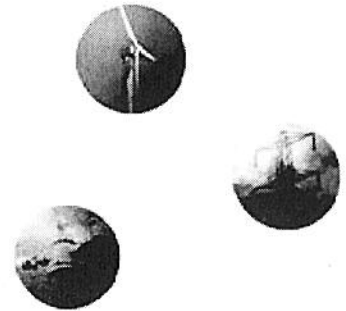


Matt Coyne
Department of Energy and Climate Change
4th Floor Area C
3 Whitehall Place
London
SW1A 2AW



16 August 2012

Dear Matt,

Re: A call for evidence on barriers to securing long-term contracts for independent renewable generation investment

Introduction

Cornwall Energy welcomes the opportunity to provide views in response to this important call for evidence on the barriers faced by independent renewables generators in securing long-term power purchase agreements (PPAs). We are an independent energy markets consultancy and have been involved in a variety of ways over recent years identifying barriers to market entry and helping define practical solutions. We have intimate knowledge of both generation and supply markets.

The contents of this response have been discussed with the members of our Green Generators Group¹. This letter does not purport to represent a view of the independent generators, several of whom will be responding directly, but the arguments set out here are supported by many of the individual members.

There are two parts to this response. The first looks at drivers of the current green power market and identifies some reasons why terms on the PPA market may be deteriorating; the second considers the lack of a pull-through mechanism to replace the Renewables Obligation (RO) going forward.

Current drivers of green power market

The first part of the response is a summary of some analysis we have done on the “organic” demand for green power in the market based around the RO. This shows that the pull-through mechanism represented by the RO is already running out of steam, and this is a factor in the current cooling down of the PPA market.

The headlines from this research indicate that:

- independent generators have played a significant role in supporting the growth of renewables capacity over the last decade. Around half of the UK’s offshore wind fleet is owned and operated by merchants and the figure for onshore wind is around 45% of all capacity installed;

¹ The Green Generators Group is a Cornwall Energy hosted monthly meeting that brings together some of the most active independent renewables developers/ generators in the market to discuss pertinent regulation and policy issues.
www.green-generators-group.co.uk

- major renewables projects seek PPAs with the Big Six vertically integrated energy companies, and a contract with one of them is usually considered by lenders to be a precondition of having a bankable project;
- appetite from the Big Six to sign long-term PPAs with independent generation projects increased during the last decade but is now diminishing. Terms offered by the Big Six for long-term PPAs have declined in recent months/ years;
- one of the major factors driving this decline is the suppliers' obligations under the RO. Under the RO suppliers must source a set proportion of Renewables Obligation Certificates (Rocs) to comply with their individual obligations, and they see a financial incentive from negotiating terms with developers that allow them to share some element of the green premium available;
- a major source of these Roc purchases has historically been under PPAs with generators for the power and Rocs (and other green certificates). Together with PPA sourced Rocs, the Big Six are able to source Rocs internally through their own renewables assets. Our research shows that one of the Big Six can now fully meet its obligation in 2012-13 by sourcing Rocs internally;
- this trend is set to continue, especially given the major Big Six-owned renewables projects in the pipeline, most notably offshore wind Rounds 2 and 3 stations. Added to this, the Big Six already have a significant quantity of PPAs already in place which include the transfer of Rocs;
- the Big Six are, in aggregate, now able to meet the implied obligations for the volumes sold to customers *who are unlikely to switch*. This raises a critical question: why would the Big Six want to get locked into long-term contracts to purchase power and Rocs to sell to customers and meet their residual obligations under the RO for any proportion above their known level of predictable (we call them sticky) customers?; and
- there is potential in the near future for five of the Big Six to be able to meet their obligations with Rocs sourced internally and through already known PPAs. This situation could lead to independent generators being forced to accept less attractive PPAs given a lack of options, with one of the incumbents who is set to remain Roc-short exercising significant buying power.

Further details are at Annex I.

Pull-through mechanisms going forward

Based on our projections of likely capacity in 2017, a further 8GW-10GW of new renewables capacity investment in the period to 2020 will be needed to meet the government's target. There will remain certain drivers to purchase Rocs to meet any residual obligation, though our analysis shows this demand is likely to be sated. Levy-exempt power will continue to be sought given the preservation of the CCA regime through to 2023, but this will support renewable Lecs. Separate analysis we have done suggests that supply will out-strip demand towards the back-end of the decade.

