REA Consultation Response: Considerations for future Contracts for Difference (CfD) Rounds

The Association for Renewable Energy & Clean Technology (REA) is pleased to submit this response to the above consultation. The REA represents a wide variety of organisations, including generators, project developers, fuel and power suppliers, investors, equipment producers and service providers. Members range in size from major multinationals to sole traders. There are over 500 corporate members of the REA, making it the largest renewable energy trade association in the UK.

Of further relevance to this consultation, the REA has a large number of renewable power generators who have previously been supported under the CfD or RO. This includes member forums focused on biomass power, energy from waste, landfill gas, green gasses, advanced conversion technologies and hydrogen.

Appeals

9. The Government welcomes views on the current CfD appeals process now that we have annual allocation rounds.

The REA are supportive of seeing the appeals process streamlined to shorten the overall allocation process, especially given the move to annual allocation rounds. The current process is both unnecessarily complicated and does not provide clarity to applicants about when the sealed bid window will open or whether they will be able to participate.

It remains essential that applicants are given the opportunity to appeal decisions and that this should not impact their ability to participate in the most immediate allocation round, as such, we are supportive of the appeals process that provides certainty and clarity to applicants in advance of the process opening for sealed bids.

10. The Government welcomes views on potential changes and the potential options outlined, and if there are any other options for the appeals process.

Of the proposals presented, a pre-qualification process would provide the most certainty and efficiency in the allocation round. Given its use in the Capacity Market, and the possibility of running it between allocation rounds, it would seem to be a replicable and suitable option. It should also make the allocation processes more straight forward and faster, benefiting both applicants and those running the auctions.

A “fixed timeline”, without pre-qualification, risks just ensuring the Government is always following the longest possible timeline, which could cause problems with the annual allocation processes. Equally, “Pending Applications“, depending on their design, could result in those in the appeals process having less time to properly participate in the sealed bids and auction stages, resulting in unequal treatment. As such, the REA suggest a pre-qualification, replicating the capacity market process, to be the fairest and easiest way to speed up the appeals process, while also providing clarity and confidence to applicants.

We would also note that, if pre-qualification is used, the Government should then create a “fixed timeline” for the auction. With the appeals process moved to before the allocation process, there

should be less variability in possible timelines, allowing for greater clarity to be provided to those participating.

Finally, we would also encourage a review of the online systems used within the application process. Particularly as this does not currently allow for people to amend documentation during the application process. This has in the past been the cause for needing to go to appeal as applicants are being judged on out-dated files. Allowing for updates to be made to submitted documents could streamline the application process.

Treatment of repowered projects

11. **Is the CfD an appropriate mechanism through which to support repowered assets, or are there other appropriate routes to market? If participating in the CfD, should these projects compete alongside new build projects?** Please provide details and/or evidence for your reasoning. We are particularly interested in evidence on the impact of supporting repowered projects on decarbonisation, and the relative cost competitiveness of repowered projects

The REA supports the proposal for the CfD being an appropriate mechanism for repowering assets. Such a mechanism would provide a sensible route to ensuring that assets continue to operate beyond the end of their existing support mechanism, such as the RO or NFFO. It would also allow the Government to contract a definitive price for renewable generation, removing a section of low carbon generation from volatile prices and reducing energy prices overall.

The REA believes that 'repowering CfDs' should be a separate pot, not competing with new build generation. This separation should secure the lowest prices for repowering a site, whose capital costs will generally be lower than a new project. It will also ensure that existing assets do not out compete the delivery of new generation, which is also required to be deployed to meet net zero. The policy objective should be both to maintain existing generation and delivering new generation, rather than see them compete against each other.

In addition, a separate pot for CfDs for repowering assets could also be designed to recognise differing circumstances of existing generation assets. This could include design factors such as:

- Shorter or more flexible contract durations that are more appropriate given the age of existing assets.
- Allow for the diversification or swapping of generation technology within a CfD, such as utilising existing grid connections to support solar generation on previously supported RO landfill gas generation.
- Allow for the aggregation of sites/MPANs within a CfD.
- Given the closure of FiTs for smaller generation sites, consider if the 5 MW threshold remains appropriate or should be reduced.
- Ensure the ability to contract other services outside of the CfD, such as flexibility services.

If this proposal is taken forward, CfDs to support repowering assets should work in parallel to other innovative business models being developed by the Government. Some existing assets will look to diversify their operations by looking towards greenhouse gas removal technologies, via the Power BECCS or GGR Business Models. Alternatively, they may look to the hydrogen Business Model or Long Duration Energy Storage support mechanisms. A repowered CfD could provide the basis for such investments, ensuring a consistent price for the existing low carbon

generation, while other business models are used to pay for separate services provided by the site – such as negative emissions or flexibility services. At the same time, Repowering CfDs would provide an option for sites where such innovative investments are not possible, ensuring the continuation of existing low carbon generation.

