CHPA response to Draft EMR Delivery Plan
25 September 2013

Executive Summary
The Combined Heat and Power Association (CHPA) welcomes the opportunity to respond to the consultation for the Draft EMR Delivery Plan. The CHPA is the leading advocate of an integrated approach to delivering energy services using combined heat and power and district heating and cooling.

Our response examines both CfD proposals for renewable fuel CHP and the capacity market proposals for fossil fuel CHP.

CHP plant can be used with biomass, bioliquid, energy from waste (EfW), advanced conversion technology (ACT), and anaerobic digestion (AD). The participation of renewable CHP within the CfD mechanism will play an important role in helping ensure the UK is able to meet its carbon emission and renewable energy commitments.

The opportunity for renewable CHP investment is substantial, with DECC projecting 1.5 GW of renewable CHP by 2020\(^1\). Within its membership, the CHPA is aware of more than 400MWe in renewable CHP plant expected to start construction before 2016, subject to policy decisions, generating 1,700 construction jobs and more than 400 operational jobs. These figures highlight the importance for CfD policy to help capture this renewable heat and electricity investment opportunity.

There are a number of key decisions which are not yet in place and without which, the Government’s ambition for new CHP deployment will be put at risk. They include:

- Providing a CfD strike price more equivalent to value received under the RO, by addressing concerns regarding heat revenue, electricity wholesale price projections, and fuel cost.
- Confirming a specific CHP tariff under the RHI, of at least 4.1p/kWh.
- Implementing an Enhanced Preliminary Accreditation (EPA) process under the RHI.
- Ensuring linked application and allocation processes for RHI EPA and the CfD.
- Guaranteeing the biomass sustainability criteria for the duration of difference payments under the CfD and RHI support.

The CHPA would welcome any opportunity to discuss any aspects of this response in further detail.

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\( ^1 \) DECC, 2013. ‘Future of Heating: Meeting the challenge’
Contracts for Difference (CfD) for renewables

1. Do you agree that CfD strike prices should be set comparable to the Renewables Obligation for the period 2014/15-2016/17? If no, why and what alternative would you propose?

We agree that the CfD strike prices should be set comparable to the Renewables Obligation (RO), but have concerns about how the Draft EMR Delivery plan attempts to achieve this end. We go into further details on these concerns in Questions 2 and 4.

2. The methodology for setting Renewables Obligation-comparable strike prices is described in Box 1 and the resulting strike prices are in Table 1. Do you agree that the strike prices we have set offer support that is comparable with the Renewables Obligation?

No, the RO-X calculation does not accurately compare to the Renewables Obligation. There are a number of factors why, which are detailed below:

Impact of shorter contract length under CfD
For every other technology option within the CfD, the RO-X calculation sets the CfD strike price at a higher level to compensate generators for the shorter contract length compared to the Renewables Obligation (RO). For example, in the ‘worked example’, located in Box 1 of Annex B, this difference in contract length adds £8 to the proposed strike price.

However, it is our understanding that the CfD strike prices for biomass and EfW assume heat demand will be lost after 10 years and that after this point, the plant is assumed to have no heat or electrical output. This would result in biomass and EfW CHP being the only technologies without an increase in strike price to reflect the shorter contract length under the CfD compared to the RO, as the CHP plant would be assumed to run only 10 years under both support mechanisms.

The CfD formula’s assumption that an investor assumes only 10 years of heat revenue does not accurately reflect a CHP developers’ investment decision. Investors and developers assume heat revenue for the life of the plant when determining a project’s NPV. The assumption of 10 years of heat revenue is also inconsistent with the Renewable Heat Incentive (RHI), where the tariff is based on a 20-year heat offtake. The risk of a loss of heat demand and revenue is reflected in the significantly higher hurdle rates required for a CHP investment (these higher hurdle rates are addressed in further detail in answer to Question 5).

We strongly urge the Government to change the CfD strike price formula to include a 20-year heat revenue assumption, and raise the strike price level to reflect the shorter contract length under the CfD.

Increase in electricity wholesale price
For technologies with static strike prices, such as biomass and EfW, the value from CfDs will not remain equivalent with the RO up to 2017. Under the RO, generators would be able to capture the increased value caused by increasing wholesale
electricity prices, and they can no longer capture this increase in value under the CfD.

