DEPARTMENT OF ENERGY & CLIMATE CHANGE

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

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Independent generators are likely to make a valuable contribution to meeting our renewable energy and de-carbonisation goals. Independent generation developers typically rely on long-term offtake contracts (Power Purchase Agreements or PPAs) in order to secure the finance they need. Developers have reported that the PPA market has deteriorated and that there is a risk of an investment hiatus.

This call for evidence sets out the role of independent renewable developers in delivering low carbon generation, the requirements of a competitive long-term contract (PPA) market in ensuring independent renewable developers are able to play a continued role and high-level options that may be necessary to remove barriers to achieving an efficient route to market. This call for evidence focuses on independent renewable generators, but we are also interested in evidence from non-renewable generators and have issued a separate call for evidence on the role of gas generation in the electricity market. The Government will take into account views expressed in response to both exercises in formulating its response to these issues.

1. The Government's overall energy objectives and Electricity Market Reform

1.1. The Government's energy and climate change goals are to deliver secure energy on the way to a sustainable low carbon energy future and drive ambitious action on climate change at home and abroad. To achieve this it is critical that we address both security of supply and climate change challenges while maximising the benefits and minimising costs for consumers and taxpayers. To meet these challenges an estimated £110 billion[1] of investment in electricity generation and transmission is needed in this decade alone. Electricity Market Reform is intended to secure a significant part of the investment needed to deliver a reliable diverse low-carbon technology mix.

[1] Our analysis shows that around £75 billion could be needed in new electricity generation capacity, and Ofgem's 'Project

2. The role of independent developers

2.1. The Government's vision is for a competitive and efficient market that attracts a wide pool of investment. Whilst the large vertically integrated energy companies will be an important source of continued investment, they may not able or be best placed to invest at the scale and speed that is needed to meet the challenges ahead. In the last few years independent developers have played an important role in delivering new capacity in the renewable and gas generation sectors and could play a key role in meeting the Government's goals and deliver essential investment in the future, provided market conditions are right.

2.2. A PPA with a credit-worthy counterparty is usually required before lenders will provide finance for a project, as it provides comfort that revenues are reasonably secure and risks will be appropriately managed. Some independent developers have said that they are finding it harder to secure PPAs and are concerned that the transition to the CfD will further constrain their ability to secure PPAs on bankable terms.

2.3. This Call for Evidence seeks views and evidence in relation to the concerns raised by independent renewable generation developers. The Government is considering whether similar issues may also affect independent gas generation investors. The Government has issued a Call for Evidence on the role of gas generation in the electricity market[2] and will take into account views expressed in response to both exercises in formulating its response to the issues.

2.4. This Call for Evidence will not impact on the Renewables Obligation banding review. It seeks to gather information that informs us about ensuring a competitive market in which independent generators, including renewables, are able to secure long-term bankable contracts for their electricity. This is critical to EMR's aims of ensuring new investment in independent generation projects of all technologies, whether renewable generation is being supported via either the RO (until 2017) or CfDs (from 2014).

3. The role of independent renewable developers and EMR

Discovery' estimated that around an additional £35 billion of investment is needed for electricity transmission and distribution.

[2] http://www.decc.gov.uk/assets/decc/11/consultation/role-gas-electricty-market/5183-call-evidence-gas-electricity-market.pdf

3.1. For the purposes of this document, we define 'independent renewable developments' as those renewable projects that are not owned by the six large vertically integrated utilities (VIU) or projects in which those large companies do not have a significant stake. Independent renewable developers are not an homogenous group; some are large European or international utilities that do not currently have a major presence in the UK wholesale or retail markets, others are medium or small-scale firms that focus exclusively on renewables development and in some cases on particular renewable technologies.

3.2. The Government set out in the EMR White Paper[3] in July 2011 its decision to provide increased revenue certainty to low-carbon generation through use of a Feed-in Tariff following the structure of a Contract for Difference (CfDs). CfDs will facilitate investment in low carbon generation through removing long term exposure to electricity price volatility.

