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Dear Sir/Madam

Response to: Energy market investigation Provisional decision on remedies

RES is one of the world's leading independent renewable energy developers. Our core activity is the development, design, construction, financing and operation of wind and solar PV projects with over three decades of experience in the onshore wind sector.

More recently we have diversified our activities and have become one of the largest developers, installers and operators of grid-connected electricity storage developers in the United States of America, where we are actively involved in Demand Side Management and electricity transmission network. We have the ambition to provide a holistic solution to the integration of variable renewables into the system, enabling the most cost-effective energy transition in our home market, the UK.

RES welcomes the opportunity to respond to this consultation as the topic covered is likely to be central to delivering a secure decarbonised power sector at least cost. In this response we make the following key points:

- DECC should modify eligibility rules to make Pot 1 a technology neutral pot in which all CfD-eligible low carbon technologies
- DECC should undertake and consult on a clear Strategic Assessment on technological desirability, availability and barriers to deployment. This should form the basis of all decisions to deviate from technology neutral auctions.
- DECC should undertake a clear and thorough assessment on the use of any minima / maxima in technology neutral auctions
- DECC should undertake and consult on a clear and thorough assessment before allocating technologies and *minimum* budget outside the technology neutral pot.
- DECC should set out why a project should not compete in the competitive auction process and *why the reserved budget allocation* is appropriate
- The CMA should have a clear remit to review DECC initial assessments to ensure these are of a satisfactory standard
- Ofgem and the Committee of Climate Change should have an obligation to review and scrutinise DECC CfD allocation decisions in line with their defined statutory objectives
- The 'order' should be downgraded to a recommendation to ensure that Locational Transmission Loss Pricing is considered as part of the ongoing market review.

Please do not hesitate to get in touch if you would like any clarification or further information.

Yours faithfully,

Response

CfD remedies

In *'Annex 1: Implications of the Electricity Market Reform'* we present a new lens, reflective of the new market structure, through which we believe the CMA should be considering its remedies.

In *'Annex 2: The real risk of inefficient allocation of CfDs'* we present evidence that is more reflective of the real risk that consumers run from the inefficient allocation of CfDs. Whilst we are very supportive of the overarching CfD remedies the CMA have proposed to date, we believe that these fall short of what is necessary. The primary reason for this is that the CMA has considered historical decisions and is working on the assumption that efficient allocation of the CfDs is a given.

The CfD framework provides DECC with a multitude of options, such as the use of maxima and minima, that could result in identical concerns to the current allocation decisions DECC has made and are deriving of the same level of scrutiny that is recommended by the CMA.

The CMA also assumes that DECC will, as a starting point, seek to allocate CfDs to the lowest whole system costs solutions leading to recommendations that are only associated with decisions to allocate CfDs outside a 'technology neutral process'. The CMA recommendations do nothing to ensure lowest cost solutions have a route-to-market through technology neutral auctions and this is despite DECC having provided no clarity on access to the CfD for the lowest cost mature technology options (onshore wind and solar PV).

After serious consideration of the CMA recommendations and in light of the evidence provided in Appendix 1 and 2, we are therefore proposing a more extensive list of recommendations, part of a coherent framework which we believe are in line the CMA intentions and that we believe are proportional to the risk of adverse impact on competition that inefficient allocation of CfDs represents for consumers. These are:

- DECC to modify eligibility rules to make Pot 1 a technology neutral pot in which all CfD-eligible low carbon technologies can compete, with the following default settings:
 - o Unconstrained access to the auctions for all low carbon technologies
 - o Auctions to be run annually with minimum budget/generation trajectory defined on a multi-year rolling horizon in line with plant retirement expectations and cost-effective deployment in line with overarching decarbonisation ambitions
 - o Implementation of continuous improvement process similar to that being implemented in the Capacity Market auction

