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by e-mail to:
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sent by e-mail from [redacted]

Dear Mr Wieckowski,

Consultation on Possible Models for a Capacity Mechanism: RenewableUK and Scottish Renewables Response

Summary

RenewableUK and Scottish Renewables welcome the opportunity to input into DECC's considerations regarding how to secure the availability of affordable electricity at all times, in the context of peak capacity margins that may become narrow. We find it difficult to comment on our preferred form of capacity mechanism as there are so many uncertainties in relation to how the mechanism will operate in the wider market. In particular:

- The role of the capacity mechanism is not entirely clear. Is it to secure long-term generation capacity; or is it to play a role in short-term system balancing at times of system stress? We believe these issues should be separated out.
- A relatively small incremental potential need (for instance, more back-up generation) may undermine the development of innovative market solutions to a balanced electricity system on a day to day basis.
- The non-zero contribution of variable renewables to secure capacity needs to be assessed and acknowledged when assessing whether and what capacity is needed.
- We are concerned that demand side will inevitably be disadvantaged and discouraged, and that the use of interconnectors in a single European market has not been given the necessary attention.
- We would recommend the development and discussion of some worked examples, with realistic timescales, technologies, and energy prices, to bring the concepts to life.

This response remains at a high level, and does not therefore follow the order of the detailed questions as set out in the consultation document.

Introduction

RenewableUK and Scottish Renewables collectively represent the major sectors and technologies within the UK's renewable energy industry. As such, our response is focused on the potential impact of a capacity mechanism on the market for renewable energy and on the deployment of renewable energy technologies; and on the potential contribution renewable technologies can make to the operation of a capacity mechanism.

The Problem

The consultation suggests that technically available ("de-rated") peak capacity margins are in danger of dropping, from an average 10% to 5%, and that action outside of the market is needed to secure the availability of affordable electricity at all times. We note that it is only one set of modelling results that suggests this.

We would suggest that there are two separate potential issues:

1. Short periods when, owing to a range of unrelated circumstances, there is the risk of shortage of power or extremely high prices. For instance: the wind is not blowing, and a fossil fuel power station is out of commission, and there is a peak in demand.

2. Longer periods when, owing to strategic decisions not to invest in generation plant because of perceived lack of profitability, there is a repeated and systematic shortfall in generation capacity at peak times.

While the two issues potentially have the same result (i.e. unserved energy at peak), the potential solutions and their implications may be very different.

DECC has produced a diagram to illustrate the potential long-term capacity margin issue, as follows:

Figure 10: Peak de-rated capacity margin and expected energy unserved (GWh) to 2030

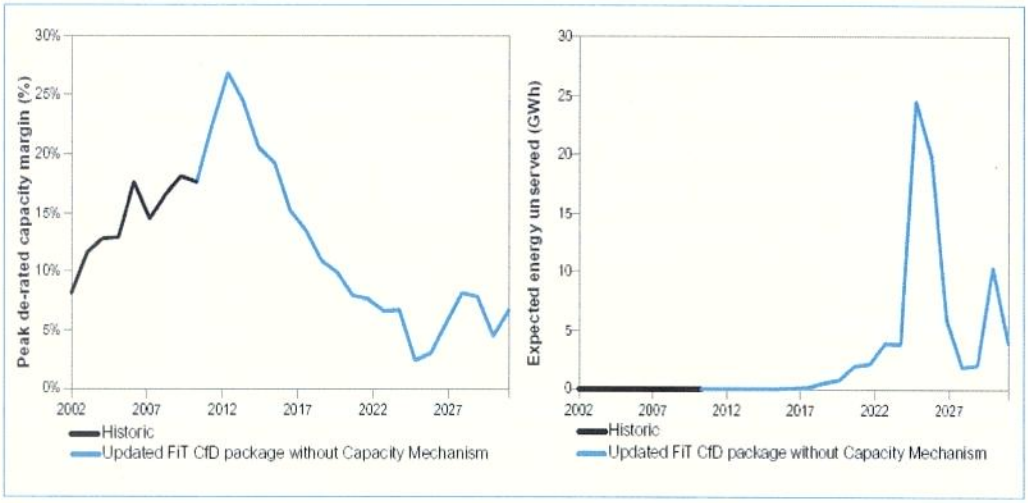

Fig 10, "Planning Our Electric Future," DECC, July 2011

We would like to see more such diagrams both for long and short-term scenarios, as worked examples, with realistic timescales, technologies, and energy prices, to illustrate which problem DECC foresees at which point in time. This will allow more informed consideration by the industry of the practical implications and potential solutions available.

The Proposed Solution

Depending on which problem we are addressing, the answer may be quite different.