However, we can see no financial incentive on suppliers to contract with green generators beyond 2017. Most independent suppliers find it difficult to assimilate intermittent output into their portfolios. Many of the niche green suppliers have sought out new FiTs customers, and some of the growing independents fall back on the rolling Non Fossil Purchasing Agency (NFPA) auctions for Rocs and green power. This bias against entering into PPAs is compounded by credit issues and the endemic state of illiquidity in the British wholesale electricity market. Furthermore there is no obvious green premium under carbon reporting requirements.

Pulling all these factors together, we conclude that post 2017 there is a need for an alternative pull-through mechanism or a guaranteed route to market to supplement the legacy RO. The second part of our response therefore addresses what this alternative mechanism might be.

In an attempt to avoid open-ended regulatory interventions (supplier obligation, purchaser of last resort) we have developed some thoughts around the current NFPA auction arrangements and how this might be developed to provide a more certain market-place. To underpin this arrangement and to make it whole against the CfDs, we propose flexing of the current NFFO arrangements that remain in place. Under this

approach the non-fossil fuel levy could be switched on to recover any shortfall between the achieved auction prices and a value based on guaranteed CFD payments.

We have set out our thoughts in greater length in an *Energy perspective* piece, which we will publish shortly. An advance copy is at Annex 2.

We would be delighted to discuss with officials our proposals and address any clarifications or questions you might have.



Annex I – Diminishing demand for Rocs and green power in the GB power market

Introduction

Independent generators have played a significant role in supporting the growth of renewables capacity over the last decade.

According to Renewable UK², these companies now own and operate 45% or 2GW of existing onshore wind capacity. Across onshore and offshore wind, independent companies fully control 7.5GW of projects in construction, planning or development. In addition around 350MW of the total 1.2GW of dedicated biomass plants are owned and operated by independents. Of the further 3.2GW with consents, 2.9GW is being developed by these companies. And much of the 1.8GW existing (and future) energy-from-waste capacity is owned by waste and water utilities.

Smaller generators are distribution-connected and do not participate directly in the wholesale market, but their product still needs a route to market. Consequently they will contract with a supplier or other BSC-registered party that has access to the traded markets, and this commercial mechanism is usually termed the offtake market. They do this through bespoke contracts, that is, PPAs. These are typically multi-year arrangements that embody a significant commitment from both parties, especially for project-financed stations that need to evidence secure future cashflows to their lenders. The securing of a credit-worthy PPA is critical to raising the debt on which the greater part of the project is financed.

The offtake market has seen mixed fortunes. In 2008 Cornwall Energy and Professor Stephen Littlechild noted a market in recovery³ from the bad times of 2002-04 when some said generation sector as a whole was “bust”⁴. In the last year or so, though, things seem to have been on the slide again. DECC’s call for evidence reports independent developers are finding it increasingly difficult to attract PPA offers on bankable terms. Offtakers seem to want a greater share of cashflows, and fewer companies are active on the buy-side of the market. One participant reportedly has accounted for the majority of the buying-side of the market in both 2011 and so far in 2012.

If this deterioration is maintained, it could lead to a decline in renewables investment at the time when DECC had been assuming it would increase rapidly.

Cornwall Energy research and findings

Cornwall Energy regularly publishes forecasts of developments in the RO market, with a specific focus on the values of Rocs. We also forecast other third party charges seen by suppliers. Using this knowledge we have undertaken some research and analysis of the Big Six’s ability to meet its obligations over the period 2012-17. We have split our research into two sections: Rocs sourced by the Big Six 2012-17; and Big Six obligations 2012-17.

Rocs sourced by the Big Six 2012-17

In this section we estimate how many Rocs can be sourced by the Big Six from their own Roc-eligible assets and through PPAs we believe to be currently in place.

Our starting point was to understand the operational renewables assets owned by the Big Six which are eligible to receive Rocs. Our main source for this research was Ofgem’s Renewables and CHP Register, in particular the Certificates and Accredited Stations spreadsheets.

There is nearly 11GW of non-co-fired renewables capacity accredited to receive Rocs, and just over 40% of this is directly owned by the Big Six.