- DECC to undertake and consult on a clear Strategic Assessment on technological desirability, availability and barriers to deployment. This should form the basis of all decisions to deviate from technology neutral auctions.
- With regard to deviations from technology neutral non-discriminatory auctions:
 - Deviations within technology neutral auctions: DECC to undertake a clear and thorough assessment on the use of any minima / maxima that seek to optimise technology neutral auction outcome
 - Technology specific auctions: DECC to undertake and consult on a clear and thorough assessment before allocating technologies and minimum budget outside the technology neutral pot.
 - First assessment to be undertaken based on recent Pot 2 budget announcement
 - Directed CfD contracts: DECC to set out why the project should not compete in the competitive auction process and why the reserved budget allocation is appropriate.
 - Any analysis should consider the details of the negotiated CfD terms and long-term risks to consumers.
- With regard to the published assessments :
 - The CMA should have a clear remit to review initial assessments to ensure these are of a satisfactory standard.
 - Ofgem/Committee of Climate Change should have an obligation to review these assessments in line with their defined statutory objectives.

Overview

We agree with the CMA that the priority and end goal should always be a technology neutral auction. Allocation outside this process should only be used where there is a very clear economic justification for it. We also believe that allocation outside the technology neutral process should be done using the competitive CfD auction mechanism. Allocation outside the competitive mechanism should be done as a last resort where there is a clear economic justification for this.

The CMA recommendations around the Impact Assessment are very good foundations to assess the case for exemption from technology neutral auction process. They do, however, not address the need for government to have technology neutral auctions which, as set out by the CMA, is the priority.

We believe the CMA should therefore recommend that the Pot 1 be made accessible to all low carbon technologies deemed eligible for any CfD. This includes biomass conversion, offshore wind and nuclear. This proposal would create a technology neutral auction but would not exclude HMG from using alternative allocation processes under the CMA's recommendations.

Under the current process, technologies that sit outside the Pot 1, such as biomass conversion, have not had an opportunity to compete for a CfD whilst it is clear that DECC are not necessarily in a position to identify when cost convergence of some technologies might occur.

DECC to modify eligibility rules to make Pot 1 a technology neutral pot in which all CfD-eligible low carbon technologies can compete in an unconstrained manner.

DECC to undertake and consult on a clear and thorough assessment before allocating technologies between pots and the CfD budget to the different pots

In the final report we believe that the CMA must call specifically for this assessment to be undertaken immediately in light of the significant Pot 2 budget announcements which have, once again, not been accompanied by any assessment or evidence of cost-effectiveness to provide justification.

Recommendation: DECC should undertake in earnest the first assessment of the recent Pot 2 budget announcement , in line with the CMA recommendations.

Recommendation: Ofgem and the Committee of Climate Change should have an obligation to review assessments on an ongoing basis in line with their defined statutory objectives.

In Annex 2 Figure 1 we illustrate the impact that no allocation to Pot 1 technology would have on consumer cost and our ability to meet our decarbonisation commitments.

Both Annex 2 Table 1 also illustrates how DECC can justify the desirability and need for CfD allocations to offshore wind, broadly at any cost, if we are to meet our decarbonisation agenda and thus how this remedy could fail to ensure allocation for the most cost-effective mature renewable energy.

Recommendation: Technology neutral auctions to be run annually, ideally with minimum budget/generation trajectory defined on a multi-year rolling horizon in line with plant retirement expectations and cost-effective deployment of low carbon capacity to match overarching decarbonisation and security of supply ambitions

There is a need to balance consumer interests by avoiding unnecessary over-allocation whilst providing a level of certainty for developers. We therefore believe that the CMA should not recommend that DECC uses fixed budgets. We are firmly of the view that an approach that specifies minimum budgets is a better tool to achieve this balance. This is primarily because the CfD mechanism is geared, through the capacity adjustment process, to under-deliver capacity whilst we should anticipate a level of attrition in the CfD pipeline and the possible acceleration in plant retirement rates as witnessed recently.

