ELECTRICITY MARKET REFORM
Comparing Contracts for Difference to the Renewables Obligation

An analysis undertaken for Scottish Renewables
Updated to take account of the Draft CfD
5 September 2013
Introduction

Today renewable generation projects in the UK benefit from financial support, delivered by the Renewables Obligation (RO). The UK Government has for some time signalled its intention to end the RO mechanism and replace it with a different support mechanism, Contracts for Difference (CfD). We have been commissioned by Scottish Renewables to review the draft CfD contract and prepare an analysis comparing the risk profile under the RO mechanism with the risk profile expected under the CfD arrangements.

The purpose of this analysis is to compare the risk profile associated with investing in CfD supported projects against the current risk profile associated with investing in RO supported projects. This is a qualitative analysis and we will not seek to quantify any differences in risk profile. The purpose is to assist the industry in developing its understanding of the different legal consequences of RO support and CfD support.

In this note we will use the expression “investors” and “investment” to cover all forms of capital used to finance a project.

**Update:**

DECC issued the draft CfD contract for consultation earlier this month. We have updated our report (published 25 July) in light of the additional information now available. In order to make clear the changes which have been proposed by DECC, our update takes the form of a series of Update Boxes.

Having completed this update we are still of the view that it is not yet possible to conclude (as DECC has done) that the cost of financing projects under the CfD will be lower than the RO, and in particular, whether debt providers will provide debt on the basis of a higher gearing. No evidence has been provided to support such a conclusion in the updated CfD proposals and in particular no evidence of the level of reduction in financing costs which might be possible.

As we said in our original report, given that the strike price calculation is to be evidence based, we would ask whether a financing cost adjustment should be made to the RO levelised costs without evidence that financing costs have in fact reduced.

**A Bit About Brodies**

Brodies is a Scottish headquartered law firm offering the largest specialist legal resource in Scotland. Our Renewables Group comprises more than 30 sector experts and continues to expand. We have a strong practice in advising developers and investors in independently financed renewables projects in a range of sectors. In the past five years we have advised developers and investors on more than 40 such projects to have reached financial close in the UK. All of these projects have been supported either by the RO or feed in tariff mechanism. This experience enables us to assess the potential investability of projects under the RO and the proposed CfD arrangements.

We advise developers, lenders, investors, utilities and landowners throughout the UK. Our lawyers design projects to meet the requirements of the financing markets which is critical, given that these markets have been in a state of flux. Those lawyers advise clients across the sector, including wind, hydro, waste to energy, energy
efficiency, bioenergy, solar and heat. We advise clients on the entire lifecycle of a renewables project including site acquisition, consenting, construction, financing, operations and, ultimately, sale or refinancing. This includes obtaining consents, turbine and equipment procurement, grid connection, energy trading and advice on regulatory support mechanisms.

**Investment Risk Analysis**

This section of the report compares the principal investor risks in CfD and RO supported projects. It analyses the risk from the point in time when a final investment decision is made to procure generating equipment and build out the project. In independently financed projects that point in time is financial close i.e. when debt funding is legally committed to the development by the lender. Development risks are considered in the next section – these are the risks taken by developers before financial close or final investment decision.

**Eligibility risk**

This is the risk that the project will not be entitled to receive support under the relevant support mechanism at the time when the final investment decision is made.¹

Currently, under the RO, the generator takes the risk that the project will be entitled to receive ROCs as a project cannot be fully accredited until it has been commissioned. Under the CfD proposals, the risk profile will change as the CfD will be awarded prior to the final investment decision.

Generators and investors currently accept this risk in a typical RO project as there is a statutory entitlement to support based on clear definitions and a clear statutory accreditation process. The change in process under the CfD arrangements is welcome to investors. However, given that investors are generally comfortable with the entitlement and accreditation process under the RO we do not consider the new arrangements will significantly alter the perception of this risk by investors.

It is difficult to assess at this stage whether CfD support will be offered to all projects currently eligible for RO support. The secondary legislation and guidance that would specify what technologies/projects are eligible for CfDs has not yet been published. We are currently working on the assumption that technologies that currently receive RO support will also receive CfD support with the exception of dedicated biomass without CHP which has not been allocated a strike price and which DECC are proposing to cap under the RO.

In summary, we consider that the eligibility risk profile for investors will reduce slightly under the CfD.

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**Update:**

DECC has confirmed that generators on larger projects will have to submit, alongside a CfD application, a letter from Government certifying that they have provided a compliant supply chain plan. Our understanding is that this is a plan for supply chain procurement rather than a settled supply chain list.

**Comment:**

- Little detail has been published. If approval by another Government agency is required and that approval is

¹ See Availability risk in the Development Risk Analysis below for consideration as to whether a project will qualify for support.
any way discretionary this proposal has the potential to be significant. However, if it is only an information requirement, it should simply be an administrative requirement.

- The threshold for large projects and the content required to be submitted are yet to be published.
- There is no indication of whether generators will have a legal obligation under the CfD to comply with the certified supply chain plan.
- Generators may want to influence content. We consider submission of a non binding procurement and contracting strategy would be feasible. However, a generator will not make substantial legal commitments to its supply chain until a CfD has been issued. Therefore binding compliance and identification of supply chain members would be impracticable.

In summary, we still consider that the eligibility risk profile will reduce slightly under the CfD as per our original report. However, this is subject to the publication of further details on the supply chain plan requirement as that additional requirement has the potential to increase the eligibility risk profile of a CfD project.

Energy yield risk

This is the risk that actual energy generated is different from the forecast energy yield assessment. Currently, under the RO, the generator takes this risk as ROC entitlements are calculated by reference to metered output. Therefore, the revenues in a typical RO project will predominantly be made up of power sales, which are dependent upon the amount of energy generated and the number of ROCs to which the project is entitled, which is again dependent upon energy yield. Under the CfD proposals, this will remain a generator risk as CfD payments will be calculated by reference to metered output.

Generators and investors currently accept this risk in a typical RO project provided they have verifiable data on the wind characteristics at the site. We consider the same mitigation will be used in CfD supported projects.

The point at which energy output is measured also affects yield comparisons. Under the CfD arrangements it appears that the metering point will be the Boundary Point (as defined in the BSC) i.e. the point of connection to the GB transmission system or local distribution system. This contrasts with the RO where metering at the point of generation is permitted. For offshore technologies, under the offshore transmission arrangements, the Boundary Point will be the onshore connection point. This means that offshore transmission losses will be discounted under the CfD arrangements and that therefore the energy yield for a CfD supported project will be lower than under that of a typical RO project.

In summary, we consider that the energy yield risk profile for both RO and CfD supported projects is similar except for projects which will experience transmission losses between the point of generation and the point of export to the grid.

Update:

DECC has provided detail on the calculation of 'loss adjusted metered output'. That is the export volume for which CfD payments will be made. As stated above, the metering point is the Boundary Point. The 'loss adjusted' part is to adjust the metered output for transmission losses. The calculation will be carried out in
accordance with Section T of the BSC. This is different for the RO where no such adjustment is carried out in order to allocate ROCs.

**Comment:**

- It is not obvious that transmission losses should be imputed to generators at all (given they cannot influence them), and embedded generators in particular (given that they connect to the distribution network). If this deduction is to be applied to embedded generators a measure of distribution system losses would be more appropriate.

- There are now two mechanisms by which energy yield will be reduced in calculating CfD payments – losses between the point of generation and the point of connection to the network, and the imputing of a proportion of losses over the transmission network itself.

- This means that the definition of energy yield used to calculate CfD payments will always be less than the energy yield used to calculate the RO entitlement. In turn, this means that, all other things being equal, the value of CfD payments will be less than the value of RO support. We consider investors will expect this to be taken into account in comparisons between the values of CfD and RO support.

In summary, it is now clear that the energy yield position of a CfD project is less favourable than that of an RO project.

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### Revenue/price risk

This is the risk that revenues received for a project (based on the prices received for electricity sales and the value of the relevant support mechanism) is lower than forecast (i.e. excluding energy yield risk dealt with above).

On a typical RO project, revenue will include income from the sale of electrical output and the sale of the ROCs allocated to the project. The generator takes the risk of upwards and downwards fluctuations in the sale price of the electrical output and the ROCs. Although the ROC element of the revenues is made up of fixed and variable elements, it is in the nature of a premium payment, the level of which does not correlate to the price of electricity. Therefore, as electricity prices go up, total revenues go up and as they go down, total revenues go down.

Under the CfD proposals, the risk profile will change. The generator will receive revenues from sales of electrical output and a difference payment from the CfD Counterparty, that difference payment being the difference between the reference (or market) price of electricity and the strike price.\(^2\) Therefore, irrespective of the movement in electricity prices, assuming a stable energy production profile for the project, total revenues will stay the same.\(^3\)

Generators and investors currently accept revenue risk in a typical RO project. Integrated generator suppliers are generally able to absorb revenue fluctuations. In a project financed development, investors will often insist that the generator mitigates this risk by 1) forward selling the first 15 years of electrical output to secure the

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\(^2\) The CfD is a two-way difference payment, so this only applies where the reference price is lower than the strike price.