Operational short-term security issues could be addressed through extension of National Grid's STOR contracting regime, by bringing in a wider range of options around DSR and storage, and having a longer time horizon. For instance, between 9 and 17 GW of "discretionary" load in the GB can be time-shifted or foregone completely.[1] Although STOR seems to be the obvious mechanism, there is scope for investigation of alternatives that are explicitly focused on obtaining the flexibility required within day, to manage large amounts of variable renewables and inflexible nuclear. An enhanced STOR regime would reduce the need for further intervention to support capacity, delay the time at which it would need to take place, if at all, and enable innovative solutions to come forward. The proposal for a "flexible plant" variant of the CfD mechanism should also, in due course, bring forward biomass or CCS plant that would contribute significantly to system security without necessarily playing in a capacity mechanism.

[1] "Demand Side Market Participation Report," IHS Global Insight for DECC, July 2009

Once the short-term, operational mechanism is consolidated, it will become apparent whether a longer-term capacity shortage is actually materialising. I.e.: the problem can be addressed nearer the time, rather than pre-empted in a way that, perversely, may accelerate its occurrence by discouraging innovation and market mechanisms to find a way through. A backstop mechanism could entail a strategic reserve or a capacity market. Since it would be a residual safety net, the strategic reserve concept – contracting with a small amount of capacity to ensure the overall amount is enough – makes sense and may be the least complex alternative, though we note the downsides also.

Risks and Benefits

The risks associated with a capacity mechanism operating outside of the markets have now been documented, including:

- discouraging investment in generation capacity within the market (on a "slippery slope")
- increasing investment hurdle rates by complicating the market (contrary to EMR aims)
- discouraging investment in demand side response as a mainstream measure, particularly where it may be coupled with the generation profiles of variable renewables plant
- depressing wider energy prices, which further discourages demand side response
- discouraging investment in merchant interconnectors

RenewableUK and Scottish Renewables are also concerned that the renewables industry in particular may suffer from the introduction of a capacity mechanism, with associated deceleration in meeting the UK's 2020 renewables targets. This is because peaking plant could potentially be able to recover their fixed costs through the capacity mechanism, and they would then be able to participate in the electricity market at their short-run marginal cost. This would unfairly render other forms of generation such as renewables less attractive.

In addition, RenewableUK and Scottish Renewables are not clear on how the capacity mechanism might work in a single European market. For example, does the Third Package mean that generators based elsewhere in Europe will be able to benefit from a GB capacity mechanism by supplying capacity through interconnectors?

For these reasons, RenewableUK and Scottish Renewables would caution against the swift introduction of a mechanism the need for which is not yet fully clear, and we would instead favour the two-step approach, looking at flexibility in the first instance.

Of course we understand the need to prepare and signal well in advance the need for any additional capacity investment. We suggest that worked examples with realistic timescales on action needed (in five years? ten years? longer?), technologies, and energy prices, all bringing

the concepts to life, will help shed light on the timing and nature of future investment requirements. The point with the two-step approach is that it may well bring forward investment in new capacity within the context of the intra-day flexibility mechanism, rendering the longer-term mechanism unnecessary.

Role of Variable Renewables

Splitting the two issues of short-term flexibility and overall capacity could help clarify the role variable renewables such as wind can play in any mechanism. Within day, wind's ability to fine-tune output swiftly should allow it to play a significant role in the flexibility part of the market. However, its limited capacity credit means it is unlikely to play a role in the longer-term backstop mechanism.

Other technologies represented by RenewableUK and Scottish Renewables[2] may yet play a more prominent role. Technologies represented can be characterised as follows:

	Wind	Wave	Tidal stream	Bioenergy	Hydro	Solar
Responsive[3]	√	√	√	√	√/ X	√
Predictable long-term	X	X	√	√	√/X	√/ X
Predictable short-term	√	√	√	√	√	√

Where a technology cannot be predicted long-term, it will be harder to sell it into the capacity market where reliability is at a premium. But tidal stream is relatively predictable even in the long term. Furthermore, because many of the above technologies are able to respond rapidly to short-term signals, there may be opportunities for them still to play a constructive role.

RenewableUK and Scottish Renewables acknowledge that low carbon technologies should not be doubly incentivised. If a mechanism emerges in which renewables, nuclear, and CCS can play a role, we would not expect CfD supported plant necessarily to participate. This is because the objective of the longer-term capacity mechanism is to encourage investment in the building of additional capacity; but if plant is in receipt of CfD support, then it has already been built and therefore does not warrant further incentivisation to this end.

Finally, when assessing capacity needs, appropriate capacity credit should be given to variable renewables. The contribution of these technologies needs to be treated in a way that is consistent with and is statistically as robust as that for other technologies such as

[2] Scottish Renewables also represents bioenergy, hydro, and solar.
[3] When natural resource is available, some technologies can respond to variations in demand more quickly than others.

thermal power stations (which, despite occasional implications to the contrary, are not 100% available or predictable). A capacity mechanism that takes no account of variable renewables at all will incur excessive costs and excessive levels of total capacity, increasingly so as the contribution from wind expands. Indeed, the contribution of embedded wind during cold, windy periods reduces demand "seen" by the transmission system to below what it is during cold, still periods. In this sense, it is already making a reliable contribution at times of peak demand.

Yours sincerely,