Recommendation: The CMA should specify the need to provide visibility on minimum budget allocations in advance to provide HMG with the ability to ramp up budgets closer to the auction to account for market risks.

DECC to set out why the project should not compete in the competitive auction process

We agree with the principles that should underpin the Impact Assessment that have been put forward by the CMA. We feel that such an analysis is a minimum and that once DECC has undertaken an impact assessment that there should be ongoing scrutiny of this process.

Although we agree with the two-step process established by the CMA, we believe that there is an additional step that needs to precede any negotiated process. Indeed, the first question that needs to be answered is whether or not there is a need for the capacity to be allocated and why that need exists. For instance, it is possible that there are barriers to developing cheaper generation plant that can and should be addressed first and at the same time their might be barriers, such as the speed at which we can deploy nuclear power generation, that cannot be overcome and need to be better accounted for. Without a thorough review of the desirability, availability and barriers to deployment of technologies it is difficult to see how DECC can undertake any of the proposed assessments.

Recommendation: DECC to undertake and consult on a clear strategic assessment on technological desirability, availability and barriers to deployment. This should form the basis of all decisions to deviate from technology neutral auctions.

Ongoing and structured technology neutral auctions greatly decrease the dependency on a single project like Hinkley Point C and therefore improve HMG's negotiating power. At the same time, annual technology neutral auctions would create a clear price benchmark against which to assess the cost-effectiveness of other allocation decisions.

Consumer lock-in

We are also concerned that CMA investigation does not appear to have looked beyond the Administered Strike Price data. The details of the CfD terms are key criteria that need to be accounted for in any analysis. For instance, Hinkley Point C terms provide protection to EDF against lower than expected utilisation rates. The existence of the term itself indicates that both parties to the contracts consider this a material risk and we believe this is reflective of our market view on the cost reduction of renewable generation technologies. Thus even if cheaper technological alternatives emerge, the consumer is still locked into using Hinkley Point C.

Recommendation: Any analysis should consider the details of the negotiated CfD terms and long term risks to consumers.

Locational adjustments for transmission losses

RES supports a more accurate accounting of system-wide costs and therefore further market reform to make sure that generators are exposed fairly to the costs that they are responsible for.

As highlighted by Annex 1, market reform must be carefully considered to ensure it delivers HMG's broader policy objectives of a secure and decarbonised power system at least cost to consumers.

We are therefore engaged and supportive of the DECC's System Integration Cost work stream that has not yet been publically launched but which we expect will cover the issue of transmission loss pricing. This agenda also encompasses a number of other work streams, for example:

- Ofgem's embedded benefit review
- Ofgem's flexibility program
- National Grid's transmission charging review

The highly desirable outcome of these ongoing work streams and review process is a holistic market reform that carefully considers the complex interactions between these component parts, overarching policy objectives, European network rules and distributional impacts.

In this regard, we do not believe that the 'Order' status of the CMA recommendations is appropriate. The CMA has not presented evidence that this recommendation has considered these whole system interactions and the impact on broader policy objectives.

Whilst we do support the need for whole-system review of market arrangements such as locational transmission loss pricing, we are concerned that the CMA does not seem to have considered historical reviews and decision by the Authorities and industry that have led to the current arrangements. For instance, it is unclear why the CMA believes that consumers are not locational and that this should not be accounted for through the charging regime. Additionally, the CMA recommends in its CfD remedies that broader distributional impacts and policy imperatives should be accounted for in the DECC allocation decisions. However, this Order does not seem to consider that these are a material consideration.

It is also unclear if this will allow the System Operator to comply with emerging European regulation and therefore raises the possibility that either National Grid will not be able to implement the remedy or will have to dismantle it after it has been implemented.

Recommendation: downgrade the Order to a recommendation to ensure that Locational Transmission Loss Pricing is considered as part of the ongoing market review.

Ofgem

As highlighted in our annexes, the effectiveness of CfD allocation is going to be a dominant factor in defining the future cost of electricity in the UK for all consumers.