\(^3\) Negative electricity prices will have a different impact on RO and CfD projects. In both cases the risk falls primarily on generators. Under the current CfD proposals, if the reference price is negative it will be assumed to be zero. In effect, a generator will have to pay a purchaser to take electricity in order to receive the difference payment. The amount which the generator has to pay – the negative price – will reduce the total revenues.
benefit of a fixed or floor price and 2) forward selling all ROCs for an agreed discount to market price. Investors will accept a discount to market price for ROCs because ROC values are underpinned by the statutory ‘headroom’ mechanism for setting the obligation on suppliers to submit a number of ROCs to Ofgem.

Under the CfD proposals, floor or fixed price PPAs will no longer be needed as the CfD itself will mitigate price volatility risk.\(^4\) Contractual arrangements to monetise the support mechanism will also no longer be required as the CfD support will be paid in money direct to the generator. A PPA will still be required for project financed developments but it will not need to address these risks.

In summary, we consider that the revenue risk profile will reduce under the CfD due to the removal of electricity price volatility and ROC monetisation risk. However, the potential for ‘upside’ revenues will no longer exist, and negative price risk (see footnote 3) will receive a lot of analysis between now and projects being financed.

**Basis risk**

This is the risk that the generator is unable to sell electrical output at the market price.

Currently, under the RO, the generator takes the risk that electricity will be sold at less than market price (e.g. under a forward contract) or that ROCs will be sold at a discount to market value, whether via arms length or intra group agreements. Under the CfD proposals, the generator will still take the risk that the electricity will be sold at less than the reference price but the risk profile will change in two ways: (i) because the reference price is linked to indices rather than a real trading market price; and (ii) because the CfD is a two way payment arrangement. The detailed mechanism for setting the reference price has not yet been provided but for intermittent technologies it will be linked to the market hourly day ahead price published on specified market indices.

Taking the first change, the basis risk under CfD arrangements is higher because there is the additional risk that the reference price is not reflective of available market prices. If the reference price is simply linked to an index, or a group of indices, there is no certainty that market participants would actually be able to trade at that reference price.

On the second change, the basis risk profile comparison differs depending on whether the reference price is above or below the strike price. When the reference price is below the strike price, basis risk operates to reduce the total revenues received by a generator. In this case, the risk profile in RO and CfD projects is similar.\(^5\) However, when the reference price is above the strike price the position is different. In a typical RO project, the generator is not subject to repayment or clawback obligations if the electricity price increases. In contrast, under the CfD, the generator will be required to make a payment to the CfD counterparty. As basis risk operates to reduce the sale price of the electricity, the payment liability to the CfD counterparty will reduce the net amount received by the generator (see worked example in table below). In a project financed development this may

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\(^4\) Although there may be a requirement for a floor price set at zero to mitigate the risk of negative prices.

\(^5\) The basis risk exists to the extent that the generator is unable to capture the reference price. Any project financed developments will need to contract with a third party to provide a trading service as a single project cannot effectively operate in the market. Integrated generator suppliers may be able to trade themselves on a portfolio basis. The cost of the basis risk is either the market price for providing the trading service or of providing an in house trading service. In an RO project it is difficult to isolate a specific cost associated with this risk as a PPA deals with a basket of risks. However, in theory, when the reference price is below the strike price, the basis risk for both RO and CfD supported projects ought to be similar.
cause the generator to have an unfunded liability, which if it persisted for long enough, could put the financial solvency of the project entity at risk.  

**Worked example:** Assume a strike price of £100 per MWh and a PPA sale price at a uniform 10% discount to the reference price.

<table>
<thead>
<tr>
<th>Reference Price</th>
<th>£50</th>
<th>£100</th>
<th>£200</th>
<th>£300</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPA Price at 10% discount</td>
<td>£45</td>
<td>£90</td>
<td>£180</td>
<td>£270</td>
</tr>
<tr>
<td>CfD Payment (negative payment due to CfD Counterparty)</td>
<td>+£50</td>
<td>£0</td>
<td>-£100</td>
<td>-£200</td>
</tr>
<tr>
<td>Generator's Net Revenue (i.e. adding or deducting CfD payment)</td>
<td>£95</td>
<td>£90</td>
<td>£80</td>
<td>£70</td>
</tr>
</tbody>
</table>

Therefore, while the CfD proposals mitigate price risk for positive reference prices less than the strike price, a project could experience reduced revenues if reference prices are high. Counter intuitively, investors will be concerned about high not low market prices.

The ability of projects to mitigate this risk will be important. It could be partly mitigated by converting the payment obligation to the CfD counterparty into a right for the CfD counterparty to offset that liability against its future payment obligations to the generator. We expect the amount of any liabilities which could not be offset would be minimal and therefore the losses to the CfD counterparty associated with this change would be minimal. However, the ability of the PPA market to respond to this risk will also be important with for example tapering discounts or other methods of charging.

In summary, we consider that the basis risk profile will increase under the CfD.

**Update:**

While the detail has yet to be published, DECC has stated that the CfD should include a deterministic mechanism for adjusting the reference indices once a CfD has been signed. The examples given for potential triggers of such an adjustment are EU market integration, new market indices or material changes to the volumes of electricity traded through difference indices. The intention would be that any change to a reference index would apply to all affected CfDs.

**Comment:**

- DECC recognises that determining the reference price by reference to indices represents a risk to investors and consumers alike. The risk is a dynamic risk – an index which is appropriate today may not reflect true market prices in the future, or the market on which it is based, may undergo structural change in the future, for example, integration of networks in Europe may change the number and location of market participants, whose markets may operate very differently from the UK market today.

- DECC is suggesting a ‘deterministic’ mechanism for adjusting the reference price indices. However, DECC is also suggesting that this decision may involve the exercise of discretion and floats the proposition of a panel of experts informing the exercise of that discretion.

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6 PPA products could be designed to address or mitigate this risk by, for example, applying a fixed cash discount to market prices rather than a percentage discount. However, for now, the development of a PPA market to support CfDs is uncertain.
Investors will be wary if the Secretary of State or the CfD Counterparty has a discretionary right to change reference price indices.

Nonetheless, without any change mechanism, investors are at risk that the day ahead indices become unreflective of true market prices and therefore the price generators are able to capture. There is always a trade off in this type of risk but we believe investors would prefer a limited, objective, change mechanic for reviewing the appropriateness of reference indices.

In summary, we still consider that basis risk will increase under the CfD. Unless only a limited and objective change mechanic for reviewing reference indices is introduced basis risk may increase further under the CfD.

**Offtake risk**

This is the risk that a generator is unable to sell the power it generates and/or monetise the support mechanism.

Currently, under the RO, the generator takes the risk that it can sell the power it generates and the ROCs to which it is entitled. The entitlement to the ROCs is not contingent upon sale of the power but in order to realise the value of the ROC, the generator must sell the ROCs to a licensed supplier. Under the CfD proposals, this will remain a generator risk as payments under the CfD are payable by reference to metered output exported to the grid.

Generators and investors currently accept this risk in a typical RO project provided they are able to enter into a long term PPA with a PPA offtaker with a sufficient credit rating, or guaranteed by an entity with a sufficient credit rating. Investors will continue to insist that generators forward sell their electrical output before committing to fund projects under the CfD proposals, at least until an alternative enduring mechanism is put in place which would guarantee the ability of generators to sell their electrical output.

A liquid long term PPA market is therefore essential if CfD projects are to attract investment. The nature of the PPA product will change, and in theory the fact the PPA providers will not need to carry floor liabilities on their balance sheet, could have a positive effect on the market. However, today, it is not possible for anyone to say with any degree of certainty that a liquid PPA market to support CfD based investments will develop without market interventions.

We understand from the DECC documents published 17 July that consultation is ongoing in this area with both a voluntary code of practice and model long term PPAs under consideration. However, no details have been published.

In summary, we consider that the offtake risk profile for both RO and CfD supported projects is similar. However, that risk is currently high and ought to be treated as a serious threat to the success of the CfD support mechanism.

**Update:**

DECC has established a steering group and two working groups to prepare the market for CfD. The working groups are developing standard PPA contracts and a voluntary code of practice for the PPA market. DECC has also developed an 'offtaker of last resort' proposal the outline of which has been published separately. The
proposed terms are intended to offer commercial terms for the purchase of power which are seen only as a back-stop by generators, rather than it being seen as an alternative to a market PPA.

Comment:

- DECC understands that the route to market is a serious concern to investors. However, it appears to have rejected the GPAM\(^7\) proposal and it seems clear that it is sees a market based solution as the best way to address the issue. Therefore investors cannot expect that low carbon generators will be given a priority route to market.

- Beyond seeking to agree standard form contracts and procedures with market participants, DECC’s main proposal is the offtaker of last resort proposal. This gives rise to a policy conundrum. A backstop proposal by definition cannot help create a marketplace but in order to be successful (and not become an alternative) a functioning marketplace must develop. DECC seems to believe that normal market dynamics will apply and PPA providers and aggregators will come into the market and create that marketplace.

- We are not so certain. In order for the PPA market to support investment PPA providers must have sufficient credit ratings or access to performance security from credit support providers with sufficient credit ratings. This is currently proving a stumbling block to the development of the PPA market. We consider specific targeted interventions may be required to reduce the need for, or increase the availability of, performance security.

- The offtaker of last resort can help, primarily by reducing the PPA contract period required to support financing. It might work something like this. A generator enters into a 7 year market PPA. A debt provider sizes the debt available to fund the development by forecasting revenues for the first 7 years as per the market PPA and the final eight years as per the backstop PPA. The combination is sufficient to raise enough funds to achieve an adequate levered hurdle rate for equity investors.