As the wholesale price rises, this relative loss in value will grow and make the CfD less attractive compared to the RO, contrary to Government intention. The Government should therefore consider how strike prices can reflect changes in wholesale electricity prices up to 2017 to ensure CfD value continues to provide equivalent value to the RO up to the end of the Delivery Plan period.

**Electricity wholesale price forecasts**
We have some member concern the wholesale electricity price projections used in the CfD strike price formula are too low. We therefore recommend using third party external forecasts to strengthen DECC and National Grid projections.

**Fuel cost**
We are advised by some members that fuel cost estimates included in the strike price calculations are too low. A CHPA member has recommended the Argus biomass forward price projection as an appropriate reflection of international biomass fuel cost projections, and we encourage the Government to consider if this projection is appropriate.

There are also additional fuel costs faced by generators, including port dues, unloading, storage, onward transportation, and an uplift for the security of a long-term contract which need to be factored into the fuel cost assumptions.

**Heat revenue**
We understand that the goal of the CfD supply curve aims to calculate a CfD strike price so that the NPV of the marginal investment remains equivalent between the CfD and the RO. However, the inclusion of heat revenue in the calculation of the CfD strike price for dedicated biomass creates an inappropriate comparison.

DECC chose to split support for renewable electricity and renewable heat under the RO in order to ensure the two support mechanisms achieved different ends. It is unhelpful to now link the two measures again, and risks creating confusion and conflict as DECC tries to integrate two different support mechanisms. CfDs should aim to support biomass electricity generation, as was achieved under the RO, and the RHI should be used to raise the NPV sufficiently to support investment in CHP.

It is not clear if strike price calculations for ACT, AD and EfW technologies include heat revenue. For ACT and AD, the role of the CfD is to incentivise biomass power generation, and it is the role of the RHI to incentivise the generation of renewable heat from renewable CHP. This is especially the case for ACT and AD technologies, as they can be used with or without CHP. We recommend heat revenue not be included in these technologies’ strike price calculations.

**Effect on strike price of increase in RHI**
We note that the initial table of draft strike prices published alongside the Comprehensive Spending Review stated that DECC may adjust the Dedicated biomass CHP strike price (and other technologies with CHP) once RHI tariffs have been confirmed.
Linking the CfD strike price to the RHI rate would be counterproductive, as any reduction in CfD support to reflect changes in RHI support would risk negating the increased NPV provided by the higher RHI rate.

Inclusion of unknown variables
The strike price calculations include unknown variables, such as capacity market value expected at end of the CfD and future Levy Exemption Certificate (LEC) value. These costs should not be included in expected future revenue, as their future value is open to significant debate. There may be no capacity market needed when a generator’s CfD period ends and there is no potential estimate of the capacity market’s auction price in 15 years time. For LECs, since the removal of LECs for fossil fuel CHP production in 2013, the CHP industry is very aware of how quickly this support can be removed by HM Treasury.

In addition, our understanding is that LECs are modelled at £5 in revenue for the generator. However, the PPA provider may typically take a 20% margin on this revenue, reducing the LEC value to about £4 for many projects. The £4 figure would be a more appropriate number to include in the model.

Additional CfD risks not considered
We acknowledge that for some classes of investors, in some technologies, the CfD could promote a lower long term cost of finance and a lower hurdle rate for investment decisions. However, some classes of investors will have hurdle rates set independently of sector characteristics. This especially applies to one of the largest investor classes for renewable CHP, industrial heat users, who are non-traditional electricity market participants and who see significant risk within the CfD.

Our members’ view is that because of fuel risk, market trading risk, termination risk and risk of no allocation, the CfD may present a higher risk than other renewable support mechanisms, such as the RO. A recent Brodie’s analysis, produced for Scottish Renewables, highlights some of the ways that the CfD can increase risk for generators.

Therefore the RO-X’s calculation’s assumption that ‘variability of overall revenue and offtake risk’ is reduced under the CfD may not be warranted.

Network losses
The proposals are for the CfD to reduce support to reflect the amount of losses calculated over the network. 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.

The consultation document does not make clear if losses are factored into the RO-X calculation as they should be.

3. We propose that where technology costs are expected to decline, strike prices should decline over time to reflect technology cost reductions and

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ensure value for money. Do you agree that this is the most appropriate basis on which strike prices should change over time? If not, why and what alternative would you propose?