The recent role of independent renewable developers

3.3. Independent developers have played a significant role in supporting the growth of renewable capacity in the UK electricity market over the last decade; particularly in onshore wind and biomass where they own and operate 45% (c2GW) of existing operational onshore wind capacity.[4]

3.4. In recent years the independent wind sector has matured with consolidation leading to a modest number of companies who control the majority of the operating onshore wind market. Other independent players have been acquired by larger utilities. Since 2010, the vertically integrated companies seem to be showing less of an appetite for acquiring or co-owning onshore wind projects developed by independent companies. This may be driven by their existing large holding of onshore projects in operation, construction and planning and/or a shift in focus towards the offshore wind market.

3.5. There is 1.2GW of operational dedicated biomass plant[5] of which around 850MW[6]. is in VIU ownership. However, this represents a small number of medium and large scale plants, with the significant majority of dedicated biomass stations owned and operated by independents. The 1.8GW of operational Energy from Waste (EfW) capacity is predominantly owned by waste and water utilities. VIU interest in biomass is mostly through co-firing in coal plant, although independent generators are also

[3] http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/emr_wp_2011.aspx
[4] Analysis conducted on data extracted from RUK webpage: http://www.bwea.com/ukwed/operational.asp.
[5] Energy Trends March 2012 - provisional 2011 data. N.B. this includes the 750MW Tilbury conversion which is not currently operational.
[6] REPD

significant operators in this sector.

The future role of independent development

3.6. Independent development companies are likely to play a continuing and significant role in bringing forward further renewable generation. There is also expected to be an increasing role for a distinct type of independent development company in the onshore and offshore arenas over time. Based on data available today, across onshore and offshore wind independent development companies currently fully control 7.5GW of projects in construction, planning or development.

3.7. Independent development companies look likely to remain key to deployment in onshore wind. Independent renewable developers are either building or seeking consent for over 3GW of onshore wind generation capacity. Combined with independent development companies' ownership of over 2GW of operating onshore capacity, and noting that not all of the projects in consent will get built, independent development companies will control between 2.4 and 5GW of onshore wind capacity in due course. [7]

3.8. The scale of independent involvement in offshore wind is also significant, albeit focussed on a different group of investors (large European utilities, oil companies and finance houses). There are around 4.5GW of projects across Round 1, Round 2 and Round 3 extensions and in Scottish Territorial waters where these categories of independents are not in consortia with the VIUs. [8]

3.9. Both VIUs and independents are also interested in expanding biomass generation through enhanced co-firing and conversion of fossil fuel plant to dedicated biomass. Approximately 3.2GW of new build biomass plant has been consented across all technologies, 2.9GW of which is being developed by independents. The EfW pipeline shows 847MW of consented projects awaiting construction and 277MW under planning consideration. These projects are almost exclusively being taken forward by independents, as are developments of new advanced conversion technologies (e.g. anaerobic digestion, pyrolysis and gasification).

3.10. Given the continued major role expected to be played by independent development companies and their reliance on credit worthy bankable PPAs for funding, the development of a material proportion of renewable energy projects may

[7] Analysis conducted on data extracted from RUK webpages: http://www.bwea.com/ukwed/construction.asp; http://www.bwea.com/ukwed/planning.asp; http://www.bwea.com/ukwed/operational.asp. Planning data limited to submissions since the start of 2010.

[8] Analysis conducted on data extracted from The Crown Estate 'UK Offshore Wind Report 2012': http://www.thecrownestate.co.uk/media/297872/UK%20offshore%20wind%20report%202012.pdf.

be dependent on the future condition of the PPA market in the UK. However, we recognise that PPAs may not be the only vehicle for supporting independent renewable generation investment.