- The backstop PPA could also be available to a generator on insolvency of the PPA provider. However, this will not of itself persuade a lender to assume forecast revenues at the market PPA terms if the PPA provider does not have a sufficient credit rating. Therefore, the availability of the backstop PPA will not improve debt sizing. To achieve that, DECC would need to bring forward measures to improve access to performance security for market participants.

- DECC will have to tread a fine line. It appears to be relying on the fact that the CfD will promote higher levels of gearing than the RO in order to achieve a reduction in the hurdle rate assumed in calculating the strike price. If the backstop proposal though offers PPA terms well below market, it will significantly reduce the amount of debt a project can raise, reducing its effective gearing.

In summary, we are still of the view that the offtake risk profile for both RO and CfD projects is similar (pending publication of further details). However, the risk is significant and should not be underestimated. Establishing the route to market for independent generators and increasing participation of offtakers is critical if additional capital is to be attracted into the market. Establishing the route to market is therefore fundamental to the success of the CfD proposals.

\(^7\) Green Power Auction Market
Balancing risk

This is the risk that the actual electrical output delivered to the grid does not match the forecast output.\(^8\)

The impact of this risk is quite different depending upon the nature of the plant. For intermittent plant, electrical power delivered to the grid can only be managed on a portfolio basis. This is because intermittent plant cannot forecast its electrical output to the grid accurately enough to deliver against forecast demand on the grid. For fuelled plant, it is possible to manage this risk independently as there is both certainty and sometimes flexibility around the amount of electrical output from the plant. Therefore, any project financed intermittent plant must transfer this risk by contract to a third party. This includes situations where an integrated supplier generator chooses to refinance a project, albeit that integrated supplier generator may then offer balancing services to such a project on a captive as opposed to a market basis.

Currently, in a typical RO project, a generator is able to pass imbalance risk to a power offtaker through a PPA. Integrated supplier generators who have the ability and capacity to trade directly in the electricity market can manage their own imbalance risk. Under the CfD proposals, it is not anticipated that this risk profile will change as CfDs will not provide any imbalance risk protection to generators. The ability for a generator to manage this risk will depend upon its ability to buy protection (at a reasonable cost) from an energy trader/ power offtaker with a sufficient credit rating, or credit support. This will depend on the development of the PPA market (see offtake risk above).

Under the RO however, the costs of managing imbalance risk can, to an extent, be mitigated by corresponding increases in wholesale electricity price to take account of increased balancing costs. Under the CfD arrangements this mitigation will no longer be available as the strike prices will be linked to CPI which may not correspond to such increases.

In summary, we consider that the balancing risk profile for both RO and CfD supported projects is similar but that the financial risk associated with balancing costs will increase under the CfD. In order for the CfD model to succeed in attracting investment, generators must be able to contract with third parties on reasonable terms at a reasonable cost on a 15 year basis for that third party to accept the balancing risk, or there must be an enduring mechanism for generators to transfer this risk to third parties. Those generators managing their own imbalance risk will need confidence that the cost profile will correspond to the strike price over time.

**Update:**
DECC is considering whether to allow a degree of cost pass through for Balancing System Use of System Charges and Transmission Loss Multiplier Charges as they agree there is a value for money benefit in doing that. The details of how this compensation mechanic will operate are being developed.

**Comment:**
- The industry is concerned that balancing costs could increase with greater system penetration of intermittent generation. This is a risk which could increase over time and which remains highly uncertain. Reducing generator exposure to this risk should enable PPA providers to discount to the reference price more competitively as generators can pass the benefit of this protection to PPA providers in a PPA.

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8 Ultimately, balancing risk extends to the risk that total power exported to the network does not match power demand on the network. In those circumstances National Grid has to resolve any remaining imbalance (by buying additional power or selling excess power (either through supply or demand side change)) and passes the costs of doing so onto electricity market participants.
DECC is offering ‘a degree’ of pass through cost protection, not full protection. DECC has long been of the view that there must be a price signal for balancing costs (and German and Spanish experience can only have hardened that view). We believe the primary risk is not so much exposure to balancing risk as to the risk that balancing costs and risks may both be higher in the future and therefore the protection should focus on the risk of change to balancing costs and risks.

In summary, assuming the proposed pass through cost protection is well structured, the balancing risk profile of a CfD project should be more favourable than in an RO project.

Fuel price risk

This is the risk that the cost of fuel for a renewable generating station increases more than forecast over the life of the project.

Currently, under the RO, the generator takes the risk of fuel price increases. Under the CfD proposals, this will remain a generator risk as the current CfD contract terms make no provision for amendment to the strike price to reflect amendments in fuel prices, the strike prices will simply be indexed to CPI. However, we understand that DECC are considering this issue.

Generators and investors currently accept this risk in a typical RO project and often it can be mitigated to some extent by entering into long-term fuel supply contracts with fuel suppliers. We consider the same mitigation will be used in CfD supported projects. It will depend upon suppliers willingness to contract to supply fuel at CPI price increases. It may represent a hedge for suppliers against movements in the market price for the material they produce but the ability of the market to absorb this risk is uncertain.

In summary, we consider that the fuel price risk profile for both RO and CfD supported projects is similar.

Fuel supply risk

This is the risk that fuel supply to a project is lower than the amount required to generate the forecast energy production.

Currently, under the RO, the generator takes the risk of fuel becoming unavailable or less available. Under the CfD proposals, this will remain a generator risk as the CfD contract terms make no provision for amendment to the strike price to reflect this risk nor do they currently contain any express obligation to generate.

Generators and investors currently accept this risk in a typical RO project and often it can be mitigated to some extent by entering into long-term fuel supply contracts with fuel suppliers and carrying out technical due diligence to assess the long term viability and availability of particular fuels. We consider the same mitigation will be used in CfD supported projects.

In summary, we consider that the fuel supply risk profile for both RO and CfD supported projects is similar.
Credit risk

This is the risk that the generator does not receive payments for the relevant support mechanism due to the failure or inability of the counterparty to pay.

Currently, under the RO, most generators sell ROCs to the power offtaker alongside the electricity generated or directly to licensed suppliers. The generator therefore takes the risk that the power offtaker/licensed supplier fails to pay for ROCs. Under the CfD proposals, this will remain a generator risk but the risk profile will change due to the remedies available for payment failure by the CfD counterparty and the potential for other mitigation.

Generators and investors currently accept this risk in a typical RO project where the generator is able to enter into a PPA with an offtaker who has a sufficient credit rating. Where it does not have a sufficient credit rating, investors often require that the risk is mitigated by parent guarantees and/or letters of credit.

In CfD supported projects investors will not have the same level of flexibility to mitigate the credit risk of the CfD counterparty. It will be take it or leave it. DECC has already withdrawn its first approach to credit risk. The current approach outlined in November 2012 is better but still exposes investors to unconventional credit risks. The basis of the approach is to make the CfD counterparty insolvent remote. This is done by providing that the CfD counterparty can defend any legal claim by saying it does not have the funds to pay the amount claimed (usually called a 'pay when paid' structure). This ought to protect it from insolvency, assuming it is properly managed, and enhance its credit standing.

However, it also makes it much more difficult for generators to sue for non payment and recover unpaid CfD payments. This risk is addressed by placing a duty on the Secretary of State to levy licensed suppliers to make payments to fund the CfD counterparty. The net effect is that generators and investors are exposed to late and non payment risk by licence suppliers, albeit mitigated by loss mutualisation provisions. This is a complex analysis and investors may respond by discounting a proportion of revenues to account for the risk of late and non payments.

Credit risk works both ways. The CfD counterparty proposes to require generators to post collateral for their payment obligations (i.e. when electricity prices are above the reference price). This is different from RO projects where there is no such requirement. This is problematic since providers of collateral generally require other assets to be pledged by the generator, but in a project financed development, the only asset a generator will have is future sales of electricity which have already been sold to the PPA offtaker. Investors will therefore require to set aside more capital to provide collateral especially since the failure to provide collateral is currently designated as a termination event. If the two way payment risk is removed, through the offset arrangements we suggest at 'basis risk' above, the need to post collateral will no longer be required.

In summary, we consider that the credit risk profile will increase under the CfD.

Update:

The draft CfD reflects previous policy statements (and the draft Heads of Terms) on payment. The 'pay when paid' structure is retained and no credit support is required from the CfD Counterparty. However, alongside the draft CfD, DECC published further proposals on the design of the supplier obligation.

DECC proposes a partially fixed levy on suppliers i.e. effectively a £/MWh charge calculated on a daily basis. In
order to calculate this charge, the CfD Counterparty will have to forecast strike prices, reference prices and
electrical output. As it is unlikely the fixed charge will match the payments due to generators, the CfD
Counterparty will hold a reserve fund and/or working capital to cover shortfalls.

Mechanisms include: a requirement for suppliers to post collateral for their supplier obligation; an insolvency
reserve fund held by the CfD Counterparty (albeit likely to be a small fund given the historically low levels of
supplier payment default through BSC); mutualisation; and the supplier of last resort process.

Comment:
- Generators are still exposed to late and non-payment risk by licensed suppliers as the payment and credit
  obligations of the CfD Counterparty under the CfD have not changed.
- However the proposal to enable the CfD Counterparty to levy suppliers in advance of its liabilities arising,
  and to hold reserve funds, we consider can reduce the risk of non or delayed payment by the CfD
  Counterparty. DECC is proposing to publish details for consultation later this year and it will not be until
  these proposals are published that reduced credit risk can be verified.