12. **In your opinion, how should a 'repowered' project be defined? How does this definition align with current CfD eligibility?**

The eligibility requirements for CfD projects that repower assets will need to be different to existing eligibility requirements for CfD allocation. In particular, the definition and new eligibility requirements will need to allow for:

- Generation sites that have previously received support. This includes sites who have already come to the end of their contracted arrangements or who are willing to relinquish a continuing support mechanism if they clear a repowering CfD auction.
- Given investment and development lead times, it will be important that sites receiving ongoing CfD or RO arrangements are still able to bid for repowering CfD's, with the understanding that if they take up the new CfD they relinquish the existing contract or do not start the new CfD until the existing contract has ended.
- Be a generation station that has previously been commissioned.
- Support generation at a site for the purpose of extending the asset life, or diversifying generation utilising an existing grid connection, to ensure there is no loss in low carbon generation capacity from the site.
- It may be appropriate to consider a mechanism for how a repowering CfD might be taken up but then relinquished to switch over to another form of support (e.g Power BECCS Business Model) if made available, depending on government timelines.
- Allow for the use of old equipment onsite. For example, this includes the ability to swap out or relocate engines that may have previously been commissioned on other sites. There should be no need for equipment to be new on a repowered site.
- Allow for existing sites to realise efficiencies and increase capacity, if possible. In reinvesting and further developing a site it may be possible to improve the technology, meaning they can increase the capacity of the site since it was first commissioned. A repowering CfD should enable sites to make the most of an existing grid connection, allowing for increase in generation where possible.
- Allow for the switching of technology from what was originally used for generation onsite. For example, enabling a Landfill Gas site, originally supported by the RO, but experiencing reductions in generation, to utilise other forms of low carbon generation.
- Provide flexibility on contract lengths, recognising that different sites might benefit from varying lengths. Consideration should be given to the mechanisms currently being designed within the Greenhouse Gas Removal Business Models and Power BECCS, with minimum contract lengths that allow for an extension if certain market criteria are met.

13. **What are the main barriers to repowering projects in relation to the CfD? Are there any additional factors that are not outlined in the above text?**

<u>General Barriers to Repowering</u>

Across all technologies coming to the end of existing contracting arrangements, the main barrier continues to be a lack of policy certainty to make sensible investment decisions on the future of

operational assets. Commitment to development of a repowering CfD would help address this gap, while other markets become more established.

For instance, bioenergy assets are currently considering options in BECCS and Hydrogen production, where business models are currently being progressed by Government. However, without a final decision and the end of existing arrangements quickly approaching (some technologies starting to fall out of the RO in 2027) developers are wanting clarity on what Government would like them to do with their existing assets. Developing repowering CfDs would help deliver confidence to the market, providing a definite option to such assets as other innovative business models are finalised.

Investments into existing assets are also competing with potential projects elsewhere in the world. Tax breaks, such those recently announced in the EU and US, could see finance that could be used for repowering assets in the UK lost to other markets. A repowering CfD, even at a low strike price, could provide suitable confidence for investing in the UK.

In addition to the above, the below market considerations are also barriers to developers repowering operational assets. All of which could be addressed through the confidence provided by a repowering CfD:

- ***Decommissioning Costs:*** As a site nears the end of its intended life span, the decommissioning costs will need to be factored into any future decision for the site. A lack of a stable bankable business model could see such costs be the determining factor, stopping an asset from repowering and seeing the loss of renewable generation.
- ***Impact of 5 years of Electricity Generator Levy:*** Government are currently legislating for a new levy on renewable generation until 2028. The fact it will be in place for so long will have a significant impact on repowering decisions, this will be especially true for projects coming to the end of their RO in 2027. The ability to switch to a CfD will be crucial if these sites are to repower and mitigate the impact of the EGL on their investment decisions.
- ***Aggregation of Generation:*** Some sites coming to the end of their life will be considering how to make the most of their existing grid connection, especially if the existing generation is declining, as could be the case for landfill gas. Ability to support the use of multiple technologies, exporting at one grid connection, could help such sites to repower.
- ***Volatile Energy Markets and Negative Pricing:*** It is recognised that the energy markets are likely to change in the coming years, due to both an increase in renewables and changes expected to be brought in through the Review of Electricity Market Arrangements. This is likely to lead to a more volatile energy market, with negative prices also being possible, making it harder to assess potential market revenue for generation. Such uncertainty will be a significant barrier to repowering existing generation. The provision of stability through a repowering CfD could be particularly valuable in these cases.