We welcome the Government’s decision to not reduce the strike price for biomass CHP over the course of the Delivery Plan period, accurately reflecting the expectation of limited technological improvements in biomass up to 2017.

4. Do you believe that the recommended strike prices shown in Table 1 change over time in a way that appropriately reflects technology cost reductions and ensures value for money?

No comment.

5. Do you agree with the key assumptions underpinning the strike price analysis, as described in Box 2 and in particular:

- The technology costs
- The build constraints
- The hurdle rates
- The decision to update our assumptions on the level of tax paid by developers, based on advice from KPMG
- The Power Purchase Agreement Discounts

The assumed reduction in the hurdle rate for biomass, AD, EfW and ACT is not justified, based on the views of CHPA members and on published DECC analysis of CHP investment decisions.

CHP-specific hurdle rates

The CfD strike prices’ pre-tax hurdle rates, sourced to Annex 3 of the DECC report, ‘Electricity Generation Costs 2013’, assume that when CHP is used with a particular fuel source it carries a 1 percentage point higher hurdle rate than power-only use of that fuel, which varies from 9 percentage points for ACT to under 13 percentage points for biomass.

These CHP hurdle rates conflict with DECC’s CHP-specific analysis in its 2013 document, ‘The Future of Heating: Meeting the Challenge’. This CHP-specific analysis found that because of the higher risk caused by the loss of a heat load, CHP investments face a hurdle rate of approximately 18-25% post-tax. This published DECC analysis was focussed specifically on CHP investment. We strongly recommend the ‘Future of Heating’ hurdle rate estimates are incorporated into strike price calculations, as they show more detailed and accurate reflection of CHP investment hurdle rates than that used for the CfD strike price analysis.

It is not clear whether a CHP-specific hurdle rate is assumed for technologies which can generate as power-only or as CHP, such as AD and ACT. We recommend the higher CHP hurdle rate is used in strike price modelling to ensure the strike prices for ACT and AD are sufficient to bring forward new CHP investment. If the lower,

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non-CHP hurdle rate assumption is used, it risks not providing a sufficient support level for CHP with these fuels, contrary to Government intentions.

**ACT hurdle rates**

It is not clear why there is a significantly lower hurdle rate for ‘ACT with CHP’, especially as this technology still has elements under technical development, particularly when compared to the equivalent hurdle rates proposed for AD, biomass and EfW.

**Other issues**

**RHI enhanced pre-accreditation**

For CHP plant, the RHI support is designed to raise the expected NPV on a renewable CHP project to a sufficient level to bring forward new investment. The Government’s policy recognises that the support provided under the RO and under the CfD are not sufficient to bring forward new renewable CHP investment.

Unfortunately while the Draft EMR Delivery Plan is designed to provide investment certainty for the four-year period, current RHI policy puts that certainty at risk. Currently the RHI scheme does not allow a developer or investor to lock-in the RHI value when making their investment decision, as occurs under the CfD with the Final Investment Decision (FID) scheme. In addition, there is no budget commitment to the RHI beyond 2015/16.

In order to deliver the certainty the Government wants to provide, industry has consistently recommended the implementation of an RHI enhanced preliminary accreditation scheme, to allow renewable heat developers and investors, at the final investment decision, to lock-in the RHI value they will receive at commissioning. Unfortunately, there has not yet been a commitment on Enhanced Preliminary Accreditation, although a final decision is expected by the autumn.

As the Government recognises the necessity of RHI support to bring renewable CHP investment forward, this lack of certainty under the RHI poses an immediate and urgent threat to renewable CHP deployment, contrary to Government intentions.

We are aware of 450MWe, worth £1.8 billion, in renewable CHP projects in development, based on a survey of our members. For nearly £1.3 billion of those projects, members said it was ‘very not likely’ their investments would go forward without RHI enhanced pre-accreditation. If enhanced pre-accreditation is provided, about £700 million worth of projects are ‘very likely’ and £750 million are ‘somewhat likely’ to come forward. More detail on these schemes can be provided upon request.

The lack of certainty in the RHI scheme is the largest policy barrier facing renewable CHP investment, and puts the Government’s aim for the CfD schemes to bring forward new renewable CHP investment at substantial risk. We urge Government to address this issue as a matter of urgency.