In summary, we are still of the view that the credit risk profile will increase under the CfD, pending the
publication of further details. However, we consider that the updated supplier levy proposals have the potential
to improve the credit risk profile of a CfD project.

**Change in law risk**

This is the risk a change in law operates to reduce revenues or increases costs.

The changes in law which most concern investors are changes in law which affect the availability or value of the
support mechanism and changes in industry regulation which affect wholesale prices or increase the costs of
production or trading in electricity.

Currently, under the RO, there is no legal mitigation of the risk that a change in law could affect the value of the
RO. In the UK, the principle of parliamentary sovereignty means that the UK parliament always has the power to
make or change legislation with retroactive effect. The UK government however has an explicit grandfathering
policy under which it promises that the RO support for a project will not be withdrawn or reduced in value once it
has been granted. The UK government’s track record means that investors give the grandfathering policy
considerable weight in assessing the risk of retroactive legislation.

Under the CfD arrangements, investors are offered contractual protection against specific and discriminatory
changes in law – broadly changes in law which affect only a class of projects or generators. Notwithstanding that
this protection is included in a legally binding private law contract, the principle of UK parliamentary sovereignty
means that parliament retains the power to withdraw or reduce CfD support. In principle, therefore, the
comparison is between the benefit of the explicit grandfathering policy under the RO against contractual
protection against specific or discriminatory changes in law under the CfD. We are of the view that the legal risk
profile of these two protection mechanisms is similar and that investors currently participating in the market are
comfortable with the investment risk associated with investing in the UK. For these reasons we consider that the
proposed CfD protection does not change investor perception of this risk.
Changes in law affecting the electricity industry generally could reduce wholesale prices (at one or more points on the forward curve) or increase production costs. Examples would be changes to the operation of the balancing market, implementation of the EU third package or increased use of system charges. Currently, under the RO, if a change in law increases costs across the industry as a whole, it is likely that electricity prices will increase, offsetting some of the financial impact of the change in law. It is also possible for generators to buy additional change in law protection under a PPA. This would provide protection against the risk of a reduction in the floor price and some protection against revenue reduction or cost increases by seeking to preserve the balance of risk and reward between the generator and the offtaker.

Under the CfD, the change in law proposals will provide protection only from a change in law which affects a class of low carbon generation and not from a change in law affecting the industry as a whole (ie low and high carbon generation). The benefit of the natural hedge against this risk – provided by an increase in the electricity price as a result of an industry wide change in law – will be lost under the CfD as the strike price will increase only by CPI. There is also greater uncertainty as to the scope and cost of change in law protection which generators will be able to buy under a PPA once the CfD is introduced. In particular, it is not clear generators will be able to buy the equivalent of floor price protection.

In essence, the CfD arrangements offer more protection against changes in regulation affecting only low carbon generation while the RO provides more protection against changes in regulation affecting all generation types. It seems to us that investors perceive the latter protection as more valuable. Indeed, the low carbon industry campaigns for changes which benefit only low carbon generation and the policy environment is generally considered to be low carbon positive. For these reasons, investors do not perceive the risk of changes in regulation adversely affecting low carbon generation as being as high a risk as the risk of industry wide changes in regulation.

There are two further change law risks under the CfD proposals which receive little comment but which we consider to be important. First, the CfD counterparty has a right to initiate the change in law clause which could result in a reduction in the strike price. This would only apply where the change in law is specific to a class of low carbon investors. It is possible to envisage circumstances in which the clause could be triggered where a change in regulation adversely affects low carbon generation as being as high a risk as the risk of industry wide changes in regulation.

Second, it is not clear how change in law protection under the CfD contract is to be funded by the CfD counterparty. Currently the supplier obligation is limited to funding only the CfD counterparty’s payment obligations and not all its obligations. A change to the strike price would result in a change to the CfD counterparty’s payment obligations and would therefore be covered. However, the CfD currently contains a number of additional options for dealing with change in law liabilities which appear not to be covered by the supplier obligation. The effectiveness of the change in law protection is therefore uncertain.

In conclusion, we are of the view that change in law risk will increase under the CfD arrangements because (i) the CfD arrangements provide no protection against industry wide regulatory changes; (ii) the change in law mechanism can be invoked to reduce strike prices; (iii) the supplier obligation does not cover all liabilities of the CfD counterparty; and (iv) generators’ ability to buy the equivalent of floor price protection is uncertain.

**Update:**

The draft CfD contract contains the full change in law drafting – all 22 pages of it! Investor protection though is largely unchanged except that it has been extended to cover a general change in law (i) “made or formally
required by the UK Government” and (ii) which has an “undue and not objectively justifiable discriminatory effect on the generator's costs and savings” when compared with all generators in the UK or all generators using the same generating technology. The draft also explicitly provides that a disproportionate effect will not automatically amount to a discriminatory effect.

**Comment:**

- The drafting of the change in law clause is highly complex, a complexity which to our minds increases rather than decreases uncertainty. Simplification would help achieve greater clarity.

- The drafting though has clarified that changes in law affecting revenue (and not just costs) are covered by the clause.

- The extension in protection to cover general changes in law which have a discriminatory effect is a limited drafting extension to the principle that the CfD should only give protection against discriminatory changes in law, a principle which remains intact. Currently, we consider the drafting of this extension to be unclear – it appears to cover only costs and it is not clear how the line is to be drawn between a disproportionate effect and a discriminatory effect.

- In fact, DECC has also made a number of specific proposals which fall within change in law risks – namely, sharing the risk of changes in the costs of balancing, specific proposals to amend the reference price indices, and specific proposals to address export curtailment risk. So, although the change in law clause provides limited protection, DECC is addressing investor concerns on specific points. We are of the view that investors will achieve greater traction in asking for specific protections rather than seeking to broaden the change in law clause.

In summary, we are still of the view that the change in law risk will increase under the CfD because of the gaps in the change in law protection highlighted in our original report. However, the development of some of the specific protections proposed by DECC on balancing, reference price changes and export curtailment may operate to reduce this risk.

**Force majeure risk**

This is the risk that either the generator or the relevant counterparty is unable to perform due to matters outside its control.

Currently, under the RO, the generator takes the risk that it will not be eligible for RO support or that RO support may be withdrawn or reduced due to force majeure affecting either the generator or the relevant counterparty. Under the CfD proposals, the risk profile will change as limited force majeure protection is contained in the CfD contract allowing the CfD to be preserved where either party is affected by force majeure for a specified period.

Generators and investors currently accept this risk in a typical RO project as often generators are able to gain some force majeure protection through a PPA. Usually this involves the generator being excused from breaching the PPA due to force majeure subject to an obligation to use reasonable endeavours to mitigate or minimise the impacts of the force majeure. This protection generally runs out after a prolonged period (around 12 months) leading to a termination right. We consider that the force majeure provisions in the CfD contract should provide similar mitigation in CfD supported projects.

In summary, we consider that the force majeure risk profile for both RO and CfD supported projects is similar.
**Update:**
The force majeure protection being offered in the CfD is now unlimited in duration subject to compliance with information and mitigation requirements.

**Comment:**
This development means that CfD support is preserved during long periods of force majeure. However, for independent generators the value of this may be diminished as any PPA or finance documents are likely to have a cut-off period for force majeure protection leading to a termination right (typically after 12 months).

The draft CfD provides that the Generator’s obligation to make payments under the CfD does not have force majeure protection (although it has payment disruption protection). However, this exclusion does not apply to the CfD Counterparty’s obligation to pay, as it would in a market standard PPA.

In summary, we are of the view that, due to force majeure applying to the CfD Counterparty’s payment obligation, the force majeure risk profile for CfD projects is higher than for RO projects.

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**Termination/loss of support risk**

This is the risk that relevant support arrangements are terminated or the generator is no longer entitled to receive them.

Currently, under the RO, the generator takes the risk that either a ROC issued in respect of electricity generated is revoked or that the generator's accreditation for ROCs is withdrawn. Under the CfD proposals, termination of CfD support will remain a generator risk but the risk profile will change as the number of circumstances in which the CfD can be terminated will increase.

Generators and investors currently accept this risk in a typical RO project as the circumstances under which revocation or withdrawal may occur are set out in the relevant RO order, are limited and are capable of being managed by the generator.

The termination provisions set out in the CfD contain more events of default entitling the CfD Counterparty to terminate the CfD including events which may affect investment decisions. In particular, we believe that the following events may adversely affect investor decision-making:

- insolvency of the generator – this means investors have no means of protecting their investment on an insolvency, which they currently are able to do in a typical RO project
- failure of the generator to pay any amount due under the CfD, no matter the amount
- failure of the generator to provide collateral – which generators may not always be in a position to do

DECC have suggested in recent updates that termination events will be proportionate covering material breaches and ‘cure’ options such as remediation plans or payment suspensions. This is likely to mitigate the termination risk increase to some extent but the detail of those arrangements is awaited.

In addition, under the CfD arrangements, if the generator fails to complete construction of at least a defined percentage (guidance has suggested 95%, although this has not yet been confirmed), of the contracted capacity
under the CfD then the strike price may be reduced. If the generator fails to complete construction of at least a lower percentage (the value of which is yet to be confirmed) of the contracted capacity then the CfD may be terminated. A flat percentage may have a disproportionate impact on smaller projects.