4. The PPA Market

4.1. PPAs allow independent renewable developers to transfer market risks away from their projects to market participants who are better placed to manage those risks. These risks include, for example, imbalance, wind forecasting risk, and availability of sustainable biomass feedstocks. By operating at scale (e.g. with significant trading capabilities) and exploiting the benefits of a wider portfolio the large VIUs and other power aggregators should be able to offer cost-effective risk-management services. The costs of offering these services will generally be reflected in the terms of the PPA, including discounts. [9]

Finance of independent development

4.2. The existence of a competitive and supportive PPA market has been key to fuelling the financing of projects owned and operated by independent renewable developers. Independent renewable development has predominantly relied on raising both equity and project finance debt. Equity investments have been required to take projects through the development cycle, to successful consenting, and then further equity has been required to finance a portion of the construction costs. The returns for the equity investors in construction and operating projects have typically been underpinned by PPAs that offer certain routes to market and predictable pricing levels for the sale of power and green benefits by the projects to the PPA counterparty.

4.3. Project finance debt has typically been raised once the project is at an advanced stage of procurement in preparation for the construction phase. The provision of a credit worthy and bankable PPA has been a pre-requisite for ensuring a successful process of debt raising. Historically, where PPA arrangements have been viable, project finance debt has financed between 60-90% of total construction costs and has been key to ensuring projects are economically viable for their shareholders.

4.4. Historically the PPA construct that has most commonly balanced the interests of equity and debt investors in independent generation has been long-term (15 year)

[9] These costs might be a larger share of revenues from generation for projects with intermittent output (e.g. wind), which would require more active trading, and for smaller projects, which might be more expensive due

PPAs, provided by the large VIUs and other large European Utilities. Our review of publicly available information highlights that between 2006 and April 2012 this type of PPA accounted for 88% of projects financed by independent renewable development companies in the UK market (across all technologies).[10]

The current PPA market

4.5. Independent developers have said that they are finding it increasingly difficult to attract PPA offers on bankable terms i.e. that discounts are higher and fewer firms are submitting PPA tenders. Other issues have been raised including the higher discounts applied to PPAs in GB compared to other European markets.

4.6. The Government's analysis of the available evidence and preliminary discussions with stakeholders, does suggest there has been a decline in the number of counterparties and a concentration of market activity. Whereas during 2006-2010, in each year the market was reasonably well distributed between different counterparties, in both 2011 and 2012 one participant seems to have accounted for the majority of the market.[11]

4.7. Some of the factors that may be affecting the PPA market were set out in the draft CfD Operational Framework published in May 2012.[12] These include:

- liabilities assumed in long term contracts by PPA providers being recognised on balance sheets or by ratings agencies, which could put a company's credit rating at risk;

- an increasing proportion of intermittent generation on the system will lead to uncertainty of the costs of balancing in the future, and requires more active trading and higher collateral requirements for hedging. Possible changes to the balancing mechanism will also add to this uncertainty;

- large vertically-integrated companies with a Renewables Obligation to meet increasing the size of their own RO-eligible portfolios and thereby seeing a route for meeting their obligation through their own generation in the coming years;

- the lack of liquidity and forward trading that damages price formation and investment signals, and may be limiting participation from independent aggregators; and

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to fixed costs (e.g. forecasting) being spread over lower generation output.

[10] Data taken from Infrastructure Journal (www.ijonline.com) Analytics (Transactions) and supplemented with detail from historic News service dispatches.

[11] Based on data available from 'Infrastructure Journal'

[12] http://www.decc.gov.uk/assets/decc/11/policy-legislation/EMR/5358-annex-b-feedin-tariff-with-contracts-for-differe.pdf

- limited competition due to the small number of credit-worthy PPA counterparties that satisfy external debt providers.

4.8. Notwithstanding the issues identified above, PPAs are being agreed and projects are being financed as a result.

5. Impact of Electricity Market Reform on the PPA market

5.1. *Planning our electric future: a White Paper for secure, affordable and low-carbon electricity*[13] set out the Government's intention to introduce a Feed-in Tariff with Contracts for Difference (CfD) as a new mechanism to support investment in low-carbon electricity generation. The CfD works by stabilising revenues for generators at a fixed price level known as the 'strike price'. Generators will receive revenue from selling their electricity into the market as usual. However, when the market reference price is below the strike price they will also receive a top-up payment from suppliers for the additional amount. Conversely if the reference price is above the strike price, the generator must pay back the difference.

