Draft Final Modification Report

CMP300:

Cost reflective Response Energy Payment for Generators with low or negative marginal costs

Overview To ensure that the Response Energy Payment paid to or by generators with respect to a Balancing Mechanism Unit (BMU) with low or negative marginal costs is reflective of the cost or avoided cost of energy production.

Modification process & timetable

1. **Proposal Form**
   17 May 2018
2. **Workgroup Consultation**
   12 April 2019 – 22 May 2019
3. **Workgroup Report**
   22 October 2020
4. **Code Administrator Consultation (2)**
   17 January 2022 – 16 February 2022
5. **Draft Final Modification Report**
   17 February 2022
6. **Final Modification Report**
   09 March 2022
7. **Implementation**
   10 working days after Authority decision

Have 5 minutes? Read our Executive summary

Have 20 minutes? Read the full Draft Final Modification Report

Have 30 minutes? Read the full Draft Final Modification Report and Annexes.

Status summary: This report has been submitted to the Authority for them to decide whether this change should happen.

Panel Recommendation Vote: The Panel will meet on the 25 February 2022 to carry out their recommendation vote.

This modification is expected to have a: Medium impact on Mandatory Frequency Response (MFR) providers and National Grid Electricity System Operator (ESO)

Governance route	This modification has been assessed by a Workgroup and Ofgem will make the decision on whether it should be implemented.	
Who can I talk to about the change?	**Proposer:** Paul Youngman Drax Paul.youngman@drax.com Phone: 07738802266	**Code Administrator Chair**: Paul Mullen paul.j.mullen@nationalgrideso.com 07794537028

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Executive summary

CMP300 seeks to improve the cost reflectivity of the Response Energy Payment (REP) as the current construction of the REP is not reflective of the costs or avoided cost of energy production for generators. It will achieve this by ensuring all BM Units with low or negative marginal costs, as a consequence of having a CfD FiT, are subject to the same REP methodology.

What is the issue?

The current methodology allows for the REP to be set by the Market Index Price (MIP) or at zero for "Non-Fuel" Balancing Mechanism (BM) units that have low or negative marginal costs.

The current construction of the REP does not reflect the cost or avoided cost of energy production for all generators. BM Units with low or negative marginal costs, as a consequence of having a CfD Feed in Tariff (FiT), are not managed the same as "non-fuel" BM Units that have equivalent low or negative marginal costs.

What is the solution and when will it come into effect?

Proposer's solution:
Currently, the Reference Price which feeds into the calculation of the Response Energy Payment (REP) is set to £0/MWh for "non-fuel" cost BM Units only. Proposer suggests that this is set at £0/MWh for CfD BM Units as well**.**

Alternative solutions:
Market Participants will have an one-off choice for the REP to be set at £0/MWh (as per Proposer's Solution) or at the prevailing MIP. This must be exercised within 28 calendar days of ESO's letter asking them to indicate their choice. Where no choice has been made within 28 calendar days, the REP will be set at £0/MWh.

Implementation date:
Proposer of the Original and WACM1 has requested implementation to be 10 working days after decision from Authority.

If WACM1 is implemented, the ESO would, within 28 calendar days, write to all those relevant Users (those who, as per CMP300 Original, would be classified as being potential parties to whom CMP300 would apply) asking them to reply, within 28 calendar days, to the ESO confirming if they wished their REP (per asset) to be priced as either £0 per MWh or at the prevailing MIP (which could be positive or negative) as per the current baseline.

Workgroup conclusions:

The Workgroup concluded by majority (5 out of 6 votes) that both the Original and WACM1 better facilitated the Applicable CUSC Objectives than the Baseline (the current CUSC arrangements).

The Workgroup concluded by majority that WACM1 better facilitated the Applicable CUSC Objectives than the Original by 4 votes to 2; and 3 Workgroup Members voted that WACM1 was the best option, 2 votes were cast for the Original and 1 vote was cast for the Baseline.

What is the impact if this change is made?

The Proposer believes that the change will make the REP more cost reflective and alleviate any potential distortion of the Mandatory Frequency Response (MFR) market.

Cost of implementing CMP300 would be negligible should implementation be aligned with the delivery of Release 2[1] of a new settlements system ~ end 2022.