In summary, we consider that the termination/loss of support risk profile will increase under the CfD.

**Update:**

**Contracted Capacity:** The draft CfD allows a generator to reduce the contracted capacity due to unforeseen geological issues. DECC is also proposing to allow generators two ‘cost free’ capacity reductions of 5%: the first at any time up to the substantial financial commitment date; and the second at any time thereafter up to the long-stop date. A further capacity reduction of circa 20% would be permitted but that would result in an (unspecified) reduction to the strike price. Failure to deliver the remaining 70% of the contracted capacity by the long-stop date could result in the CfD being terminated. The detail of these proposals is still to be published.

**Termination Triggers:** The number of termination events has been reduced. Limited cure periods have been introduced for payment default by the generator. However, the three main termination events that are likely to be of particular concern to investors (as described in our original report above) remain.

**Termination Payment:** The termination payment will be the theoretical value (if it is a positive value) of the CfD (to the CfD Counterparty) at the termination date calculated by forecasting reference prices and output from the termination date to the expiry of the original term, discounted at the rate applied by the Green Book.

**Comment:**

- The termination triggers remain an issue and one of the key differences between the RO and the CfD. RO statutory support is only lost in defined limited circumstances while DECC continues to favour a wider set of circumstances in which CfD support can be lost.

- A draft of the direct agreement – facilitating lender step in – is still awaited.

- A termination payment will only be due if the references price is forecast to be higher than the strike price for the remainder of the original term.

- The proposed termination payment should not adversely affect financing of projects as DECC has not sought to take security over the termination payment obligation, and it will therefore be subordinated to a claim from a secured creditor.

In summary, we remain of the view that the termination/loss of support risk profile will increase under the CfD albeit there has been some mitigation of the risks in the updated proposals from DECC.

**Financing risk**

This is the risk that a project cannot secure financing.

Currently, under the RO, the generator takes the risk of securing financing. The structure of the RO support mechanism is well understood and investible at reasonable commercial rates through project finance.
Under the CfD proposals, this will remain a generator risk but the risk profile will change. The reduction of investors’ exposure to electricity price volatility ought to reduce the overall cost of finance for a project. However, there are a number of design features in the CfD proposals which will adversely affect investor decision-making and may lead to additional risk premiums in pricing. These are described in this note and include the flaws in the proposals on CfD counterparty credit risk, termination risk and change in law risk. Investment decisions will also be affected fundamentally by the ability of generators to obtain PPAs or another route to market for their power which enables them effectively to forward sell their power.

In summary, we consider that, while the cost of finance for projects may reduce, this is not guaranteed and the risk that a project will not be financed is higher under the CfD. If the design flaws in the CfD are fixed and its terms optimised to reduce financing costs, we consider it could reduce financing risk in the future.

**Refinancing risk**

This is the risk that a project cannot be refinanced on expiry of initial financing.

Currently, under the RO, the generator takes the risk of refinancing a project. It is now standard that bank lending terms will commit only to a 7 or 10 year period even though debt continues to be amortised over 15 years, which means that generators must refinance their projects during the life of the project. An independent financing is typically based on the remaining years of support available and would not normally take account of revenue beyond the end of the support period. This is mitigated because RO support currently continues for 20 years.

Under the CfD proposals, DECC has confirmed\(^9\) that it has withdrawn its proposal to include refinancing provisions in the standard CfD contract however it is still proposed that standard CfD support will be 15 years. If so, on a refinancing, the project may only have 10-12 years of CfD support left to run. This period is shorter than the institutional fund market would prefer, given that it is seeking assets to match its long term liabilities.

In summary, we consider that the duration of support increases the refinancing risk profile under the CfD.

**Construction delay risk**

This is the risk that completion of the project is delayed beyond the target completion date.

Currently, under the RO, the generator takes the risk that delays in construction will affect the level of RO support. Under the RO, full accreditation for ROCs can only be granted once the relevant generating station is commissioned. If the level of RO support has reduced (e.g. ROC rebanding March 2013) between the investment decision and commissioning the project will only be entitled to the lower level of support. Under the CfD proposals, this will remain a generator risk but the risk profile may change as there will be more opportunity to preserve the required level of support through a degree of construction delay.

Generators and investors currently accept this risk in a typical RO project as they can manage contractors and construction programmes. Also completion can be scheduled sufficiently far in advance of the date on which the RO support is due for review. This means generators and investors can therefore decide the extent of risk that is acceptable to them.

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9 See EMR updates published 27 June 2013.
Under the CfD proposals, generators will be entitled to specify a target commissioning date and the CfD will then prescribe a target commissioning window around that date and a long-stop date. The values for the target commissioning window and long-stop date are likely to be technology specific but the detail is yet to be provided. DECC has floated the concept that the target commissioning window could be as little as 6 months. In addition, there is no proposal to take account of project size, which may increase the risk for larger projects where the build out period and hence the impact of delays may be greater.

If the project is completed within the target commissioning window, the CfD terms (including the strike price) will be preserved. If the project is commissioned after the target commissioning window but before the long-stop date the strike price will be preserved but the 15 year term of the CfD will be reduced by the period of delay. If the project is not commissioned by the long-stop date the CfD can be terminated. A generator could apply for another CfD, albeit there is no guarantee on availability or strike price. The impact of construction delay past the long-stop date i.e. total loss of the CfD is therefore more severe under the CfD arrangements. Some protection is given where failure to commission by the long-stop date was due to force majeure and DECC have confirmed that further flexibility will be provided where connection delays are caused by the network operator but these only offer limited security.

In summary, we consider that in theory the construction delay risk profile ought to reduce under the CfD but if the target commissioning window and long-stop dates are too short then the construction delay risk profile will in fact increase under the CfD.

**Update:**

The draft CfD sets out the target commissioning window (TCW) and long stop period (LSP) by technology. For most technologies the TCW will be 1 year with an LSP of 1 year following on from the end of the TCW. For landfill gas the TCW is 6 months and for solar PV it is 3 months. For the offshore technologies (wind, wave and tidal) the TCW is 1 year and the LSP is 2 years. In every case, the TCW and the LSP are extended day for day for delays caused by force majeure or failure of the network operator to complete network reinforcement or connection works.

The draft CfD also sets out a long list of conditions precedent (CPs) to be satisfied before the generator is entitled to receive CfD payments. The CfD Counterparty is given discretion to confirm whether it considers that the generator has satisfied each CP.

**Comment:**

- Taken together with the revised position on contracted capacity adjustment, the bottom line is a generator needs to deliver 70% capacity before the end of the LSP to avoid losing the CfD and needs to deliver 90% capacity before the end of the TCW to ensure the full CfD payment is received (i.e. the full strike price and 15 year term).

- The TCW is a fixed period which is not related to the length of the construction/development programme. The risk of missing the TCW therefore increases as a programme increase in length. This presents an issue for offshore wind in particular.

- The proposed solution on offshore – extend the LSP not the TCW – may be ineffective, since project economics are likely to mean investors consider the ‘true’ LSP to be less than 2 years. It would be better
to extend the TCW.

- It is rare for offshore projects to raise debt to finance construction without the support of some kind of governmental institution. It is the stated aim of DECC that offshore projects attract capital markets investment. It is the stated aim of the Green Investment Bank to promote construction financing of offshore projects. The proposal for a 12 month TCW for offshore could, on its own, scupper those aims.

- At the time when a developer might otherwise choose to apply for a CfD, the programme may be subject to significant factors outside its control. This will make it difficult to decide the optimum time to apply for a CfD.

- The discretion given to the CfD Counterparty to decide whether CPs are satisfied or not is not investor friendly. Whilst it is common for CPs to be drafted in this way, it is also common for all CPs to be satisfied on financial close, mitigating the risk that CPs will not be satisfied. We believe investors will expect CPs to be drafted objectively.

In our original report we noted that the construction delay risk profile would increase under the CfD if the TCW and LSP were too short. This was despite the theory that construction delay risk profile ought to reduce under the CfD by allowing the strike price to be preserved for a specified period. In summary, having considered the timescales proposed, we consider that the TCW and LSP are short enough to increase the construction delay risk profile under the CfD particularly for large, novel or complex projects.

Development Risk Analysis

This section of the report compares the key developer risks in CfD and RO supported projects. It analyses the risk from the point in time when a developer invests resources in assessing site suitability up to the time of the final investment decision.

Support mechanism availability risk

This is the risk that support for a project will not be available even though it is eligible.

Currently, under the RO, the generator takes the risk of the project being eligible under the RO through the accreditation process with Ofgem. Under the CfD proposals, the risk profile will change since there is the risk that an eligible project under the CfD may not receive support. While a generator has a statutory right to support under the RO, allocation of the CfD is a decision by the Secretary of State. This policy must operate within a financial budget (the "Levy Control Framework") and there may come a point at which there is a greater demand for the CfD that the number that can be allocated under the budget. The government adopted a hybrid model for managing the allocation of the CfD under which most technologies have access to a general budget, but a few have access to a separate "ring-fenced" budget. Projects with access to this separate budget are those such as biomass and solar, capable of rapidly progressing from conception through to commissioning, or whose costs can rapidly fall.

Despite the requirement to allocate the CfD within a budget, the government will endeavour not to artificially restrict allocation or to impose overly costly allocation processes. When the CfD demand in any given year will comfortably fit within the overall budget, the CfD will be issued on a ‘first-come-first-served’ basis. When criteria for the ‘first-come-first-served’ process do not apply, the CfD will be awarded through allocation rounds which will
enable monitoring and control over the number of projects coming through the system. This may particularly impact the marine renewables industry as marine projects are due to be developed towards the end of the Levy Control Framework budget when it could be most constrained.

