach that will be used, together with critical milestones for that plan.</p> <p>This can be accomplished, for example, in a qualification process prior to the capacity commitment process (auction). See our above response to Question # 16, item (1).</p>
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Consultation question [page 194]	
20	<p>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?</p>
Response	<p>Yes, we agree that a vertically integrated market poses issues for a Reliability Market.</p> <p>We suggest that the reliability contracts be centrally procured, on behalf of consumers, rather than allowing individual supplier contracts. This alone does not fully address the issue, since in practicality, a vertically integrated company can elect to self-supply and internally hedge their risks of supply. But this would require full transparency of that self-supply and make that self-supply subject to the same market rules as all the other players.</p> <p>The second aspect is to require that any capacity participating in the capacity market would need to be qualified; i.e., meet certain stringent requirements as a condition of participating. See the above answers to Questions 16 (item (1), and 19.</p> <p>The third aspect is some form of financial assurance on the qualified capacity as a condition of participation. This puts "skin in the game" on the part of the supplier of capacity. Return of that financial assurance is predicated on the delivery of the obligation against the capacity commitment. Since forfeiture of the financial assurance would be at the system level, this effectively prevents the simple transfer of monies between the generation side and supplier side of vertically integrated companies.</p>

Consultation question [page 195]	
21	<p>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?</p>
Response	<p>No comments. EnerNOC would be keen to participate in continued dialogue on this issue.</p>

Consultation question [page 196]	
22	How can a Capacity Market be designed to encourage the cost-effective participation of DSR, storage and other non-generation technologies and approaches?
Response	<p>See responses to Questions #5, 14, 17, and 18.</p> <p>A fundamental tenet of any Capacity Market design should include an opportunity for DSR participation as a supply-side resource, both in the primary and in the secondary markets, in a manner comparable to generation. It will be important to define the capacity product, or products, requirements that permit DSR, storage, and non-generation technologies to participate.</p> <p>We do not agree that DSR typically cannot offer reliability for long periods and is therefore better suited to secondary markets. This appears to confuse commitment periods with despatch event duration. While it is true that DSR cannot be despatched for exceedingly long periods of time due to customer fatigue, the resource can be contracted for long periods covering one or multiple capacity commitment periods.</p> <p>We also do not agree that treating DSR as reducing capacity supply obligations by subtracting them from suppliers' capacity targets in the capacity market is a viable market opportunity, and would not result in any substantial demand elasticity in the GB market.</p>

Consultation question [page 199]	
23	Do you have any comments on the functional arrangements proposed for managing a Capacity Market?
Response	No comments.

Consultation question [page 199]	
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?
Response	<p>A triggering mechanism for establishing a capacity market will be counterproductive. Even in the absence of a triggering event, the existence of a trigger will introduce major uncertainty for those needing certainty in order to make investments. Following the establishment of a capacity mechanism, the existence of a trigger that could cause the capacity mechanism to terminate creates continuity concerns that would be deleterious for capacity suppliers and may deter interest in participating in a capacity market.</p>

Consultation question		[page 199]
25	What is the most appropriate design of Capacity Market for GB and why?	
Response	<p>The most successful Capacity Market mechanisms are those that are administered by a central procurement entity to ensure transparency, liquidity, and market efficiency. A Capacity Market mechanism should allow all resources with the capability to meet the capacity resource need, including DSR resources, to participate and receive compensation. The obligations of various capacity resources should be comparable, but this does not mean they should be identical. DSR resources have different attributes than generation resources serving a capacity function, and while both should be expected to meet the resource need, it is appropriate to provide for differences between the resource types.</p> <p>Similar to the response to Question #1, another important consideration in implementing DSR into a Capacity Market is the timing for launching that new market. Designing and implementing a market wide mechanism would likely be longer than for a Strategic Reserve approach and certainly several years away. It will be difficult to attract and maintain the interest of potential Capacity Market DSR participants in the intervening years during the development of the market rules and implementation of those rules. The Government should consider implementation of a transitional interim capacity market opportunity for non-traditional resources such as DSR, which allows both the participants and the Government to gain invaluable experience with how such resources interact in a capacity market.</p> <p>It is noteworthy that no market-wide capacity model has been launched in the U.S. absent an interim DSR capacity program as a transitioning mechanism.</p>	

Capacity mechanism Assessment

Consultation question		[page 210]
26	What are your views on the costs and benefits of a Capacity Mechanism to industry and consumers?	
Response	<p>Capacity mechanisms have been particularly effective at leveraging the latent capabilities that exist in DSR resources. Accordingly, capacity mechanisms have the potential to unleash a tremendous cost-effective resource that generally do not materialise as effectively with energy only market structures. In other markets around the world, participation by DSR resources have dramatically improved reliability and brought costs in line, particularly in regions where it is difficult to site new generation or build transmission.</p>	

Consultation question		[page 211]
27	Which Capacity Mechanism should the Government choose for the GB	

	market and why?
Response	<p>EnerNOC does not have a firm position regarding preference for a capacity model, but strongly recommends that either must provide a competitive opportunity for DSR to participate, and to do so, must recognize the characteristics of the resource.</p> <p>Neither mechanism is well enough defined, especially in terms of the product requirements. Either mechanism could provide an opportunity for DSR, and either model could be designed to effectively create barriers to the participation of DSR; the devil is in the details of both.</p> <p>If the capacity mechanism seeks to effectively integrate DSR into the mix of resources and allow DSR to compete with other resources, then the design needs to accommodate and appropriately value the unique characteristics of DSR; these include:</p> <ul style="list-style-type: none"> ○ Short lead time to build – see response to Question #14 ○ Diverse and variable opportunity costs – this impacts the type of market-wide model, and specifically the issue of strike price in a Reliability Market model; see response to Question # 18 ○ Quick response, but limited duration resource; i.e., low energy delivery resource

Please select the category below which best describes who you are responding on behalf of.

- ☐ Business representative organisation/trade body
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- ☐ Individual
- ☐ Large business (over 250 staff)
- ☐ Legal representative
- ☐ Local Government
- ☐ Medium business (50 to 250 staff)
- ☐ Small business (10 to 49 staff)
- ☐ Micro business (up to 9 staff)
- ☐ Trade union or staff association
- ☐ Other (please describe):

Thank you for taking the time to let us have your views.

The Government does not intend to acknowledge receipt of individual responses unless you tick this box. ☐