Interactions

Interactions with the Electricity Balancing Regulation (EBR) Article 18

The Electricity Balancing Regulation (EBR) is a European Network Code introduced by the Third Energy Package European legislation in late 2017. The EBR regulation lays down the rules for the integration of balancing markets in Europe, with the objectives of enhancing Europe's security of supply. Article 18 of the EBR states that TSOs such as the ESO should have terms and conditions developed for balancing services, which are submitted and approved by Ofgem.

There is a change process outlined in other EBR Articles 4, 5, 6 & 10 on how a proposal should be submitted, approved by Ofgem, how it should be amended, and that there should be a one-month public consultation.

ESO submitted terms and conditions for approval to Ofgem that included different sections of different GB network codes, BSC, CUSC and Grid Code, as well as some of the Standard Contract Terms (SCTs). This means that if any of those sections change through a modification, they will also legally have to go through a change process that meets the criteria set out in EBGL.

CMP300 requires changes to CUSC 4.1.3.9A, and so impacts on the EBR Article 18 Terms and Conditions.

[1] The system fix for CMP300 will be captured in Release 2. Release 1 is anticipated ~ June/July 2022.

What is the issue?

Certain generators are required by the Grid Code to provide a Mandatory Frequency Response (MFR) service to assist the ESO with keeping the electricity system frequency within a designated target of 50Hz and receive payments for doing so. These payments are designed to be cost reflective and are split between:

- a Holding Payment (HP) for being capable of providing response; and
- a Response Energy Payment (REP), which is a cost reflective utilisation payment designed to cover the costs of actual response energy.

Generators submit holding price (HP) tenders on a monthly basis to the ESO. The ESO then ranks these tender submissions in economic order.

- When generators are instructed to increase their output (Low Frequency Response), they receive a cost reflective REP payment; and
- When generators are instructed to reduce their output (High Frequency Response), they pay National Grid ESO to reflect the energy costs saved.

The REP is based either on the Market Index Price (MIP) or zero if the generator has low or negative marginal costs, and is classified "non-fuel".
The classification of "non-fuel" was introduced by "*CMP237 Response Energy Payment for Low Fuel Cost Generation"* to ensure the REP better reflected costs. This was approved by Ofgem on the 31 October 2016 to address an unintended consequence of the REP.

The modification rectified an issue where generators with low or negative marginal costs were submitting HPs which were typically the highest in the market. The primary driver of this behaviour was that the REP, which was then based solely on MIP, did not reflect the actual and opportunity costs incurred for providing this service to the ESO.

The current methodology allows for the REP to be set by the Market Index Price (MIP) or at Zero for "Non-Fuel" Balancing Mechanism (BM) units that have low or negative marginal costs. However, it is not only "Non-fuel" BM Units that can have low or negative marginal costs.
The current construction of the REP does not reflect the cost or avoided cost of energy production for all generators. BM Units with low or negative marginal costs, as a consequence of having a CfD Feed in Tariff (FiT), are not managed the same as "non-fuel" BM Units that have equivalent low or negative marginal costs. The Proposer believes that this is a clear distortion that should be addressed.

What is the solution?

Proposer's solution

Currently, the Reference Price which feeds into the calculation of the Response Energy Payment (REP)[2] is set to £0/MWh for "non-fuel" cost BM Units only.

The Proposer suggests that all BM Units (including CFD BM Units) with a low or negative marginal cost the Reference Price which feeds into the calculation of the Response Energy Payment (REP) would be settled at £0/MWh.

Workgroup considerations

The Workgroup convened 4 times (prior to Ofgem's send-back on 9 July 2021) to discuss the perceived issue, detail the scope of the defect, devise potential solutions and assess the proposal in terms of the Applicable Objectives.

As part of this, the CMP300 Workgroup took into account the previous work done for CMP237 and assessed the terms of reference set by Panel. Ofgem addressed cost reflectivity of the REP within its decision document on CMP237, agreeing that low or negative marginal cost generators should have a REP set to zero. This was applied at the time to "non fuel" BM Units: Onshore wind, Offshore wind, Solar, Tidal and Wave. These BM Units reference price is set to zero when calculating the REP, to reflect their low or negative marginal cost.