Generators and investors currently accept this risk in RO supported investments provided they have done as much as they can to ensure that accreditation will be obtained. We consider that additional mitigations will be required in CfD supported projects.

In summary, we consider that the support mechanism availability risk profile for CfD supported projects is increased when compared with that under RO supported developments.

Update:

DECC has confirmed that CfD allocation will be on a ‘first come first served’ basis until 50% of the budget for a delivery year is committed. Once that threshold is triggered, CfD allocation will move to twice yearly unconstrained allocation rounds, within which all applications are assessed equally, but without any rationing. The project activating the allocation round trigger and any subsequent applications will be invited to enter an allocation round. Once the value of the projects in an allocation round triggers any maximum constraint for a specified technology or any budget constraint for any delivery year then CfD allocation would be through constrained allocation rounds. Constrained allocation rounds are required to ensure that total CfD allocation remains within the overall budget. In constrained allocation rounds, projects may submit sealed bids containing the strike prices they would be willing to accept. Projects would then be ranked according to the strike prices they offer. If projects can't be separated on strike price, tiebreakers would apply in the following order: first to the combination of projects making the best use of the budget; second to those having submitted the earliest application; and third, though unlikely, the final resort would be to random allocation.

Comment:

- It seems likely that many projects will have to participate in allocation rounds, including constrained allocation rounds.

- Constrained allocation rounds could well be used as a forerunner to competitive pricing. The response of generators in a constrained allocation round will certainly be interesting.

- Guidance on allocation rounds is yet to be published. It appears the date of application will be one of the ranking factors for projects, but it is unclear whether those rankings will automatically roll over into the next delivery year or whether a fresh application will need to be submitted.

- It appears clear that decisions on allocation in unconstrained allocation rounds will include the exercise of discretion and that could open up the process to disputes or judicial review.

- DECC has provided guidance on internal disputes and appeals. If a generator seeks to appeal a decision on its eligibility it can use an Ofgem appeals procedure during which its place in the queue is maintained and its capacity will not be reallocated. Ofgem will have approximately 6 weeks to decide an appeal.

- If a generator seeks judicial review of an eligibility decision, its place in the queue will be lost and the capacity allocated to another project. It is unclear if a generator can obtain a satisfactory remedy from a judicial review of an eligibility decision.
One practical consideration generated by the move to allocation rounds is the impact on capacity in the project finance market. CfDs will be allocated to projects twice yearly. Those projects will all then have one year to satisfy the substantial financial commitment milestone, which in the case of project financed schemes will be the achievement of financial close. Given the degree of similarity in the timelines to achieve financial close this will lead to several projects trying to close around two fixed points in the year. This may have a detrimental impact on the capacity of investors in the UK market to resource such financings.

In summary, it is now clear that the risk of unavailability of financial support for a project is higher under the CfD than under the RO.

**Support mechanism value reduction risk**

This is the risk that the value of the support provided to eligible projects will reduce in the future.

Currently, under the RO, the generator takes the risk that the level of RO support is reviewed prior to accreditation. The RO is reviewed on a four yearly basis, meaning that there is no visibility towards the end of a four year period. However, the likelihood is that the generator will be advised of an upcoming banding review and will be aware of potential outcomes (albeit there is always the risk of an emergency banding review). Under the CfD proposals, the risk profile will change as while there is a certain period of visibility on the strike price, the continued visibility of strike prices and the predictability of the system is currently unclear. A generator needs confidence in the support setting mechanism to ensure that their technology will remain competitive and viable. Initially, CfD strike prices are to be set administratively by the government. During this administrative phase, CfD strike prices will be published in the EMR delivery plan in 2013 for each technology and for each of the five commissioning years from 2014 / 15 to 2018 / 19. For this five year period, generators and investors will therefore have early visibility on strike prices. Potential project returns can be assessed and informed decisions taken on investment in pre-development.\(^\text{10}\)

Generators and investors currently accept the risk associated with RO banding reviews provided that generators provide some form of comfort, by way of a guarantee or additional equity, if a review is impending. We consider similar mitigation will be used in CfD supported projects. It is not clear that a published strike price for a given year will not be subject to review prior to that strike price taking effect, unless a CfD contract for a project has been entered into before that review take place.

The price setting process for post 2020 remains unclear in the face of a lack of clear post 2020 low carbon targets. DECC also suggests that the market will be sufficiently developed by the late 2020s that the CfD may no longer be required. The combination of these factors mean there is greater not less uncertainty for developers as they consider investment decisions on the development of project pipelines.

In summary, we consider that the support mechanism value reduction risk profile affects both RO and CfD supported projects but is currently increased in the case of CfD support. See Revenue risk under the Investment Risk section for consideration of the change in revenue implications from the different support mechanisms.

\(^\text{10}\) We acknowledge that administrative price setting is intended to be replaced with a competitive process however we have not sought to cover that process as part of this analysis.
Update:
No further information is provided on the publication of strike prices, but DECC has confirmed that a generator may, together with its application, submit a sealed bid containing a strike price they would be willing to accept for the project if an allocation constraint is triggered. Projects that do not submit a bid will be treated as if they have bid at the published strike price. If constraint is triggered then bids will be accepted in price order with the projects with the lowest strike price being awarded CfDs first. Prices will not be set higher than the levels set out in the administratively-set strike prices.

If constraint is not triggered, sealed bids will not be opened but will be passed to DECC and may be used to inform future administrative strike prices.

Comment:
Competition for the allocation of CfDs may drive down strike prices – low bids by generators could influence the next set of strike prices published.

In summary, we are still of the view that the support mechanism value reduction risk increases under the CfD proposals, pending the publication of further details.

Investment delay risk

This is the risk that the substantial financial commitment to the project is delayed which may result in the loss of support.

Currently, under the RO, the generator takes the risk that any delay to the project could affect the level of RO support. Under the CfD proposals, although eligibility under the CfD can be established earlier to increase certainty on the level of support, this certainty can be lost if a significant financial commitment to the project is not made within a defined period of signing the CfD. DECC has floated a period of one year. Significant financial commitment will be determined against a minimum spend threshold and is intended to be the point of no return for investors. On project financed developments this is intended to be financial close. The timing of financial close is subject to many factors and is difficult to predict with certainty, which means that a long stop or cut off date, after which CfD support is withdrawn, presents a considerable risk to developers.

In summary, we consider that the investment delay risk profile for CfD projects is increased when compared to RO projects unless the period is extended sufficiently from one year.

Update:
DECC has confirmed that a generator must provide evidence of substantial financial commitment within one year of CfD contract signature. Examples of criteria, a combination of which might satisfy the milestone requirements, are provided: a letter certifying the board of directors’ commitment to proceed, disbursements or invoices, a number of material project contracts showing significant financial commitment with penalties for contract termination, a power purchase agreement, a loan agreement from a finance provider, a lease agreement, or environmental consents. Failure to meet this milestone will result in the CfD being subject to termination.
Comment:

- In practice, for independently financed projects, the substantial financial criteria will only be met at financial close.11

- Given that delays to financial close are frequent, the risk of termination for not achieving financial close within one year of the allocation of a CfD is a considerable risk to developers. However, there appears to be no rule preventing a developer for applying for another CfD for the same project, if the first CfD is terminated.

- We consider one year may be too short a period. The lead time for long lead equipment – turbines, HV cables – means that many project development programmes will need to be compressed because developers will not want to commit to place turbine orders unless they are sure they can achieve financial close within the one year time limit.

- We consider developers will look to extend the period to 18 months or more.

- If a generator disputes a decision to revoke a CfD as a result of their failure to meet a financial commitment milestone, their capacity will be reserved for that project while the dispute is resolved. If the outcome is that they have failed to meet the milestone, the capacity will be released.

In summary, we are still of the view that the investment delay risk position is increased under the CfD unless the period to substantial financial commitment is extended from one year.

Phasing risk

This is the risk, specifically for significant offshore wind projects or large onshore wind developments, that different phases of the same project will receive different levels of support.

Currently, under the RO, the generator can phase their access to RO support by proposing a maximum of five phases over a five year period. At the current time, this means RO projects could be exposed to delay risk for the RO cut off date in 2017. Under the CfD proposals, the risk profile will change since on a multi-phase offshore development, the phasing arrangements proposed involve a developer choice.

Under the first option a developer could apply at the same time for a number of separate CfDs, each covering single phase and each having a different strike price and different target commissioning date. Currently, it is not certain that the CfD counterparty will award all such CfDs at the same time. It would also mean that developers will need to take a view about future project costs (to match the reduced value of support) and their ability to meet a long term commissioning timetable. It is also unclear how minimum spend obligations would be assessed for later phases, given that many upfront costs relate to all phases.

Under the second option a developer could apply for a single CfD for the whole project with a single target commissioning date. This approach also entails risks – early phases may operate before the CfD support commences, later phases will be exposed to delay risk, and the project may be exposed to termination risk in the case of extended delay to the final phase.

11 See comments at 'support mechanism availability risk' regarding the capacity of the project finance market to resource the potential large number of projects to be financed around 12 months after a CfD allocation round.
Developers currently accept the situation in RO supported investments as phasing under the RO operates to maintain full access to RO support. We consider that additional mitigations will be required to cover the risk of project phases being accredited under different schemes, or the potential for reduced levels support in accrediting phases of the same project under the CfD arrangements.