5.2. The CfD offers important benefits to developers and consumers including:

- CfDs improve long-term revenue certainty, lowering the cost of capital for low-carbon generators;

- the principle of 'grandfathering' CfDs provides investor certainty, so a CfD cannot be changed retrospectively once issued;

- as an inflation-linked instrument the CfD may be attractive to a wide group of investors; and

- CfDs retain short-term market signals for efficient operation of low-carbon plant and as a result, they are more cost effective than other options for support, reducing the cost to consumers.

5.3. In the Government's view the CfD may have a number of positive impacts on the PPA market. Compared to the RO, the CfD is likely to result in a simpler PPA as we expect the PPA to just cover power and the associated financial flows[14]. Combined

[13] http://www.decc.gov.uk/assets/decc/11/policy-legislation/EMR/2210-emr-white-paper-full-version.pdf

[14] A variable price PPA, for example indexed to the day-ahead reference price, could, in combination with the

with there no longer being a requirement to monetise the ROC,[15] this may make the market more attractive to independent aggregators who could provide increased competition.[16] Independent aggregators are already active in the market and it is notable that a large European utility won the majority of PPA business during 2011.[17] An independent aggregation function does, however, need a competitive energy market in order to be sustainable. We consider increased liquidity as critical to maximising the opportunities for independent aggregation. Other reforms including improved cash-out arrangements are also likely to be important factors.

5.4. However, the Government is aware there is a risk that the conditions for effective competition between independent aggregators and the incumbent vertically integrated players do not develop quickly enough and that competition in the PPA market remains muted. It may be the case that the transition to the CfD presents a learning curve that the market will adjust to in time, but creates a degree of investment hiatus during the period of adjustment.

5.5. The Government believes in the medium to long term there will be incentives to offer PPAs because there are commercial opportunities in providing the risk management services. Most notably, larger companies will typically be able to manage the balancing risks more effectively than smaller generators because:

- across a larger portfolio aggregate forecast inaccuracies will tend to be lower – although output at one windfarm may be lower than forecast, at another it may be higher than forecast for example. This effect increases with the size and geographical distribution of the portfolio;
- a larger portfolio may include larger proportions of dispatchable generation;
- they may have access to thermal plant that can provide balancing services; and
- they are likely to have better trading capabilities and can use the intra-day market to further reduce imbalances.

5.6. In addition to the balancing services that larger companies can offer, large suppliers

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CfD, result in largely stable revenue flows for independent (intermittent) renewable generation over time. The discounts associated with a variable price PPA might be expected to be lower than those under a fixed-price PPA. However, we understand that some stakeholders have expressed concerns that the CfD could exacerbate the risks associated in offering fixed-price PPAs.

[15] Only electricity suppliers with a Renewables Obligation can monetise the ROCs. It has been suggested that this has acted as a barrier to independent aggregators.

[16] Independent aggregators are non vertically integrated market participants who purchase power and use their economies of scale and trading capabilities to deliver efficient risk management.

[17] Based on data available from 'Infrastructure Journal'

will also have an incentive to offer PPAs linked to the CfD reference price. This would provide a hedge against their exposure to CfD top-up payments.

5.7. Reflecting this, and given that Government is bringing forward a number of important changes to the electricity market, it will be important to understand the extent to which any problems identified with the operation of the PPA market are either transitory or might be expected to be addressed by these reforms. Indeed, any intervention would need to be mindful of, and be consistent with, the changes that are taking place to the electricity market.

6. Options

6.1. The Government recognises the importance of independent investment in the UK and the role that PPAs play in securing project finance, but it should be noted that the Government has not made any decision on whether it is right to intervene. We wish to establish whether there is a problem, the extent and causes of that problem, how these might be affected by the package of energy market reforms, and the least-cost options that could be deployed if intervention is appropriate. Any response will need to take account of the issues for all the technologies that the Government wishes to see playing a part in the energy mix over the coming years and the views expressed in relation to the current call for evidence on gas generation

6.2. It is possible, however, that some form of intervention, regulatory or otherwise, could be appropriate. The Government's starting principle is that intervention should always be minimised and limited to responses that are proportionate, targeted and, as a result of which, deliver benefits that outweigh the costs. Our objective for any intervention would be to minimise the costs to consumer of achieving our decarbonisation and security of supply goals by reducing, where possible, barriers to participation and investment by independent developers while maintaining efficient operation of the electricity market and preserving incentives for the market to develop its own solutions to offtake risk. Any intervention might therefore be time limited and should enable a smooth transition to a market-based solution, and should minimise any unintended consequences or market distortions.