Recognising Non-Price Criteria in Repowering sites

A further barrier to repowering assets, is the current lack of reward sites receive for services beyond just power generation. In the design of the repowering CfD, Government should also consider how non-price related criteria might also be rewarded through the mechanism. For

example, along with power generation, one of the benefits of utilising landfill gas is the avoidance of methane emissions. Equally, where renewable power generation is combined with energy storage, the provision of flexibility services should also be rewarded. These benefits, however, are not reflected in an allocation round driven by price, with straight power production at the lowest cost being prioritised.

The REA would welcome further discussion and consultation with Government in considering how these non-price criteria maybe recognised and promoted in the CfD. It could, for example, be included in the eligibility criteria, or by setting out a methodology for converting such benefits into a £/MWH figure that is considered either in bi-lateral negotiations or within an auction. However, further discussion is needed with industry and Government to understand an appropriate design to take forward.

"Behind the meter" Energy Storage is a particular example of where this could be done. If storage is put "behind the meter", under current rules, the CfD remuneration of the renewable generator would be reduced by the efficiency losses of the storage, thereby penalising the renewables for delivering better-quality energy. Members have suggested two modifications to repowering project CfD could be considered to address this:

- CfD payments being made on the MWh generated by the renewable generator rather than the MWh received at the on-shore grid connection.
- If the storage is synchronous, then the MWh received at the grid connection should be remunerated at the market rate for the other services that the storage delivers in a manner tied to its discharge energy, including (but not restricted to) inertia, reactive power/load, voltage/frequency control, and leakage current protection. As these would be remunerated in parallel with the energy exports, and therefore contracted for the duration of the CfD, it is accepted that a discount, may need to be applied to the market rates for such services (See discussion on.

Specific Comments in relation to Repowering Landfill Gas Projects through the CfD

Background

Once sent to landfill, biodegradable material decomposes anaerobically to produce methane. There is no viable way to stop this once the material is in the landfill, and it will continue to produce methane for many years (likely to be at least 60 years), albeit at a gradually declining rate. Defra policy aims to eliminate biodegradable waste to landfill by the end of this decade, but methane will continue to be produced from historic waste deposits for decades to come.

Methane is a potent greenhouse gas, accounting for 17% of global human-caused emissions, with a global warming potential at least 25 times that of CO2 over 100 years – and considerably higher over a shorter period. This is recognised in the Global Methane Pledge (https://www.ccacoalition.org/en/resources/global-methane-pledge) , launched to coincide with COP26 in Glasgow (November 2021), which focusses on achieving a 30% reduction in methane emissions from 2020 levels by 2030.

Within the UK, the waste sector makes up 6% of all UK GHG emissions (25MtCO2eq), with landfill accounting for well over half of total waste sector emissions. [1]

Since 2002, landfill sites have been incentivised to collect methane and generate electricity via the Renewables Obligation. There are currently 434 accredited generation stations, with a total Declared Net Capacity of 825MW. There is a wide range of sizes within this – the smallest is 99kW, the largest is 17.3MW. [2] Not all of this will be operating at full capacity as production of methane declines once sites are no longer accepting new biogenic waste. Total annual generation remains significant – at around 3 TWh. On current policies, support under the Renewables Obligation is due to end for almost all electricity generation from landfill gas in April 2027, although the RO itself remains available for most other generating technologies until 2037.

Electricity generation from landfill gas differs substantially from technologies such as wind and solar. While the latter have high initial capex followed by relatively low opex, landfill gas requires substantial continuous expenditure on both opex and capex.

It is unlikely that more than a handful of landfill sites would be able to continue to generate electricity in the absence of any further support. This would represent the loss of a significant amount of renewable generation that can provide reliable baseload power to the grid. Further, the Climate Change Committee has repeatedly highlighted the need to increase rates of capture of methane from landfill sites [3]. With the incentive from the Renewables Obligation and NFFO, the industry has invested to capture as much methane as possible. If this is no longer financially viable then it is hard to see how this can be taken forward – and there must be a risk that rates of methane capture will actually decline. This is highlighted by The Second Report from the Independent Review of Incineration commissioned by the Scottish Government Review.[4]

Site operators need to take decisions now or in the near future on whether to replace or recondition existing engines. If ongoing support is to be available, it is therefore essential that this decision is taken as soon as possible. It is much easier to fund new investments on the back of an ongoing operation. Once engines have been taken away from sites and the physical and human resources are no longer in place, it would be considerably more expensive to do so from scratch – so either this is much less likely to happen, or any support needed to make it happen would need to be correspondingly higher.