**Bioenergy sustainability**

The recent Government decision for biomass sustainability criteria under the RO included a commitment to not change sustainability regulations for existing plant until 2027. Unfortunately, this commitment has not helped investor confidence as
intended. A biomass CHP plant which commissions in 2019, for example, would have only eight years of regulatory certainty under the CfD. An investor, developer or loaning agency may require a full return on their investment before 2027 in order to avoid the post-2027 risk, making large-scale renewable energy investments much more difficult.

The 2012 Bioenergy Strategy commits the Government to deploying additional biomass and other bioenergy CHP as the optimal use of limited bioenergy fuels. The 2027 date may provide sufficient stability for biomass conversions, but the significantly higher capital cost of new build biomass CHP requires a different solution. The 2027 sustainability date risks preventing new biomass CHP from coming forward, contrary to Government intentions and the 2012 Bioenergy Strategy.

We are aware of one large-scale biomass CHP investment which is unlikely to go forward without certainty on sustainability regulations for the lifetime of the CfD. We expect other investors and developers in this sector will take a similar view and strongly recommend the Government revisit this decision.

**Scale back of support**

We recognise Government’s need to ensure CfD support for biomass CHP does not incentivise build of power-only biomass plant. However, we strongly urge the Government to be cautious when addressing this concern, as a CHP plant potential loss of all CfD support if it loses Good Quality status may risk putting the viability of the CHP investment into question. We look forward to further proposals from DECC and would welcome an opportunity to discuss scale back mechanisms in further detail.

**Route to market for independent renewable generators**

We welcome the Government’s commitment to ensure independent generators have a route to market. However, we have concerns about the proposals for an ‘oftaker of last resort’ for generators with CfDs.

The Government provides mechanisms, such as CfDs and the RO, to encourage investment in renewable technologies. The success of these policies requires a well-functioning, liquid market. Therefore, any policy to improve market functioning should not be limited to any one group within the market.

Independent generators not receiving CfD support, including renewable generators who receive Renewables Obligation support and fossil fuel generators, face identical challenges to access value in the electricity market and secure PPAs. For example, DECC’s 2013 ‘Future of Heating: Meeting the Challenge’ highlighted the barrier faced by gas CHP in accessing value in the market and the negative effect this has on gas CHP deployment.

Under current ‘oftaker of last resort’ proposals, CfD generators will be less exposed to failures in the market. The proposals therefore risk damaging other non-CfD generators, and conflicting with the Government’s commitment in the ‘Future of Heating’ to address independent gas CHP operators’ barriers to market participation.
6. Do you agree with our judgement that setting strike prices consistent with Core Scenario 32% (described above and in the Report from the System Operator at Annex E) is the best way to balance the Government’s objectives of renewables deployment and affordability?

No comment.

7. Do you agree with our proposed approach by technology?

Yes.

8. We have not set a strike price for co-firing plants because our preference is for conversions, which are more sustainable and provide higher levels of renewable generation. Do you agree with this approach?

No comment.

9. Government’s 2012 Bioenergy Strategy concluded that support for dedicated biomass should be treated with caution given the lock-in risks for this technology and its relatively high costs of carbon abatement compared to biomass co-firing/conversions. In line with the conclusion, we have not set a strike price for dedicated biomass without CHP. Do you agree with this approach?

We welcome the Government’s recognition that CHP is the optimum use of limited bioenergy fuels and for the continued support for new dedicated biomass CHP plants under the CfD, in line with the Government’s 2012 Bioenergy Strategy.

However, the Government needs to ensure the right policies are in place to promote and facilitate the development of renewable CHP generation. There are a number of key policies which are not yet in place and without which, the Government’s ambition for new CHP investment will be put at risk:

- Confirm a specific CHP tariff under the RHI, of at least 4.1p/kWh.
- Implement an Enhanced Preliminary Accreditation (EPA) process under the RHI.
- Ensure linked application and allocation processes for RHI EPA and the CfD.
- Guarantee the biomass sustainability criteria for the duration of difference payments under the CfD and RHI support.

10. We have not set a strike price for standard bioliquids, as we do not wish to divert this technology from more suitable sectors such as transport. Do you agree with this approach?