6.3. The following table sets out a number of possible initial and high-level options, some of which were identified by industry. The options that have been put forward can be grouped into three broad categories:

- voluntary market led initiatives;
- competition measures; and

- direct regulatory interventions

6.4. The options have been included to stimulate discussion and provoke thinking. They are not intended to be definitive and market participants may have alternative proposals. It is also possible that one intervention could be used in combination with another.

6.5. In addition to the options set out in the table, some stakeholders have suggested a financial incentive to purchase low-carbon power. Under this approach CfD costs would be levied on suppliers in proportion to the fossil-fuel or carbon content in their electricity mix. This would provide an incentive for suppliers to source more electricity from low-carbon sources to avoid paying higher CfD costs. However, there is no guarantee that they would do so by offering PPAs. In addition this approach would distort the incentives put in place by other relevant energy policies (for example the Carbon Price Floor), and there is a significant risk that the proposal disincentivises investment in gas-fired generation which is essential for meeting our security of supply objectives. For these reasons, and based on the information currently available, the Government does not consider this to be a viable option.

High-level options to address issues in the PPA market

Type of option	Description	Key effects and issues associated with implementation
Market-led initiatives	Market participants work to: Establish PPA contract models consistent with the CfD regime; and/or Develop codes of practice covering issues such as pricing transparency and market participation.	Initiatives in the market to improve transparency and availability of PPAs are likely to deliver benefits more quickly than any regulatory approach and are likely to be least distortionary. The key risk is that whilst these measures may deliver more quickly, they rely on market participants agreeing on the problem to be tackled and on the approaches to addressing it.
Competition Measures	Such steps could include: Improving liquidity. Ofgem have set out their approach to this and we have seen industry initiatives deliver significant increases in day ahead liquidity Cash-out reform. This could provide more predictable costs of imbalance, which could reduce the costs of managing the risks. Measures to support independent aggregators. This could introduce additional competition to the	Promoting competition by, for example, improving transparency and efficiency in market operation is likely to be significantly less distortionary than any specific measure, with increased consumer benefits. However, these measures (with the exception of steps to support independent aggregation) are not specifically intended to address the PPA issue, and rather rely on improvements to the wholesale market to support the independent PPA market.

Type of option	Description	Key effects and issues associated with implementation
	market and reduce costs to independent generators.	The delivery of some of the measures may take some time to deliver benefits: cash-out reform is likely to take time to deliver; and it may take time for independent aggregation to emerge at a sufficient scale. Steps to support independent aggregation may have a direct effect on the PPA market by providing a wider range of credit-worthy counter-parties. The capacity of independent aggregators to support long-term contracts may, however, be limited. It would also be important to understand the overall costs and benefits of approaches to support independent aggregators.
Regulatory Measures	There are a number of possible regulatory measures, some of which have been suggested by independent renewable developers: An obligation on large suppliers to offer a PPA to any renewable developer that requested, offer	These measures are intended to specifically target the PPA issue identified by independent renewable developers. We consider that these sorts of approaches are likely in general to prove more distortionary with

Type of option	Description	Key effects and issues associated with implementation
	terms on a commercial basis. An off-taker of last resort who is obliged to offer standard, administratively set terms priced above the expected terms from a competitive bidding process.	the potential for higher costs to consumers. A supplier obligation would not create any further direct commercial incentive to enter into PPAs but would act to improve supply side conditions, stimulating greater competition in the PPA bidding process, and improving transparency. There is a risk that participation in tenders does not, in fact, resolve the PPA issue by leading to offers that are considered to be bankable. There are significant challenges associated with the creation of an off-taker of last resort model. It would be difficult to create a credit-worthy counter-party with the finance and capability to effectively manage energy market risks. There may be a concentration of risk on the part of the off-taker that could have unforeseen impacts on the efficient operation of the electricity market. Other market participants offering PPAs may simply bid up to the terms offered by the off-taker of last resort, or the existence of the off-taker of last resort might stifle competitive entry of aggregators.