In summary, we consider that the phasing risk profile will increase under the CfD.

**Update:**
DECC has acknowledged the likelihood that large offshore wind projects will be built in stages. The CfD will therefore allow these projects to phase commissioning works, subject to appropriate metering arrangements and compliance with specified conditions. The allocation process will ensure that phased projects can secure CfD and have clarity about strike prices. The current intention is to allow each phase of a multi-year project to receive the strike price available for the delivery year of the first phase, although this is not confirmed. DECC state that financial commitment milestones, target commissioning dates, longstop dates and termination provisions will be appropriately tailored.

**Comment:**
The option outlined in DECC’s most recent publication does not follow either of the options set out above, but is an improved position on both. The approach to phasing is now more in line with that under the RO.

In summary, pending publication of the details, the phasing risk of a CfD project looks similar to that of an RO project.

**Sizing risk**
This is the risk that the requisite percentage of the project size, as specified in the CfD, is not developed.

Currently, under the RO, the generator will not apply for support until after financial close on the project, at which stage contracts will have been signed and suppliers, and turbines, have been identified and confirmed. Under the CfD proposals, the risk profile will change since the conditions include confirmation that the installed capacity of the project is not less than a very high proportion (guidance has suggested 95%, although this has not yet been confirmed), of the capacity noted in the issued CfD. Early certainty around turbine selection is therefore important meaning that a generator will need to identify both the turbine supplier and the turbine model at the stage of CfD application. DECC have confirmed that further flexibility to reduce capacity will be introduced in the CfD contract but that this will result in a reduction to the strike price.

Generators currently accept the situation in RO supported investments since the confirmation on proposed size is not required until a later stage, which is a preferable position. We consider that additional mitigations will be required to ensure that a generator makes viable and investable choices at an early stage of project development, which can be sustained throughout the build. It might be that reference to the nameplate capacity of a turbine model is replaced with reference to the electrical output, being more reliable. This risk may also be further mitigated by allowing greater flexibility to amend capacity up to the date of the substantial financial commitment.

In summary, we consider that the sizing risk profile will increase under the CfD.
**Update:**

Please see above under Construction Delay Risk.

**Comment:**

- The right to reduce the capacity required to be built under a CfD if unforeseen ‘geological’ issues prevent construction and a further right to reduce capacity for no stated reason by up to 5% mitigates the risk of having to size a project prior to allocation of a CfD.

- It is important to note that there are a number of factors which could potentially affect a site which the term 'geological' will not cover – hydrological or biological conditions, contamination, archaeological finds, existing subsurface infrastructure and animal protection measures.

- Some sites have planning conditions that allow only a limited window for certain construction activities to proceed, which if they are missed would lead to a year’s delay. In practice the TCW for such a site might be a much shorter period than one year. It may be that generators would like to see an extension to the TCW on a day for day basis for any period during which a planning condition prevented construction proceeding.

- The proposals for capacity flexibility are based on capacity and take no account of forecast output (a better measure of the generation potential of a site). They therefore restrict a developer’s ability to optimise production from a site. For example, it is possible that a smaller capacity wind turbine can actually generate more electricity than one with a larger capacity. A more sophisticated mechanism for capacity adjustment may be required to allow developers flexibility to optimise yield while preserving policy objectives.

- Given that projects will only have one year from allocation of a CfD to achieve financial close, projects will require to have defined construction and programme proposals, which should reduce the risk that the contracted capacity cannot be delivered.

- However, it will place more pressure on the exercise of lease option rights. Often lease terms require to be amended during the option trigger phase. Ordinarily this would occur less than one year prior to financial close. The one year deadline would hand more power to landowners where adjustments to the lease terms are required to deliver a project.

In summary, we are still of the view that the sizing risk profile will increase under the CfD, albeit greater flexibility has been introduced which will mitigate that risk in part.

**Other Notable Updates**

**Freedom of Information:**

- The CfD Counterparty will be subject to Freedom of Information legislation. This means that the CfD itself and information provided by a generator under it are subject to disclosure by the CfD Counterparty. Significant information on generation and payments will be provided to the CfD Counterparty.

- The CfD contract cannot protect investors from disclosure risk but the CfD Counterparty can designate some information as commercially sensitive and delay disclosure until it is no longer sensitive. While full protection is not possible, investors can seek to influence the decision of the CfD Counterparty by making
the case for which information might be considered sensitive and why.

- It is worth remembering that the supply chain plan to be submitted to Government (see Eligibility Risk) will also become subject to Freedom of Information legislation. The extent of the detail to be contained in the supply chain plan is not yet known but it seems reasonable to assume that generators will be concerned about the potential for competitors to be able to access documents that disclose strategic information.

Dispute Resolution:

- The draft contains proposals on the dispute resolution mechanics. This includes the possibility that the CfD Counterparty may seek to consolidate ‘connected disputes’ (i.e. those raising substantially similar issues) with multiple generators. If at least 50% of the generators involved agree, the remaining generators can be forced to participate (or at least forced to abide by the dispute outcome).

- The ability to consolidate disputes makes practical sense from the CfD Counterparty’s point of view. However, it does mean that a generator may be forced to accept a dispute outcome it considers to be inappropriate. This clause could be applied in change in law disputes as changes in law are likely to affect a number of generators in a similar way and could lead to changes effectively being imposed on a particular class of generator.

- It is also likely to be highly complex because consolidation of disputes can be a minefield. We consider that this proposal needs to be refined or recast.

Curtailment Risk

- DECC acknowledges that increased penetration of intermittent generation on the network may increase the risk of curtailment of CfD plant. DECC also acknowledges that the existing compensation rights for those projects connected to the transmission network (if not the distribution networks) may be changed in the future and therefore projects could be exposed to this risk. DECC has stated that it is reviewing its position on this risk.

- This is a significant change of law/policy risk and introducing a compensation mechanic for curtailment would mitigate a serious future risk to investors.

Conclusions

It is possible to draw a number of conclusions from this analysis.

Update Note:

We have reconsidered all of the conclusions drawn from our original risk analysis as set out below. Subject to the specific update boxes set out among the conclusions below we consider that our original conclusions still apply to the updated CfD arrangements and should be reviewed on that basis.
1) Reduction in revenue volatility

The proposed CfD support mechanism will reduce revenue volatility, making forecast revenues more stable. In principle this should promote a lower long term cost of finance and a lower hurdle rate for investment decisions. However, some classes of equity investors will have hurdle rates set independently of sector characteristics and therefore the CfD will not have a uniform impact on hurdle rates across all capital providers.

2) Loss of upside

The proposed CfD support mechanism will reduce the potential upside to equity. In principle, this may make it more difficult for projects to achieve the hurdle rate required for certain classes of equity investors, where these are set independently of sector characteristics. For example, for certain equity investors, renewables projects will have to complete for an investment allocation against projects in other sectors.

3) Discounting revenue volatility, CfDs increase the risk profile of a project

The proposed CfD support mechanism increases the risk profile of a project, if you discount the impact of the reduction in revenue volatility. This has two impacts. One, the costs associated with mitigating the additional risks may add to the financing costs, reducing the amount by which financing costs are lowered by introducing the CfD. Two, the risk of loss of support is much higher under the CfD because a traditional contractual approach to termination is proposed. This compares with the statutory risk of loss of RO support which is low.

4) Importance of the route to market

Increasing the pool of capital financing new energy infrastructure is vital but investors need confidence that generators can sell their electrical output at or close to the reference price. Therefore the success of the CfD is intrinsically linked to the development of a liquid long term PPA market or another enduring mechanism which gives generators the certainty that such a price can be obtained. Without the development of such a market or mechanism, many investors will be unable to participate in the market. However, today, the development of a sufficiently liquid PPA market remains uncertain.

**Update:**

The PPA offtaker of last resort proposal, aligned with other measures to encourage PPA market development, could foster a viable route to market. However, it remains an area where progress is slow and uncertain. The importance of this issue to the success of EMR should not be underestimated – if there is no route to market, EMR will be judged a failure.

5) Impact on investor community

One of the stated aims of CfDs is to attract wider pools of capital, including institutional funds, into the financing of new energy infrastructure. This objective is important as Government has concluded that utility companies alone will not be able to fund all new infrastructure required. Institutional funds generally take a conservative
approach to risk. The current overall proposed risk profile of the CfD may limit the range of funds willing to participate in this market.

### Update:

Recent DECC proposals appear to favour bankability over investability. We consider DECC should take a wider view to stimulate capital markets investment.

#### 6) Greater development risks

Developers face more uncertainty that the projects they develop will ultimately be completed. There is the risk that they will not receive a CfD because of the application of the levy control framework. There is the risk that they will not be able to reach a final investment decision within the time limit, or that they will be able to construct the generation station at the CfD contracted capacity.

#### 7) Remaining unknowns

Significant elements to the risk appraisal of the CfD remain unknown and are critical to the analysis. For example, a short target commissioning window will deter many investors. If the time permitted for a project to achieve a final investment decision is too short it may result in projects not being developed because they cannot be financed in time. Further details are due from DECC in August, which should allow developers and investors to complete a fuller risk appraisal.