As such it is surprising to us that in Ofgem's 2016 work plan the CfD is not mentioned once and that Ofgem does not seem to have any role defined with regard to the CfD mechanism.

We believe that, as a minimum, Ofgem should be providing analytical oversight on the efficiency of the CfD allocation decisions made by DECC.

Recommendations: Order Ofgem to extend its statutory obligations to cover the CfD allocation mechanism by scrutinising the efficiency of DECC allocation decisions and implementation of CMA recommendations.

Annex 1: Implications of Electricity Market Reform

Today's government has clearly reiterated its commitment to delivering a secure decarbonised power system at least cost to consumers. It is therefore sensible to suggest in the recommendation the CMA makes to DECC that these goals are absolutely central.

Policy imperatives

Security of Supply and our decarbonisation commitments are policy imperatives. Whilst the exact metric by which success is measured can be debated, what is not up for debate is that 3hr Loss of load expectations and carbon intensity targets as set by the CCC carbon budgets must be achieved.

A high risk of blackouts is unacceptable politically, socially and economically. Failing to achieve our decarbonisation agenda would be failing to meet international and national legally-binding obligations, clear cross-party commitments and the clearly stated ambition of this government, as well as seriously damage our reputation abroad.

Attractors

Today these policy imperatives have also become attractors, influencing investment decisions independently from Government's policy decisions. For instance, in our commercial modelling of a wind or solar project we take a conservative view of the carbon price projections due to the uncertainty relating to future prices whereas fossil fuel generators, namely CCGT developers, take conservative views on their plant life spend and utilisation rates to account for the impact of the decarbonisation agenda. Uncertainty has a cost and the clarity that can be provided through a more structured and rational decision making should be seen as important for consumers.

Delivering at least cost

The role of the electricity market arrangements, which is not a free-market arrangement but a highly regulated market, must therefore be designed to deliver GB policy imperatives in the most cost-effective way possible. Importantly, because these goals have also become *attractors*, it is necessary that policy uncertainty around the evolution of market arrangements is minimised.

Necessary and desirable reform

The CfD arrangements are both necessary and desirable. Necessary because our historical GB electricity market structure, mainly composed of the wholesale market and ancillary services market, was no longer capable of delivering investment at scale, let alone the investment at scale in line with our policy imperatives. The structural problems with this market structure are now broadly accepted within the UK¹ but also in the wider European context². Desirable because, as correctly identified by the CMA, the CfD provides revenue stability that has a very material impact on the cost of procuring high-capital but low-operational cost generation plant. In the context of our decarbonisation agenda, well over three-quarters of all the new-build generation needed in the build-up to 2030 must be low carbon and a great majority of the technological options accessible to the UK are high-capex low operational costs, such as nuclear and renewable energy.

¹ Electricity markets are broken – can they be fixed?, OIES, <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/01/Electricity-markets-are-broken-can-they-be-fixed-EL-17.pdf>

² Energy Economic Developments, Economic and Financial Affairs ISSN 2443-8014, Investment perspectives in electricity markets, http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip003_en.pdf

By way of illustration, for one of our typical onshore wind projects, a change in the cost of capital of 2% represents a ~£9/MWh change in LCOE. Although the change is expected to be larger for higher cost technologies, using these numbers we estimate a saving of £1.3-2.7bn per year by 2030 if the CfD is efficiently used to contract the desired low carbon generation compared to the wholesale market. This assumes a difference in the cost of capital between the CfD and wholesale market of between 2 and 4%.

CMA vision of the GB electricity market

We are keen to highlight that the lens through which the CMA has approached this investigation has not been updated to match the new GB electricity market structure. The CMA working assumption is that the CfD is a component of the “*GB wholesale electricity market*” whereas the wholesale market and CfD are both features of the “*GB electricity market*” which as highlighted above has experienced, through the EMR process, necessary and desirable reform.