² Renewable UK wind database: <http://www.bwea.com/ukwed/>

³ Cornwall Energy/ Professor Stephen Littlechild report:

http://www.cornwallenergy.com/cms/data/files/Homepage/Archived%20reports/2008/de_draft_report_080617.pdf

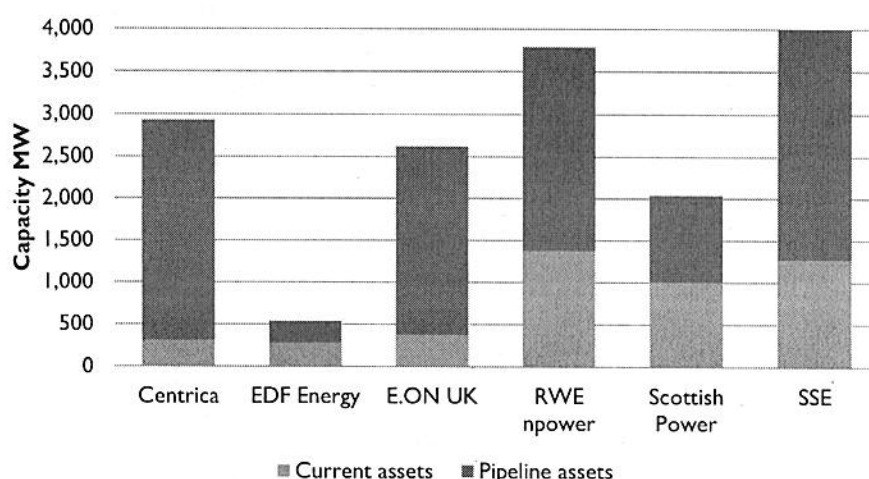
⁴ Sky News report: <http://news.sky.com/story/132618/powergen-mothballs-plants>

We have researched the project pipelines for these operators, based on Roc-eligible projects which are in scoping, planning and construction, and are anticipated by the developer to be commissioned by 2017. The main sources for this research were Renewable UK's Wind Energy Database, government planning consents to projects (DECC), company websites of the Big Six and wider market intelligence.

There is over 10GW of Big Six-owned projects which could be commissioned by the end of 2017, including several large-scale onshore wind, offshore wind and biomass projects (conversions and new build).

Figure 1 below shows the Big Six-owned Roc-eligible capacity and the projects in the pipeline (also Roc-eligible) which could be built by 2017 based on grid connection dates and developers' latest statements on commissioning dates.

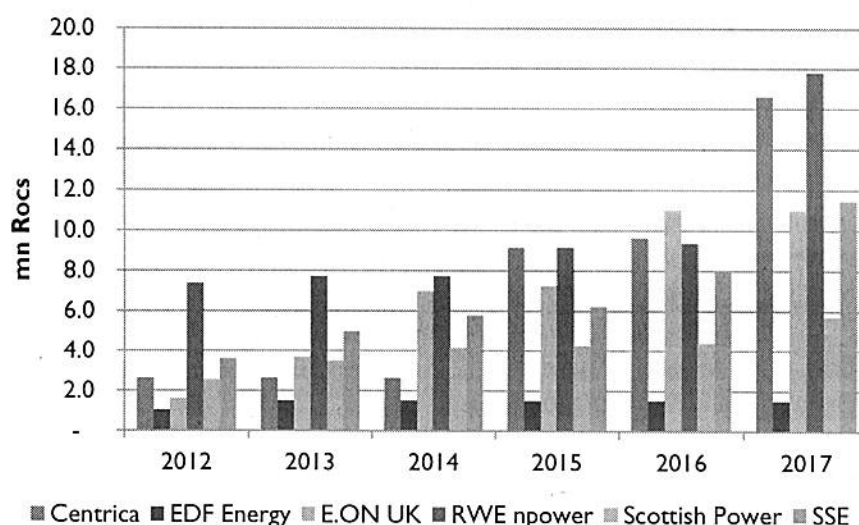
Figure 1: Big Six current renewables assets and project pipeline (MW)



We have applied long-term average load factors using data from DECC Dukes and Ofgem's Renewables and CHP Register to analyse the volume of electricity which will be generated by the Big Six's assets—both operational and pipeline projects—in the period to 2017. To each project we have assigned a Roc banding based on the awards set out for 2009-13 and the government's recent response to the Roc banding review for 2013-17.

We have found the number of Rocs from Big Six-owned projects could rise from around 19mn in 2012 to 64mn in 2017. This is detailed in Figure 2.