### Update:

Despite the updated information provided in August, there are still many unknown elements of the CfD arrangements. Many important aspects still lack the commercial substance necessary to allow investors to make an informed decision on the risk profile of a CfD project. Much of this detail will not be available until December, at which point, DECC say that the CfD will be in final form. We believe it will be important that DECC remain open to fine tuning the CfD terms up to (and beyond) March 2014 in order to address legitimate investor concerns on the terms of the CfD.

#### 8) Overall conclusion

The CfD arrangements will mitigate energy price risk, especially in the case of the most likely scenario where market prices are positive but less than the strike price. This is a fundamental investor risk and will reduce revenue fluctuation. However, the CfD arrangements, as currently proposed, introduce or increase a number of other project risks. Whilst it is not possible to assign values to risks with any accuracy, we are of the view that the additional risks created by the proposed CfD arrangements may delay investor decision-making, affect investor participation and affect the rates of return required by investors, particularly in early CfD projects. We are also of the view that many of the additional risks created by the proposed CfD arrangements can be mitigated by optimising the structure and terms of the CfD contract.
DECC’s position

On 17 July DECC released further information on how it arrived at the CfD strike prices it published on 27 June 2013. DECC stated that it started with the levelised costs by reference to which the RO support levels were set for the year 2013/14. It then adjusted those costs to take account of differences between the RO and the CfD. One of those adjustments is to reflect reduced hurdle rates which DECC consider will result from the introduction of the CfD. In the worked example for a generic onshore wind project, £2 per MWh is deducted from the strike price to reflect reduced financing costs. The only evidence referred to for this proposition is the assumption in the 2010 Redpoint report12 which assumes that the investors will be able to achieve a higher debt to equity gearing under the CfD as opposed to the RO (85:15 rather than 70:30). This report does not refer to evidence for this assumption.

We are of the view that it is not yet possible to conclude that the cost of financing projects under the CfD will be lower than the RO, and in particular, whether debt providers will provide debt on the basis of a higher gearing. We are not aware of any evidence for DECC’s view. Given that the determination of strike prices is intended to be evidence based, we would ask the question whether a financing cost adjustment should be made to the RO levelised costs until evidence that the cost of finance has reduced becomes available.

Contact us

If you would like further information please contact Keith Patterson or Sarah-Jane McArthur at keith.patterson@brodies.com or sarah-jane.mcarthur@brodies.com

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## Annex 1: Investment Risks Summary Comparison Table

<table>
<thead>
<tr>
<th>Risk</th>
<th>RO position</th>
<th>Current market position</th>
<th>CfD proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility risk</td>
<td>Generator risk</td>
<td>Accreditation occurs after final investment decision</td>
<td>Change in risk position: CfD signed before final investment decision</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Criteria are clear and generally accepted by market</td>
<td><strong>Reduced risk</strong> Update: Proposed supply chain requirements may increase risk but re-assessment pending detail.</td>
</tr>
<tr>
<td>Energy yield risk</td>
<td>Generator risk</td>
<td>Mitigated by collecting wind site data</td>
<td>No change in risk position Update: Energy Yield is less favourable under CfD due to transmission loss adjustments.</td>
</tr>
<tr>
<td>Revenue (price) risk</td>
<td>Generator risk</td>
<td>Mitigated by 1) fixed or floor price PPA and 2) headroom supplier obligation methodology Supports project finance bank model</td>
<td>Change in risk position: generator does not take price risk except when prices are negative <strong>Reduced risk</strong> <strong>Reduced upside</strong> compared to RO floor price model</td>
</tr>
<tr>
<td>Basis risk</td>
<td>Generator risk</td>
<td>Electrical output and ROCs are generally sold at a discount to market price.</td>
<td>Increased risk due to potential for CfD payments due by the generator. Update: Re-assessment pending detailed proposals on changing reference price indices.</td>
</tr>
<tr>
<td>Offtake risk</td>
<td>Generator risk</td>
<td>Mitigated by 15 year PPA</td>
<td>No change in risk position Update: no change but risk remains significant.</td>
</tr>
<tr>
<td>Balancing risk</td>
<td>Generator risk</td>
<td>Mitigated by buying imbalance risk protection through PPAs.</td>
<td>No change in risk position – but PPA market response to CfD arrangements is still uncertain. <strong>Increased risk</strong> due to CPI indexation potentially not matching balancing cost increases. Update: Re-assessment pending proposed pass through cost mechanism</td>
</tr>
<tr>
<td>Fuel price risk</td>
<td>Generator risk</td>
<td>Mitigated by entering into long-term fuel supply contracts.</td>
<td>No change in risk position</td>
</tr>
<tr>
<td>Fuel supply risk</td>
<td>Generator risk</td>
<td>Mitigated by entering into long-term fuel supply contracts.</td>
<td>No change in risk position</td>
</tr>
<tr>
<td>Credit risk</td>
<td>Generator risk</td>
<td>Mitigated primarily by credit support from appropriately rated provider to back up payment obligations.</td>
<td>Increased risk – no provision for CfD counterparty credit support and payment obligations subject to ‘pay when paid’ limitation. Update: Re-assessment pending proposed mitigations in supplier obligation proposals</td>
</tr>
<tr>
<td>Change in law risk</td>
<td>Generator risk</td>
<td>Industry wide changes mitigated by offsetting increase in electricity price. Can buy change in law protection under a PPA.</td>
<td>Increased risk – benefit of increased electricity price does not fall to generator so greater exposure to industry wide changes in law. CfD counterparty funding for change in law liabilities unclear. Update: re-assessment pending detail of specific protections proposed</td>
</tr>
<tr>
<td>Force majeure risk</td>
<td>Generator risk</td>
<td>Force majeure protection can generally be bought</td>
<td>Increased risk – application of force majeure protection to CfD Counterparty’s obligation to</td>
</tr>
<tr>
<td>Risk Type</td>
<td>Risk Category</td>
<td>Mitigation</td>
<td>Risk Description</td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Termination/loss of support risk</td>
<td>Generator risk</td>
<td>Mitigated by the limited number of grounds for revocation of ROCs or withdrawal of accreditation.</td>
<td>Increased risk as the number of potential termination events has increased and some may impact financing terms. Update: risk still increased but mitigated in part by new proposals to reduce termination events.</td>
</tr>
<tr>
<td>Financing risk</td>
<td>Generator risk</td>
<td>Mitigated by a good understanding of the RO by the lenders</td>
<td>Reduced risk of cost of finance due to reduced price volatility (subject to potential for risk premium pricing). Increased risk of securing finance due to increase in other risks such as termination risk, credit risk, and change in law risk.</td>
</tr>
<tr>
<td>Refinancing risk</td>
<td>Generator risk</td>
<td>Mitigated by 20 year support.</td>
<td>Increased risk due to shortened support timeframe.</td>
</tr>
<tr>
<td>Construction delay risk</td>
<td>RO support not a generator risk</td>
<td>Generator obtains 20 year RO support from actual date of commissioning Mitigated by well planned programme and liquidated damages</td>
<td>No change in risk position up to end of commissioning window Change in risk position after end of commissioning window: 1) reduction in CfD support period and 2) risk of loss of CfD support if project not commissioned by long stop date. Risk is reduced if commissioning window and long stop date set appropriately. Risk is increased if these periods are too short. Update: risk is increased as the periods proposed are too short particularly for large, novel or complex projects.</td>
</tr>
</tbody>
</table>
## Annex 2: Developers Risks Summary Comparison Table

<table>
<thead>
<tr>
<th>Risk</th>
<th>RO position</th>
<th>Current market position</th>
<th>CfD proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support mechanism availability risk</td>
<td>Generator risk</td>
<td>Mitigated by a thorough and timely application for accreditation.</td>
<td>Increased risk as an eligible project may still not receive support under the CfD due to budget constraints.</td>
</tr>
<tr>
<td>Support mechanism value reduction risk</td>
<td>Generator risk</td>
<td>Mitigated by a well timed application in the case of the generator, or provision of comfort by way of a guarantee or additional equity, in the case of the investor.</td>
<td>Slightly increased risk since the risk exists under the RO, and differs under the CfD only through the level of visibility in price setting at this stage past 2018 / 2019. Clarity on the certainty and regulation of review is also lacking.</td>
</tr>
<tr>
<td>Investment delay risk</td>
<td>Generator risk</td>
<td>Mitigated by generator efforts to satisfy all conditions to funding in a prompt fashion.</td>
<td>Slightly increased risk unless there is flexibility to extend the one year period proposed.</td>
</tr>
<tr>
<td>Phasing risk</td>
<td>Generator risk</td>
<td>The same risk does not exist in the current market – the risk that an extension to a project is accredited under a different financial level of RO support is mitigated by the generator in the same way as the development lead time risk.</td>
<td>Increased risk since the same risk doesn't exist in the current market, so additional mitigations will be required to cover the risk of the project being accredited under different schemes or separately under the CfD. Update: phasing risk is under CfD is now similar to RO</td>
</tr>
<tr>
<td>Sizing risk</td>
<td>Generator risk</td>
<td>The same risk does not exist in the current market – the size of a development does not need to be specified until much later in the process.</td>
<td>Increased risk as the turbine supplier and model have to be identified and confirmed at the CfD application stage, and 95% of the development size as specified in the CfD must be built out to ensure support at the contracted strike price. Update: increased risk mitigated by proposals for capacity flexibility but extent of mitigation unknown until further details published.</td>
</tr>
</tbody>
</table>