This distinction is very important because whilst we very much welcome the overarching recommendations put forward by the CMA, we are not comfortable that these will invariably result in decisions that will protect consumers from inefficient allocation of CfDs.

This should be of real concern as it is our view that the cost of generation, and cost to consumers, will be predominantly defined by the CfD in the foreseeable future. A number of analyses have highlighted the increased costs to the system that could result from inefficient allocation of CfDs. In most of this work a level of cost reduction, often aggressive cost reduction, has been assumed for immature technologies such as offshore wind. At the same time limited, if any, cost reduction has been assumed for mature technologies such as onshore wind. As onshore wind developers we are experiencing the impact of competitive tensions first hand. It is driving innovation in project development, business models and financial strategies and we expect a steep reduction in the cost of onshore wind as a result of a shift to competition. We are also witnessing cost reduction driven by the global market, which should continue.

Because of this, we believe that the cost to consumer estimates that would result from inefficient allocation of CfDs underestimate the potential impact.

Annex 2: The real risk of inefficient allocation of CfDs

In the previous section we highlight both the need and desirability of Electricity Market Reform and the CfD mechanism. What we do not discuss is the scale of the challenge and possible impact of ineffective allocation of CfDs.

The energy gap

Between 2020 and 2030 we will need to bring online 177TWh of new generation capacity on the system. Over 80% of that, 166TWh, must be low carbon generation.³

That represents 16.6TWh/yr build-out over 10 years. Table 1 illustrates this in terms of equivalent installed capacity by technology and provides a backdrop on the record level of deployment for each technology and an illustration of historical average buildout rates.

Table 1 - Capacity equivalent of 16.6TWh of generation against back-drop of maximum historical build rates and running average build rates. PV data is ballpark as we do not have access to a single database we deem captures all PV deployment.

Scaleable technologies	Equivalent annual build [GW]	Max historical build achieved in a year (GW)	Running average (GW)
Onshore wind	5.9 @ 32% Load factor	1.3	0.9 (2009 to 2015)
Offshore wind	4.0 @ 47.5% LF	1.2	0.8 (2009 to 2015)
Solar PV	17 @ 11% LF	~5	~2
Nuclear	2/3rds of HPC @ 90% LF	2.4 (1976)	0.7 (1976 to 1995)

Table 1 highlights that no single technology can deliver the required annual generation deployment on a sustained basis. In fact, even at historical running average build-rates all these technologies can only deliver 13.6TWh of generation capacity per year, 2.7TWh short of what is deemed necessary today, highlighting the sheer scale of the challenge at hand.

Our priority must be to deliver cost-effective deployment. In this regard, it is critical that we do not over deliver on the desired capacity, as this comes at an extra cost to consumers. It is also key that the delivery rates remain achievable, stable and sustainable if generation is to be procured in a cost-effective manner whilst maximising cost reduction and supply chain benefits.

Cost-effectiveness is one of the fundamental principles that underpins the principles behind stable and gradual reduction of our carbon budget trajectories. Today the industry does however face a hiatus in CfD allocation for many low carbon technologies which seriously threatens our ambitions for cost-effective decarbonisation and if our average deployment rates are anything to go by, our ability to meet our decarbonisation targets.

No obligation to undertake technology neutral auctions

The clearly stated ambition of the CMA to ensure cost-effective allocation of CfDs is one that support. However, the current CMA recommendations do not ensure this because they do not recommend the implementation of technology neutral auctions.

³ CCC 5th carbon budget report and and technical annex for the power sector, <https://www.theccc.org.uk/publications/>

We feel that this omission is based on the understanding that allocation of CfDs to the most competitive low carbon generators is a given. This is, however, not the case as is highlighted by the cancellation of the Pot 1 allocation rounds and no visibility on future Pot 1 rounds.

Under the current CfD framework there is no justification to not provide an ongoing and sustained route-to-market for lowest cost low carbon generators. In Figure X we use some of the principles that should underpin the current CMA recommendations to highlight the possible impact on consumers' bills that could result from a discontinuation of the allocation of lowest cost renewables.