Bioliquids may be able to make an important contribution to energy production through electricity generation and may therefore be worthy of a dedicated strike price.
We would also note some bioliquids used in energy generation are not suitable for use in transport. We would recommend the Government consider whether these specific bioliquid fuels should be included within the CfD scheme. The CHPA can provide further information on these bioliquid fuels on request.

11. We have not set a strike price for geopressure since the technology is at development stage, and no geopressure projects have come forward through the Renewables Obligation. Do you agree with this approach.

No comment.

Capacity Market

12. Do you agree with our proposed reliability standard of 3 hours LOLE?

The CHPA does not have a comment on the reliability standard, but support the Government’s view that a high level of system security is integral.

13. Do you agree with the methodology underpinning the reliability standard?

No comment.

14. Do you agree with the analysis of the lost load?

It is important to recognise that VOLL is site and user specific and can be variable, creating challenges in determining its value. Based on discussions with members and across the industry, we are advised that the estimate for VOLL may be too high. If the VOLL value is too high, it may result in participants assigning higher risk to capacity market participation, increasing the cost of achieving electricity system security.

15. Do you agree with our estimate of the cost of new entry?

Based on discussions with members and across the industry, we are advised that the estimate for CONE may be too low. If CONE is too low and VOLL is too high, there is a risk is that achieving electricity system security will cost higher than expected.

16. Do you agree the reliability standard should be reviewed every five years?

Yes. However, the capacity market is one of a number of investment mechanisms. In order to ensure investors can make a clear, informed choice when making an investment decision, it will be important that the timing of the review of capacity market policy is linked together with reviews of other key policy mechanisms, such as CfDs and RHI.
17. Do you agree with the proposed methodology for the auction demand curve.

We do not agree with some aspects of the proposed methodology for the auction demand curve, specifically the use of net CONE instead of gross CONE; and the dependence on a cap to control costs.

**Net CONE**

We recommend the methodology be based on gross CONE, not net CONE.

The Government’s ability to predict future electricity prices is limited, reducing the accuracy of this calculation. Differences within the generation portfolio will also occur, as independent generators might receive greater discounts for their power value than a larger or vertically integrated participant.

We therefore recommend the use of gross CONE, as it allows the Government to let the capacity market determine the value expected from power generation or demand reduction. All participants will have views regarding future prices for electricity, gas, coal, carbon emissions, and the risk attached to these projections. In a genuinely competitive market, no one will know what assumptions capacity market participants include as part of their bids.

**Use of a cap to control costs**

The methodology includes a cap set at a multiple of CONE, but the consultation document does not appear to state clearly what would occur if the auction failed to achieve the capacity to meet the reliability standard. The Government should set out clearly how it would act to ensure electricity system security in the case that this occurs.

A more effective method to control capacity market cost is to ensure the price is set by a genuinely competitive auction, including the widest number of participants as possible. The more participation there is in the capacity market, the more it will provide competitive pressure and push costs down.

**Demand Side Response**

We welcome the efforts which have been made at improving DSR participation through the transitional arrangements. We would highlight the importance of facilitating the widest possible number of participants within the capacity market is central to minimising the cost of the capacity market to consumers. It will therefore be important the Government continues to work closely with the DSR market to facilitate and encourage wide and active participation.

Under current proposals, the capacity market’s transitional arrangements will limit participation to generators under 50 MW, either total nameplate capacity or exporting capacity. We disagree with the use of the proposed limit for inclusion within the transitional arrangements.

Companies that produce electricity, but whose main business activity is not electricity generation, accounted for nearly 7.5 GW of installed capacity at the end
of 2012\(^3\), and will include plant between 50 MW and 100 MW. Plant whose main business activity is not electricity generation face a number of challenges to participating within the enduring arrangements and are better suited in the transitional arrangements. For example, the four-year-ahead auction within the enduring arrangements will limit these plants’ participation, as a company, such as a manufacturer, may not be able to predict their site’s demand and generation profile four years ahead.

We strongly recommend the Government link the transitional arrangements to the current definition of a license-exempt generator, which is defined as an export capacity of 100 MW. This would help ensure the capacity market is effective in capturing the 7.5 GW in generation available from companies whose primary business activity is not electricity generation.

It is by securing the widest number of DSR participants possible, we can drive down the cost of the capacity market to consumers through competitive pressure. Government therefore has a direct incentive to maximise participation from these potential participants in order to deliver consumer value.

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