Scope of cross code impacts:
The Workgroup made a firm assumption that no BSC modification would be required. Elexon have since confirmed this assumption on the basis that Low Carbon Contracts Company hold the list of parties who hold a CfD so there is no requirement for National Grid ESO to approach Elexon for this information.

Consideration of SOGL – Mandatory or Voluntary provision?

In line with the Terms of Reference Workgroup members considered interaction with the System Operator Guideline (SOGL); specifically if there were consequential changes to Mandatory Frequency Response.

During Workgroup meetings, it was highlighted that the Mandatory Frequency Response had not been changed. For other services, Grid Code Modification (GC0114) introduced a pre-qualification process for Frequency Containment Reserves (FCR), Frequency Restoration Reserves (FRR), Replacement Reserves (RR).

A Workgroup Member stated that SOGL applies to all new parties so this will capture anyone new connecting. Articles 155, 162, 168 of SOGL state that parties have to make an application to apply for the service and the application can be denied by the Transmission System Operator. It was clear from GC0114 that the services are voluntary

[2] The REP is currently calculated by multiplying the response energy by the Reference Price

and not mandatory, and therefore his view is that the question is whether or not mandatory services will continue or are in fact legally permissible.

It was noted by Workgroup members that the obligations for Mandatory Frequency Response have not yet been removed or altered in response to SOGL. There were no proposals during the workgroup stage to alter the MFR requirements as a consequence of SOGL and this mandatory service remains in place unchanged.

Workgroup Consultation to go to CfD BMU Parties

The Workgroup Consultation was sent to our CUSC distribution list but wasn't specifically issued to those parties who at the time been awarded a CfD contract and were listed on the "CfD Register" held on the Low Carbon Contract Company's website[3]. As new parties have been awarded a CfD contract since the Workgroup Consultation was run, the Chair will contact the Low Carbon Contracts Company to circulate this Code Administrator Consultation to all parties that have been awarded a CfD contract and are listed on the "CfD Register" as held on the Low Carbon Contract Company's website[4]

The National Grid ESO Workgroup member flagged that as a result of the Clean Energy Package there may be changes to REP payments in the future. However, the National Grid ESO Workgroup Member's current view is that there aren't any changes from the Clean Energy Package that impact CMP300.

Ensure no unintended consequences between non-fuel BMU and CfD BMU.

Neither the Proposer nor Workgroup Members nor Workgroup Consultation Respondents (although admittedly all Workgroup Consultation Respondents were Workgroup Members) foresee any unintended consequences emerging from CMP300.

Consideration to whether any values other than "zero" are appropriate

The Proposer stated that the intention of CMP300 is that the solution would replicate the application of CMP237 with a zero price as this is cost reflective.

The following question was posed to industry as part of the Workgroup Consultation:

"The workgroup considered 3 options.

1. *The original figure of zero pounds per MWh*
2. *The Market Price*
3. *An optional price*

Do you favour an option; if so which option is your preference?
If this is option 3 how do you suggest this this would work?"

Following conclusion of the Workgroup Consultation, a Workgroup Member proposed an alternative which would allow market participants a one-off opportunity (for each of their relevant assets) to confirm to National Grid ESO if they wished to use either:

1. The original figure of £0 per MWh; or

[3] https://www.lowcarboncontracts.uk/cfds
[4] https://www.lowcarboncontracts.uk/cfds

2. The Market Price for that particular asset in terms of the applicable REP. Market Participants will have an one-off choice for the REP to be set at £0/MWh (as per Proposer's Solution) or at the prevailing Market Price. This must be exercised within 28 calendar days of ESO's letter asking them to indicate their choice. Where no choice has been made within 28 calendar days, the REP will be set at £0/MWh.

The Workgroup agreed that this was a valid Workgroup Alternative Code Modification (WACM) and would henceforth be known as WACM1.

Data provisions what can be shared, how will this work?

National Grid ESO stated that in order to implement the proposal of CMP300, National Grid ESO will need an up to date list of which generators have a valid CfD agreement that is updated as and when new CfD contracts are awarded or previously awarded CfD contracts are revoked. The Low Carbon Contracts Company (LCCC) has an online register (https://www.lowcarboncontracts.uk/cfds) which lists all those projects with a CfD contract.