Figure 2: Big Six generated Rocs 2012-17 (mn Rocs)



Members of the Big Six also have PPAs in place with renewables generators which can be a further source for them to purchase Rocs directly. This information is not in the public domain, but we have been able to

estimate the numbers of Rocs that are sold directly to the Big Six through PPAs by using Ofgem's Renewables and CHP Register (the Certificates spreadsheet).

This data suggests there are over 5mn Rocs sold through PPAs to the Big Six each year—mainly from onshore wind, offshore wind and landfill gas. For the purposes of this analysis we assume this level of Rocs is sold directly to the Big Six over the period to 2017.

Big Six obligations 2012-17

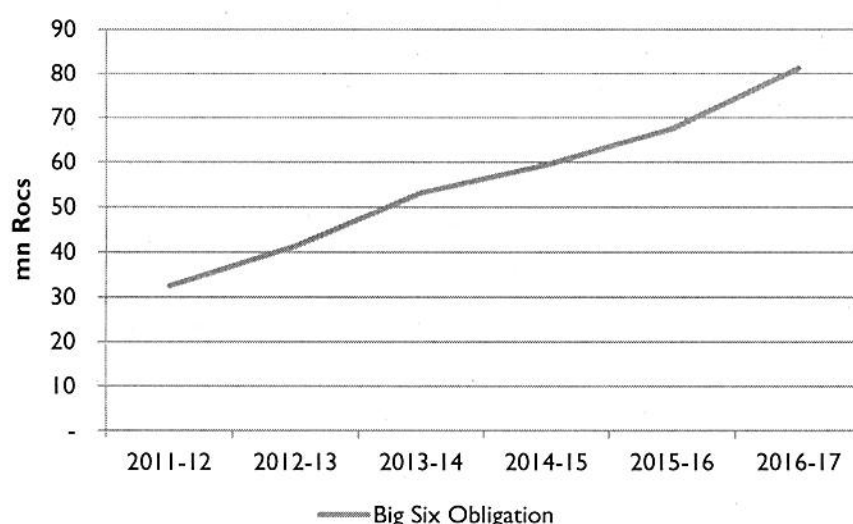
In this section we estimate the combined obligations of the Big Six under the RO in the period 2012-17.

A licensed electricity supplier's obligation under the RO is based on the electricity its supplies in a given year multiplied by the target in that year (or Compliance Period). For instance if an electricity supplier sells 10,000MWh to end users in the year and the target is 0.158Rocs/MWh, it will be obligated to source 1,580 Rocs, or pay to make good the shortage in Rocs in sources.

As a starting point we have taken electricity supply data from Ofgem's Consolidated Segmental Statements for the Big Six, published⁵ in January this year. We have then assumed that volumes supplied by the Big Six will remain constant over the period to 2017.

As part of our RO modelling work we estimate what the obligation will be set out in future years and have applied our forecasts to the electricity supply data. The results of this can be seen in Figure 3.

Figure 3: CE forecast of Big Six obligations 2012-17 (mn Rocs)



Big Six ability to meet their Renewables Obligations

In this section we consider the ability of the Big Six to meet their combined obligations in the period 2012-17 with Rocs sourced from within their vertically integrated companies (including their renewables businesses) and Rocs received under the PPAs implied from Ofgem's Renewables and CHP Register.

We have pulled together our findings from the previous two sections to analyse the Big Six's ability to meet their obligations. These interactions are shown in Figure 4.

Comparing the red (Big Six owned Rocs and PPAs) with the blue line (Big Six obligation) shows there is a shortfall in the number of Rocs potentially sourced by the companies against their obligations, which ranged between 9mn and 19mn. At this stage this would suggest the Big Six would have significant appetite for Rocs in the period to help meet their obligations.

The RO obliges suppliers to purchase Rocs, not electricity, from renewables sources.

From the supplier perspective, buying wholesale power involves security of volume in terms of the predictability of the volumes arriving and the certainty with which they can sell the power to end users.