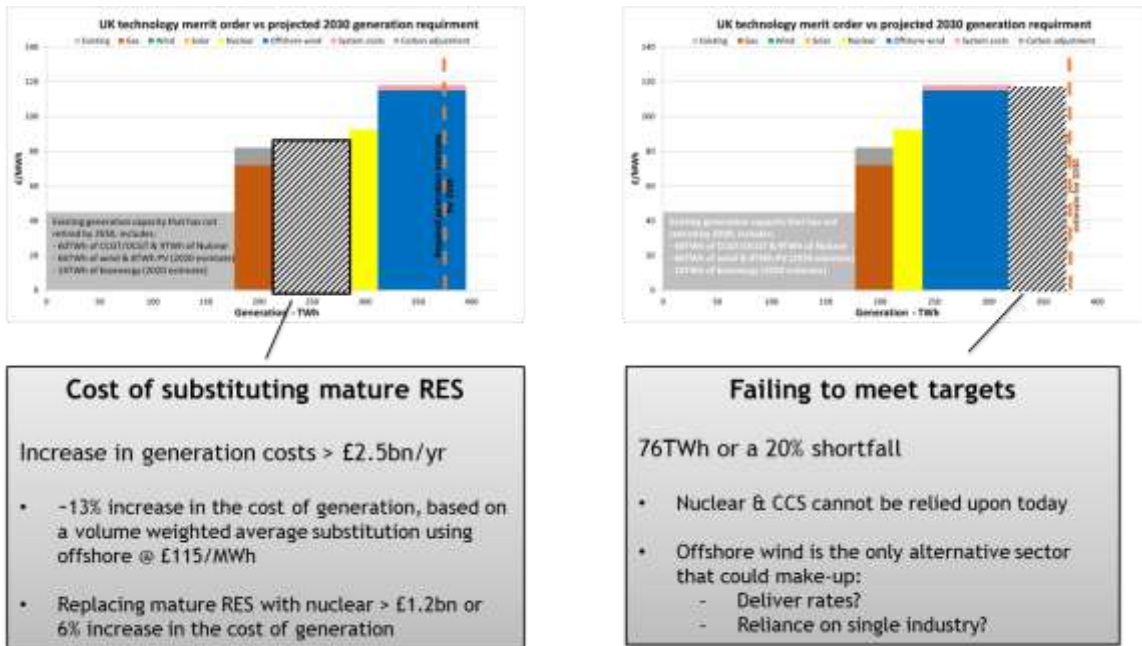


Figure 1 - Illustration of the cost increase and generation gap created by an allocation hiatus for Pot 1 technologies using know cost data (auction clearing prices, HPC administered strike price, etc.)

Within this analysis we have integrated the CCC work on System Integration Costs. This work highlights that even at significantly higher rates of penetration (40GW of wind or 20GW of solar PV vs the current 13.6GW and 8GW respectively) the System Integration Costs of variable renewables (see Figure 2) do not make these more expensive than the next cheapest alternative, Hinkley Point C before adjusting for the significantly more generous terms it enjoys.