From discussions with the LCCC, National Grid ESO are comfortable that new CfD contracts would be added to this register. However, it is not clear if or how projects that have CfDs removed would be shown on this register. Therefore NGESO are progressing on the assumption that revoked CfDs will be clearly shown on the register. National Grid ESO believes there could be a Sarbanes-Oxley Act (SOX) compliance risk [5]for National Grid ESO as they do not own the data being published on the LCCC website but would be reliant on such data to determine who does and doesn't pay REP. Incorporation of the CMP300 solution within the new settlement systems minimises this SOX compliance risk.

Ofgem reason for approving CMP237 – based on economic rationale or the fuel type?

The Proposer believed it was based on economic rationale

The Proposer explained that the principle of applying a cost reflective REP was established in the Ofgem decision for CMP237. However, the decision of CMP237 did not apply to all low or negative marginal cost generators. The view of the Proposer is that Ofgem's consideration on CMP237 is directly associated with the economic case that the REP should be cost reflective and therefore should be applicable to units that have low or negative marginal costs as a consequence of a CfD.

"Regarding costs covered under the REP, we accept the views expressed by the workgroup member that the intention of the payment mechanism is not only to cover fuel costs but all costs associated with energy production. ***However, setting a REP to £0/MWh for providers with zero fuel costs would result in a utilisation payment that more accurately reflects these providers' costs. This change will result in increased certainty for this class of generator, allowing them to submit HPs based on their actual positions which is likely to enhance competition within the MFR market."***

[5] National Grid ESO's financial processes are subject to the SOX Act 2002, which requires management's opinion on the effectiveness of internal control over financial reporting – see page 14 of National Grid ESO's Annual Compliance Report - https://www.nationalgrideso.com/document/171471/download

The National Grid ESO Workgroup Member believed it was based on fuel type

The National Grid ESO Workgroup Member agreed that all fuel types do have marginal costs. Ofgem's decision letter on CMP237 proposed to exempt generators that have been classed as having zero fuel costs from receiving or paying the REP. This creates a distortion of the market as such generators have to increase their holding price tender to counter act REP payments they may have to pay the ESO when providing MFR. As the REP payments are designed to fairly compensate against fuel costs when providing both high or low frequency response and these generators had no attributable fuel costs it was deemed a barrier for them.

In the view of the National Grid ESO Workgroup Member the decision to approve CMP237 was taken due to fuel/technology type. In the view of the National Grid ESO Workgroup Member the generators mentioned in CMP300 have an attributable fuel cost to them and it is not clear how an asset with a CfD in place has a similar barrier to entry or is losing out in a similar way. The Proposer highlighted the Ofgem decision and specifically the cost of reducing output for a CFD generator:

'*This generator also has to potentially forego renewable subsidies (e.g. RO, CfD and FITs3) as a result of reducing output. As a result, these generators are effectively submitting HP tenders to price themselves out of consideration which could be inhibiting competition within the MFR market.'*

Benefits / Costs

The Proposer explained that he believes this modification to have a marginal cost on the non-CfD industry participants. However, the Proposer couldn't give a view on wider system costs. The National Grid ESO representative noted that a full Cost Benefit Analysis may not be appropriate in this case. However, they urged parties to provide any relevant commercially sensitive information about their plant's marginal cost directly to Ofgem to support the decision making process.

The Workgroup previously sought such approval at the November 2019 Panel; however, a Panel member raised concerns that the Workgroup Report didn't really explain to what extent a CfD plant loses out at the moment under the current arrangements, as it doesn't set out the payments that the affected generator receives/pays/forgoes when it provides response.

The Proposer responded that CMP300 is premised on the logical basis that £0/MWh is a better approximation of the CfD plant's marginal cost than the MIP (as the plant is getting a subsidy). This supports the principle of cost reflectivity. To prove this is the case, parties would have to reveal their plant's precise marginal cost, which is not appropriate in a public report however they noted that this could be addressed through a confidential response to Ofgem.

The Workgroup agreed the following table, which highlights the difference in the treatment of BM units with a CFD.

- The largest component of Non CfD providers' Short Run Marginal Cost (SRMC)[6] is the fuel cost whilst for CfD providers it is the loss of income from the CfD.

- Altering the calculation so that all CfD BM Units with a low or negative marginal cost had a REP of £0 would be more reflective of the costs and reduced CfD income those sites incur.