⁵ Ofgem Consolidated Segmental Statements for the Big Six:

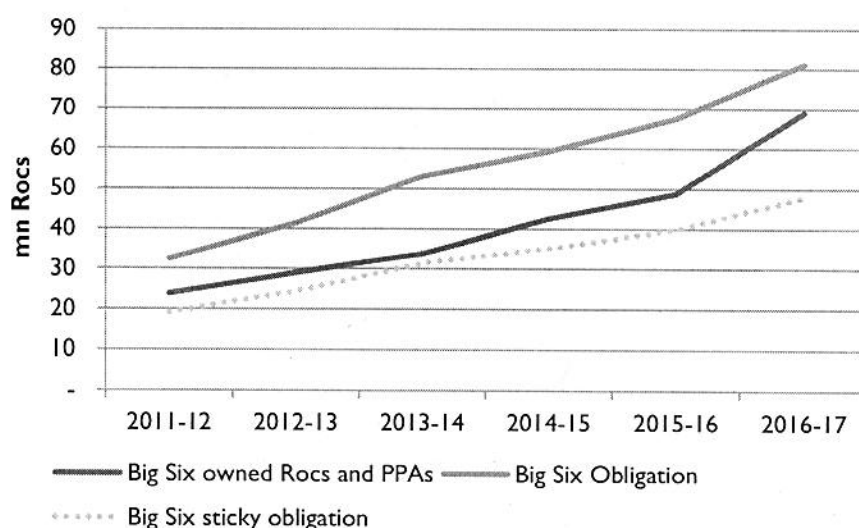
<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=78&refer=Markets/RetMkts/rmr>

The retail market breaks down into two distinct customer types—customers who switch and those who do not (we call these sticky customers). Sticky customers are generally domestic and SMEs, and are likely to remain with the same electricity supplier for several years. If they do change supplier they will switch typically from one of the Big Six to another of the Big Six (independent supply remains as yet minimal in the smaller end of the market). Switchers are generally larger users (usually on half hourly meters) and can transfer on a more regular basis.

Electricity suppliers have confidence in selling volumes generated in their own power stations into the long term to their domestic and SME customers.

We believe, therefore, a distinction must be made in the Big Six's estimated obligations in Figure 4 to separate the obligations for the sticky customers from their other customers. Of the ~270TWh of electricity supplied by the Big Six in 2010-11 just under 60%, or ~160TWh, was sold to sticky customers. We have considered the implied obligation of the Big Six based on volumes sold to the sticky customers, noted by the dotted green line in Figure 4. This chart suggests the number of Rocs that can be sourced by the Big Six exceeds their aggregate obligation based on volumes sold to their sticky customers.

Figure 4: Big Six ability to meet their obligations



Implications of our analysis

Under the RO suppliers must source a set proportion of Rocs to comply with their individual obligations. A major source of these Roc purchases has historically been under PPAs with generators for the power and Rocs (and other green certificates). Together with this, many of the Big Six are able to source Rocs internally through their renewables assets. Our research shows that one of the Big Six can now fully meet its obligation in 2012-13 by sourcing Rocs internally.

This trend is likely to continue, especially given the major Big Six-owned renewables projects in the pipeline, most notably offshore wind Rounds 2 and 3 stations. Added to this, the Big Six already have PPAs in place which include the transfer of Rocs.

The Big Six are, in aggregate, able to meet the implied obligations for the volumes sold to their sticky customers. This hastens the question, why would the Big Six want to get locked into long-term contracts to purchase power and Rocs to sell to customers and meet their obligations under the RO for anything beyond their sticky customers? We believe this may be one of the root causes behind DECC's observations that independent generators are finding it increasingly difficult to attract PPAs on bankable terms.

Furthermore there is potential in the next few years for five of the Big Six to be able to meet their obligations with Rocs sourced internally and through PPAs. This could leave a situation of monopsony—where there is general disinterest by the large suppliers who have historically catalysed this part of the market and just one or two major electricity suppliers in the market wishing to purchase Rocs (and power) through PPAs. This situation could lead to independent generators being forced to accept less attractive PPAs given a lack of options.

Annex 2

Scoping a new pull-through mechanism for renewable generation

In a recent call for evidence, DECC brought timely focus on the current state of the market for independent generation output. It highlighted a number of very germane issues about possible interactions with the government's Electricity Market Reform (EMR) proposals on the so-called "offtake market". DECC reported independent developers are finding it increasingly difficult to attract purchase offers for the power they produce on bankable terms. The implication in the document was that, if this general deterioration is maintained, it could lead to a decline in renewables investment at the time when DECC had been assuming it would increase rapidly.

We set out preliminary views on the call for evidence in a recent comment [ES337, pp2-4, 16/7/12], supporting the need for compensating action by DECC. The response date passed last week, and we reprise here some of the key points of our response, which we are today posting on our website. The key message is the need for development of a new pull-through mechanism for green power to replace the Renewables Obligation (RO).