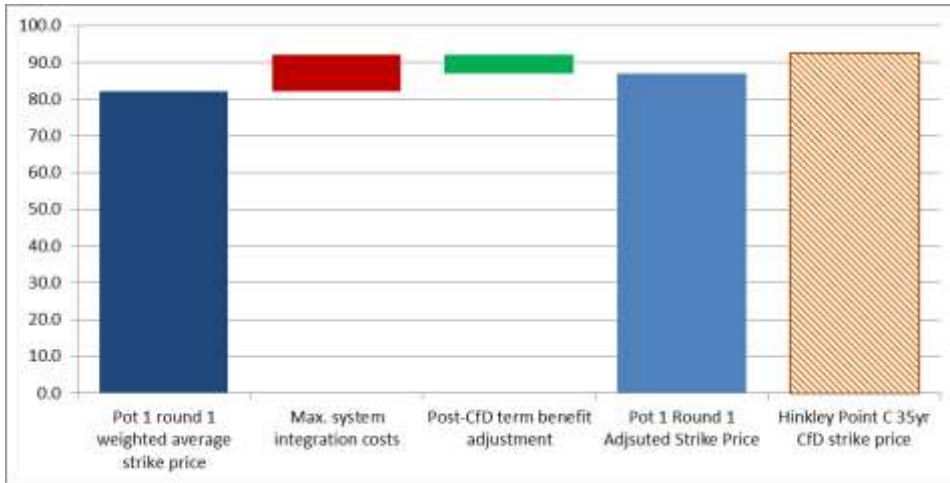


Figure 2 - Pot 1 Round 1 weighted average clearing price adjusted for system integration costs of £10/MWh (equivalent to 40GW wind / 20GW Solar PV) vs Administered Strike Price of Hinkley Point C (£ in 2012) – System integration cost data from the CCC 5th Carbon Budget report.

It is important to understand that this adjustment accounts for the back-up generation requirements for these technologies and thus addresses reliability concerns. Mature variable renewables as procured through Pot 1 Round 1 auctions are cheaper than Hinkley Point C on a like-for-like basis.

It is also important to note that at current levels of deployment System Integration Costs are considerably lower (see Figure 3) whilst at the same time we are of the view that the CCC work double counts a number of system costs that variable generators are already, at least partially, exposed to.

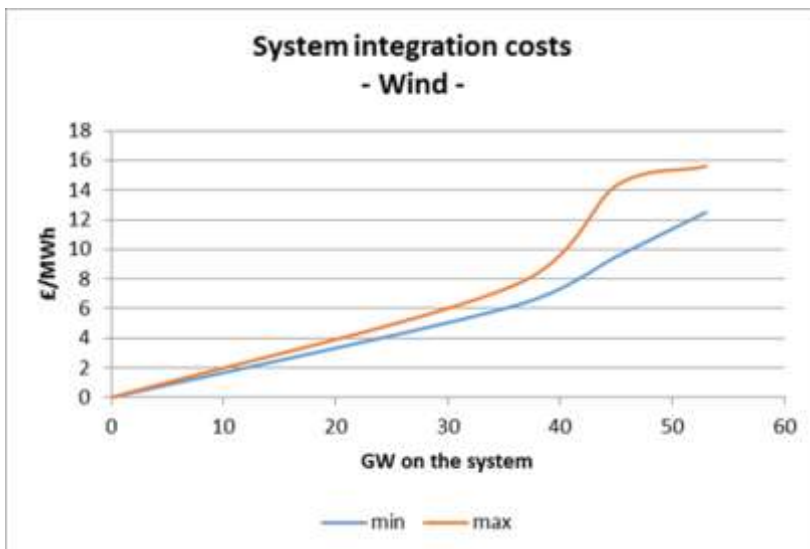


Figure 3 - Range of system integration costs of wind vs deployment rates based on Committee of Climate Change 5th Carbon budget data - a sudden increase in costs in the upper bound range is linked to increasing levels of curtailment. Note: System Integration Cost analysis is still in early stages and requires significantly more work.

Recommendations

A cost-effective deployment strategy requires clarity and certainty over regular technology neutral auctions, the modified Pot 1. We believe that this would be best delivered by a programme of annual technology neutral auctions with minimum budget set-out in advance.

We also share the CMA concerns, highlighted by the NERA analysis, that running technology neutral auctions without constraint on low cost technologies does not necessarily deliver an efficient outcome for consumers. We also agree that in some instances, guaranteed deployment is necessary to secure broader cost reduction objectives for desirable technologies. In both instances, DECC have the tools, from the ability to define minima and maxima within a competitive CfD process or through the multiple allocation processes, to manage these imperatives.