Questions and Evidence sought

In responding to this call for evidence, the Government would like to highlight the need to provide robust evidence that can be quoted to support transparent policy development. In preparing the Government's response to the evidence gathered through this process we will, as far as possible, ensure that individual pieces of evidence cannot be attributed to individual respondents.

Whilst the focus of this call for evidence is on the concerns raised by independent renewable developers the Government is interested to hear views from a wide range of market participants including independent developers considering investment in other technologies.

Identifying the problem	
1.	Please could you provide a summary of your experiences with the PPA market over the past three years? Specific areas for which detailed information would be particularly helpful are set out in the Annex.
2.	Have you seen significant changes to the PPA market over the past three years, and if so, what do you think has driven this? If you have asked PPA providers for explanations of why changes have occurred, what reasons have been provided?
3.	How does the GB market for PPAs compare to other international markets? If you operate in other markets, how do PPA structures and terms differ? If terms differ what are the drivers behind the differences?
4.	What are the factors preventing or encouraging participation in the GB market? How (and why) do you expect these to change over time?
5.	Do you expect the EMR package to change the PPA terms that you might offer/receive and if so how do you believe they will change? What do you think is the primary driver for these changes?

6.	**What has been the determining factor in selecting a preferred PPA and PPA provider?**
7.	**Have you seen a change in investment returns as a result of the changing nature of PPA terms and can you provide an example, including how this has been calculated? Do you expect the EMR package to change investment returns, and if so what is the driver for this?**
Options to achieve the Government's objective	
8.	**What are your views (costs, benefits and risks) on the potential options discussed in this call for evidence that may be necessary to achieve the Government's objectives?**
9.	**What are your views of the potential for market distortions and possible impact on the wider market?**
10.	**Can you identify and explain any other viable options (voluntary, competition based, regulatory or otherwise) that should be considered?**

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Confidentiality and Data Protection Information provided in response to this call for evidence, including personal information, may be subject to publication or release to other parties or to disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004). If you want information, including any personal data that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals,

amongst other things, with obligations of confidence.

In view of this, it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information, we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, in itself, be regarded as binding on the Department.

Annex A

Specific areas for which detailed information would be particularly helpful:

For independent renewable developers	
a.	**How many counterparties have issued responses to your PPA tenders and has this number changed? If this number has changed, what has the trend been over this period?**
b.	**Generically, what proportion of these responses have been from utilities and what proportion from independent aggregators/non-utilities? Have you seen new PPA providers enter into the market in this period?**
c.	**Typically, what length PPAs have been offered to you in responses and if this has changed how has it changed**
d.	**Broadly, what are the sizes of discount factors that have been included in these responses and if these have changed how have they changed?**
e.	**Have floor price levels and conditions changed and if so, how have they changed?**
f.	**Has the nature of risk allocation relating to imbalance, change of law and collateral changed and if so, how has it changed?**
g.	**Have financiers become more or less risk averse and if their risk appetite has changed how has this impacted the terms PPA terms they are requesting to secure project finance?**
For PPA providers	
a.	**Have you seen an increase in the number of requests that you have received for the provision of PPAs?**

b.	**Have you have been able to respond to a larger or smaller proportion of the PPA requests for tender? If your ability to offer PPAs has increased or decreased over this period what have been the drivers (commercial or otherwise) for this change?**
c.	**Have the terms that you have been able to offer in response to PPA tenders changed, and if so how have they changed? What are the drivers for this?**
d.	**Have you been able to win more or fewer PPA tenders based on the terms you have offered?**
e.	**How do you think EMR and the CfD will influence the terms that you are able to offer in response to PPA tenders?**

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