Context

The offtake market for electricity produced by independent renewable generators has been through significant change over recent years. In 2002 it indirectly under-went a major redesign when the old capacity tendering mechanism under the Non Fossil Fuel Obligation (NFFO) was scrapped because of concerns the government was picking winners and that many contracts, beat down on price, never translated into operating assets. The NFFO was of course replaced by the RO. This swapped the guaranteed all-in price approach of the NFFO with a market-based premium only for the green output. Crucially this change meant that developers still needed to secure long-term contracts from a third-party purchaser for their electrical output to have a bankable project.

Even since 2002 the offtake market has seen fluctuating fortunes. In 2008, in a joint report with Professor Stephen Littlechild, we noted a market in recovery⁶ from the bad times earlier in the decade when some said the generation sector as a whole was "bust"⁷. One commentator went as far as saying that the best strategy to mitigate losses from new windmills was "to turn them off", as non-firm quantities were being paid derisory spill rates in the early days of NETA, and the bilateral market was slow to take off. To provide a route to market outside the bilateral market, especially for smaller operators operating under legacy arrangements, the Non Fossil Purchasing Agency (NFPA) developed six-monthly auctions of largely seasonal power bundled with green certificates and it also developed quarterly and latterly monthly auctions for surplus Rocs. Traded volumes on this platform as a proportion of the entire Roc market have been modest, although the proportion of Rocs that are openly traded and which go through the platform is substantial.

But in the last year or so things seem to have been on the slide again triggered by the government's proposals to replace the RO by the contract for difference feed-in tariff (CfD FiT) support for new low-carbon generation. The proposals have elicited mixed responses from renewables developers, with many being nervous about a complete overhaul in support structures at a time when banks and lenders seem to have become a lot more familiar with the RO. Suppliers too generally have become used to managing intermittency risk especially where they have a diverse portfolio, but they have opted to do this because they were Roc hungry. This hunger arose because they can take a share of the green premium in the contract terms they enter into with developers, producing a lower net cost than if they had recourse to buying themselves out of the RO.

Depressed market/ diminishing incentives

Our response to DECC focuses on three particular views:

- based on analysis we have carried out, the firm market for Rocs is now largely met and this is actively contributing to the deterioration in energy purchase terms for many independent developers;

⁶ Cornwall Energy/ Professor Stephen Littlechild report:

http://www.cornwallenergy.com/cms/data/files/Homepage/Archived%20reports/2008/de_draft_report_080617.pdf

⁷ Sky News report: <http://news.sky.com/story/132618/powergen-mothballs-plants>

NFPA e-power auctions

The NFPA holds its online e-Power auctions twice a year to sell the output from the (fixed price long term) NFFO contracts to which NFPA is the counterparty and also to enable other renewables generators to sell their power to licensed electricity suppliers. In these auctions suppliers participate in a competitive bidding process for the right to receive electricity from renewables stations for a specified period, which can be six or 12 months.

Suppliers that are registered with the auctions can view the contracts on offer and make formal bids on the website for individual contracts. Auctions are highly competitive, with, for example, in the last auction an average of 12 bids placed for each contract, and can last a few days.

Contracts are then awarded to the supplier who submits the highest bid (each generating station), which is not bettered after a period of two hours. Successful bidders obtain the right to receive electricity and associated green certificates (Rocs, LecS and RegoS).

Bidding for the contracts takes place over a secure internet service. During the auction, all participants are able to see current highest bids, and final bid prices, though all bidding is anonymous.

- this situation will worsen through to 2017 as there are diminishing pressures on the Big Six to actively seek and compete for offtake volumes; and
- beyond 2017, CfD FiTs on their own will not help underwrite prices in the offtake market.

To get a fix on how this position can be rectified, we need to consider the wider market context. At the moment under the RO suppliers are obligated to buy the premium and not the power. To date renewables penetration has been low enough for the Big Six to buy power and Rocs under offtake agreements (including with their upstream affiliates and others) that they sell on to customers that are unlikely to switch, especially in the domestic market. Now renewables penetration is increasing to the extent that new green power must go to the non-domestic market, especially the I&C market. The norm here is for renegotiation of annual contracts, and suppliers have no surety of volume beyond the immediate contract period.