Current scenario	For every additional MWh a party with a CfD generates for low frequency response	For every MWh less a party with a CfD generates for high frequency response	Impact
Non CfD BM Units	Increased SRMC (fuel costs) and receives **MIP *1.25**	Reduces SRMC (fuel costs) and **pays MIP *0.75**	MIP based pricing broadly reflective of fuel cost based on MIP – No loss incurred through provision of either Low Frequency Response (LFR) or High Frequency Response (HFR).
CfD BM Units with a low or negative marginal cost e.g. Biomass	Incentivised under normal conditions to maximise CfD income / energy flows. **MIP*1.25**	Reduces flows - therefore losing the CfD income. Saves any marginal fuel costs but **pays MIP*0.75**	These Units **pay MIP *0.75** for any downturn as well suffering reduced income from their CfD when providing HFR. Units incentivised to generate so marginal ability to provide LFR. Not as cost reflective as a **REP of £0/MWh.**
"Non-fuel" CfD BM Units that can have low or negative marginal costs e.g. Wind	No fuel costs and receive CfD Revenue up to Strike Price based on **REP of £0/MWh** (rather than MIP as more reflective of SRMC)	No fuel costs will be paid to the ESO based on REP **of £0/MWh. (**rather than MIP as more reflective of SRMC)	Approach consistent with Ofgem decision CMP237 that removed the distortion for non-fuel CFD BM Units.

[6] The value of the SRMC indicates at what price (wholesale market, REP, Zero REP) the BMU is willing to generate or not generate. Where price is > SRMC the BMU should increase output, where the price is < SRMC the BMU should decrease output.

The Workgroup provided a further illustrative[7] example in the table below to show what the SRMC would be for each of these scenarios.

This assumes a fuel cost of £100/MWh (unless this is a technology that does not have a fuel cost), a Strike Price of £100/MWh and a Reference Price of £50/MWh so any CfD Top Up[8] payment would be £50/MWh. Note for simplicity other SRMC elements such as Operations and Maintenance (O&M) and BSUoS are not considered as these cost elements are on the whole relatively small in comparison with fuel costs and low carbon support and are unlikely to vary significantly between technologies.

Current scenario	Impact of SRMC
Non CfD BM Units e.g. CCGT	SRMC = Fuel Cost[9] (£100/MWh) minus CfD Top Up (£0/MWh[10]) = **+£100/MWh**
CfD BM Units with a low or negative marginal cost e.g. Biomass	SRMC = Fuel Cost (£100/MWh) minus CfD Top Up (£50/MWh) = **+£50/MWh**
"Non-fuel" CfD BM Units that can have low or negative marginal costs e.g. Wind	SRMC = Fuel Cost (£0/MWh) minus CfD Top Up[11] (£50/MWh) = **-£50/MWh**

In terms of profit and loss (Gross Margin), in this example, it was assumed that the BM Units need to recover their SRMC in the wholesale market and the wholesale market price is +£51/MWh at a particular moment in time. At this time the Gross Margin for each of the BM Units is calculated as wholesale market price minus SRMC. The values are then as follows:

- **Non CfD BM Units** = **-£49/MWh**
- **CfD BM Units with a low or negative marginal cost** = **+£1/MWh**
- **Non-fuel" CfD BM Units that can have low or negative marginal costs** = **+£101/MWh**

Therefore, at a wholesale market price of **+£51/MWh:**

- **Non CfD BM Units** will not want to generate and will only generate at a wholesale market price greater than **+£100/MWh**
- **CfD BM Units with a low or negative marginal cost** will be likely to generate unless the wholesale market price is less than **+£50/MWh**
- **Non-fuel" CfD BM Units that can have low or negative marginal costs** will continue to generate as long as the wholesale market price does not fall below **minus £50/MWh[12]**.

[7] The numbers provided are not actual numbers and are purely for illustrative purposes
[8] Top Up is the difference between the Reference Price and Strike Price where the Strike Price is greater.
[9] Note for a fossil fuelled generator there would also be a cost of carbon element
[10] Zero as the BMU is not in receipt of a CfD FiT.
[11] Top Up is the difference between the Reference Price and Strike Price where the Strike Price is greater.
[12] However, some CfD contracts stop paying top ups where wholesale power prices are negative for prolonged periods

The key contention of the Proposer is that that the SRMC of the CfD BM Units with a low or negative marginal cost is closer to £0/MWh than the MIP. Therefore it is more cost reflective to not expose these BMUs to the REP.