In this context, we would note that the new Electricity Generator Levy could exacerbate the situation. In December, the Government made adjustments to the policy to mitigate perverse outcomes in situations where generators would be obliged to pay third parties some of the revenue received from higher power prices whilst themselves being fully subject to the levy. [5] While this change is very welcome, a number of issues remain. These include:

- Renewable generation is treated worse than fossil generation – the levy does not apply to generation from fossil sources at all and the effective rate of the levy is much higher than the equivalent windfall tax on fossil oil and gas extraction. [6] Further, there are no investment allowances so that renewable generators can reduce their liability by making additional investments
- As a tax on revenue rather than profits, the levy takes no account of increases in the costs of generating electricity. The landfill sector has seen substantial recent increases in operating costs. Further costs are also anticipated to comply with new regulation such as the Medium Combustion Plant Directive
- The levy is due to be in place until 2028 – after the date on which the vast majority of landfill sites will lose RO support

As a result, the levy risks creating a cliff-edge in which generators will be more likely to decommission their equipment as soon as ROCs end, when they might have continued to operate for a while if no levy were in place.

Costs of electricity generation from landfill gas

As has already been noted, a large amount of electricity generation from landfill was commissioned when support levels were at 1 ROC/MWh. When banding was introduced in 2009, there was a further period of two years, in which extensions to existing sites could be commissioned and also receive the same support. For all other cases, the rate was reduced to 0.25 ROCs/MWh. Very little new capacity has come forward at this lower rate.

This provides a benchmark range for support levels that have been sufficient to bring forward projects in the past.

Very little additional work has been done in the intervening time on costs of landfill gas generation. The original CfD administrative strike prices replicated the RO banding rates at the time. This appears to be reflected in the supporting documents for Allocation Round 5 of the CfD – set at £62/MWh (2012 prices). [7]

As noted above, electricity generation from landfill gas differs from generation from non-fuelled technologies such as wind and solar by having substantial ongoing costs – both in operational and capital spend. Many of these costs have risen due to the changing nature of the composition of material going to landfill – the gas can require more costly treatment before it is suitable to be burnt in an engine without causing excessive wear and tear. These costs are likely to rise further due to new regulation such as the Medium Combustion Plant Directive.

There is a more fundamental point for landfill that distinguishes it from all other sources of renewable generation.

Once a landfill site has been closed, the production of methane will generally tail off significantly, before settling into a much longer term, more gradual decline. While the amount of methane declines, the costs of generating electricity from that methane do not – or they decline at a far slower rate. The result is that, when expressed in £/MWh, the future cost of generating electricity from landfill gas will increase over time.

Given that costs of generation have changed substantially over the past decade, and that there is considerable uncertainty over future costs, it is clear that the Government's evidence base needs to be updated. Our members engaged at length with a report conducted by Arup into future costs. We have also commissioned Golder WSP to produce a further report, looking at costs and the wider context. We hope to have that completed by the end of Q1 and will be happy to discuss the results with BEIS. We also continue to engage with Defra on this issue and the interactions with wider waste policy.

As well as the direct costs, BEIS will need to review the hurdle rate assumptions used. The Allocation Round 5 strike prices draw on a report from Europe Economics, [8] published in 2018.

This puts the 2018 hurdle rate for landfill gas at 6.1% - cheaper than every other technology except solar PV, onshore wind and hydro. This is a reduction on the rate given for 2015, which was 7.4% - although this appears to reflect an assumed reduction in the cost of finance for all technologies rather than being directly related to landfill. Given the uncertainties in the supply and quality of fuel, as well as future costs of regulatory compliance it seems highly unlikely that these would reflect the hurdle rates for future investment decisions – even if they were an accurate capture of historic decisions.

We are not currently in a position to indicate a range of strike prices that would be required for landfill gas to be viable with a CfD. As a general point, however, when looked at solely in £/MWh, it is unlikely that landfill gas would be able to compete with technologies such as wind and solar if bidding directly against them in an auction. As noted above, when looking at the true value for money of supporting continued electricity generation from landfill gas other factors should be taken into account as well – not least the avoided methane emissions.

Eligibility for 'repowered' projects

As is indicated in the consultation document, the approach proposed would need to allow generating stations that have already received support under a NFFO contract or been accredited under any of the Renewables Obligation Orders to be eligible.