The volatility seen by suppliers is of course increasing (more wind), and this is swinging into the riskiest area of the supply market from a volume point of view. Therefore suppliers are (we think rightly) nervous of signing up to volumes that they will have trouble managing and may be difficult to place if they commit to long-term offtake contracts. We see the other side of this in the desire of some of the offshore producers to enter retail because of the deterioration they see in offtake contracts.

Against this background, we can see no financial incentive on suppliers to contract with new green generators on any scale. There will remain some drivers to purchase Rocs, for instance to meet any residual RO. Furthermore levy-exempt power will continue to be sought by suppliers given the preservation of the CCA regime through to 2023, though separate analysis we have carried out suggests supply of LecS will begin to out-strip demand towards the back end of the decade. Many of the niche green suppliers have sought out new FiTs customers for their modest requirements, and some of the growing independents fall-back on the rolling NFPA auctions for Rocs and green power. This bias against entering into PPAs is compounded by credit issues and the endemic state of illiquidity in the British wholesale electricity market. Furthermore there is no current green premium under carbon reporting requirements, and we do not expect this situation to change.

Why DECC must act

Pulling all these factors together, we conclude there is a significant risk the PPA market will deteriorate further, and independent generators could face very unfavourable terms. There is a need for an alternative pull-through mechanism and this needs to be put in place well in advance of go-live of the new CFD FiTs.

Many independent generators we have spoken to would prefer to have the option to contract with a body under the EMR arrangements to which they could sell their output. The contracting body would then sell the power into the wider electricity market. Against the background of industry debate that is already heavily divided on how the CfD FiT counter-party model should work, we recognise that this might seem a disproportionate intervention (though one that should remain on the table).

The call for evidence signals the possible use of regulatory mechanisms to shore up the market, either through an obligation on suppliers to offer terms or through some newly created, bespoke purchaser of last resort. Both of these are significant interventions requiring extensive design work-streams to even test them in a

market place that is becoming littered with mechanisms and obligations. The presumption should be that such avenues are very much a last resort once all credible intermediate steps have been exhausted.

We think there is a much simpler route that can build on existing structures. In order to provide independent generators and investors with confidence, the government needs to ensure there is at least as an option a guaranteed way for generators to access the market in circumstances where adequate PPA terms are not forthcoming. We call this the “guaranteed market” approach.

This may not be as radical a suggestion as it sounds. Generators could use a route to market similar to the NFPA’s existing auction of e-power. In effect this already acts as a market for short-term PPAs. This could build on the current e-power platform (see *further details in box on previous page*) managed by the NFPA and operate broadly along the following lines:

- monthly auctions of renewables output with associated certificates;
- locational market as at present;
- suppliers having ability to match regional supply requirement or consolidate volumes, regions and technologies;
- extend beyond immediate season ahead and include forward seasons;
- pay-as-bid by suppliers; and
- standard terms, including credit.

Squaring the circle

The one major flaw with this model as it stands in the new world post EMR is whether a generator would be able to obtain finance for the plant on the basis of the CfD FiT alone. As we have explained the proposed mechanism continues to guarantee the level of the green premium, and does not address placing a value on the underlying power. Investors would still require a generator to have a long-term PPA or some form of purchase guarantee.

To make the model viable would require a top-up funding mechanism to ensure the generators were not distressed sellers. This could be done by matching the difference between the CfD strike price (or more appropriately an alternative value expressed in relation to it, *on which more below*) and the value realised through the auction. The sum of these difference payments could be recovered as a flat amount/MWh across suppliers through a mechanism such as the levy under the existing NFFO.

The benefits of this proposal are that the generator would be able to finance their plant, realising the full CfD contract price, and power from these generators would still be sold into the market in an orderly manner at (where necessary) topped-up prices that would satisfy lenders. The net cost of the arrangement to government should be no different as CfD strike prices on a project basis would need anyway to be adjusted to take into account the difference between traded prices realised by merchants and the market reference prices against which the CfDs will be struck.

There would need to be one further key embellishment to ensure that aggregators and specialist suppliers were not disadvantaged. Some of the better prices being achieved in the market are sourced from these specialists, particularly in the smaller developer space. Their business models should be supported not undermined by such interventions. Because of this the top-up payments should be expressed at a discount to the difference between the CfD price and the achieved value in the auction. In effect the auction process would produce a floor price, but that of itself could of course be the difference between a bankable project and one that was not.