Engines used in landfill gas are routinely swapped around between sites. This is because the methane production is continuously in decline and engines do not work efficiently below a certain % of their maximum output. In addition, engines require substantial overhaul periodically, and this might result in the engine itself being overhauled or being replaced by a new or reconditioned engine.

It is therefore essential that any revised rules on eligibility do not exclude equipment that has been previously commissioned – whether it has been used for the RO, NFFO or any other support mechanism.

Given that the proposed policy approach is for extending generation at existing sites rather than developing new projects, it might be beneficial to **require** 'repowered' projects to be (or have been) previously operational and/or to have received support under the Renewables Obligation or a NFFO contract.

Many landfill gas generating sites will be smaller than 5MW capacity. Some of those might currently be accredited under the RO at a larger capacity, but the generation potential has reduced due to continuing decline of methane production. The eligibility rules would need not to exclude sites below 5MW.

Other changes that would need to be made to CfDs for them to be effective for landfill gas

It should be noted that the Renewables Obligation is very well known and understood within the industry. Given the choice, there would be a widespread preference to retain the existing RO mechanism, and allow accreditation to last until 2037, as with most other technologies. This would ensure maximum capture of methane and electricity generation from it. The overall cost of the policy would decline over that period, along with declining methane production.

We appreciate that there would be reluctance within government to re-open decisions relating to the RO, but this would certainly be the most straightforward solution from the industry's point of view.

Administrative Strike Price

As discussed above, the Administrative Strike Price for landfill gas needs to be reviewed, using the best available evidence on future generation costs.

We note that the methodology used for Allocation Round 5 aims to set strike prices that are viable for only 25-50% of potential projects.[9] We would strongly argue that the administrative strike price should aim to be viable for all projects, once outliers have been removed. This makes far more sense in the context of repowering, where the aim is to ensure that generation capacity does not go backwards, especially given the need to build on and improve existing methane capture rates.

Pots/Minima

The aim of the current proposal is to enable repowered projects. Since it is unclear how the costs of this will compare with new projects, the pot for repowered projects should be separate to that for the rest of the CfD – this is to ensure that neither approach cannibalises the other.

For the reasons set out above, although there are good reasons for continuing to support landfill gas generation when looking at the wider picture, landfill generation is unable to be able to compete with wind and solar generation solely on a £/MWh metric.

The auction rules for repowering CfDs should therefore ensure that landfill projects are not forced to compete on £/MWh basis with those technologies. This could be done either by putting repowered landfill projects in an entirely separate pot, or by creating a landfill-specific minimum provision within the overall repowering pot. The size of the budget reserved should be sufficient to allow all non-outlier existing projects to be able to compete.

[1] Source: Climate Change Committee 2022 Progress report to Parliament, pages 374-5. Figures given are from 2020. https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf

[2] Data from Ofgem Renewables and CHP register, relating to 2020/21 obligation period.

[3] See the 2022 Progress Report to Parliament, p563. Recommendation to Defra: 'Set an ambition to improve methane capture and oxidisation rates at landfill sites and review the incentives and broader support necessary to achieve that ambition.'

[4] 4.6 Heat Networks - Decarbonisation of residual waste infrastructure: report - gov.scot (www.gov.scot). See para 4.91 ('Gas Management') and Recommendations 23: 'The Scottish Government should consult with landfill owners and operators to address the consequences of the withdrawal of current landfill gas management financial incentives' https://www.gov.scot/publications/stop-sort-burn-bury-independent-review-role-incineration-waste-hierarchy-scotland-second-report-decarbonisation-residual-waste-infrastructure-scotland/pages/8/

[5] Electricity Generator Levy - GOV.UK (www.gov.uk)
https://www.gov.uk/government/publications/electricity-generator-levy

[6] The oil and gas energy profits levy will be set at 35%. For the levy, 'combined with corporation tax, this brings the cumulative rate on earnings over £75/MWh to 70%' - Energy Taxes Factsheet - GOV.UK (www.gov.uk). https://www.gov.uk/government/publications/autumn-statement-2022-energy-taxes-factsheet/energy-taxes-factsheet

[7] Methodology used to set Administrative Strike Prices for CfD Allocation Round 5 (publishing.service.gov.uk) – page 4
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1124069/cfd-ar5-asp.pdf

[8] Cost of capital update for electricity generation storage and demand side response technologies (publishing.service.gov.uk). 2018 hurdle rates are summarised on page 1.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/910814/Cost_of_Capital_Update_for_Electricity_Generation_Storage_and_Demand_Side_Response_Technologies.pdf

[9] Methodology used to set Administrative Strike Prices for CfD Allocation Round 5 (publishing.service.gov.uk), page 11
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1124069/cfd-ar5-asp.pdf

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