Workgroup consultation summary

The Workgroup held their Workgroup Consultation between 12 April 2019 and 22 May 2019 and received 3 responses. The full responses can be found in Annex 3 bit a summary of the key points is set out below:

The Workgroup Consultation responses are set out in full in Annex 3 of this Workgroup Report; however, the key points are summarised below:

- 2 respondents believe that the proposed change better facilitates the CUSC objectives than the Baseline. However, 1 of these respondents favours an optional pricing approach as it allows market participants to provide their own approach in terms of cost reflective pricing. This has subsequently been raised as WACM1;
- The ESO respondent did not support the proposed implementation approach as a system change (with a significant lead time) is required and stated that the ESO's implementation costs would be £100 – 200K and asked the Proposer to justify the consumer benefit and why this change should be prioritised; and
- 2 respondents agreed that, in their opinion, Ofgem made their decision on CMP237 on economic rationale and not the fuel type. The ESO respondent disagreed and stated that the economic rationale was driven by the fuel type.

Legal text

The legal text for this change can be found in Annex 5.

What is the impact of this change?

MFR Providers
This change will improve competition in the MFR by ensuring that the REP is cost reflective for all MFR providers and all generators with a low or negative marginal cost are treated equally.

Without this change:

- The REP payment will continue to not accurately reflect the generator's cost, or avoided cost for some technologies with a CfD / FiT due to the low or negative marginal cost for these BM Units;
- If a renewable generator was instructed to provide High Frequency Response (reduce output), it would be required to pay the ESO for the cost that was avoided in reducing its energy production when no costs would actually have been incurred. This generator also has to potentially sacrifice renewable subsidies (e.g. CfD FiT) as a result of reducing output. As such, it is not cost-reflective for them to have to pay the ESO for an avoided cost that does not exist.

ESO

To implement this change, ESO identified there would potentially need to be a system change. However, a manual workaround could be accommodated should implementation

be earlier than end 2022 when Release 2[13] of a new settlements system will be delivered. Where there is alignment with this new settlements system then the cost of implementing CMP300 would be negligible as it can be included into this suite of changes. It would also lower the compliance risk impacts.

Consumers

By ensuring that the REP is more cost reflective for all MFR providers this will better facilitate competition for the provision of frequency response - this should consequently reduce the overall cost to the end consumer.

General

Note as detailed in the later section “Workgroup Discussions following Authority decision”, the Workgroup explored assessed whether or not any future CfD BMUs are likely to come online in the future and assess how it can be ensured that they are not negatively impacted. From a qualitative perspective the Workgroup discussed the likelihood that different forms of generation will have a CfD or similar support mechanism in the future as we transition to net zero. The majority of the Workgroup concluded that the potential for the applicability of CMP300 to multiple BMU’s in the future was probable, though given the limitations of the FES, the Workgroup were unable to determine how many this would be.

[13] The system fix for CMP300 will be captured in Release 2. Release 1 is anticipated ~ June/July 2022.

Workgroup vote

The Workgroup met on 31 October 2019 to carry out their Workgroup vote. The 6 Workgroup Members voted and the full Workgroup vote can be found in Annex 4. The tables below provide:

- a summary of how many Workgroup members believed the Original and WACM1 were better than the Baseline; and
- a summary of the Workgroup members' views on the best option to implement this change.

The Applicable CUSC non-charging Objectives are:

CUSC non-charging objectives

a) The efficient discharge by the Licensee of the obligations imposed on it by the Act and the Transmission Licence;
b) Facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity;
c) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency *; and
d) Promoting efficiency in the implementation and administration of the CUSC arrangements.

*Objective (c) refers specifically to European Regulation 2009/714/EC. Reference to the Agency is to the Agency for the Cooperation of Energy Regulators (ACER).

CMP300 - Assessment of the Original and WACM1 vs the Baseline (the current CUSC arrangements)
As shown by the table below, the Workgroup concluded by majority (5 out of 6 votes) that the Original and WACM1 better facilitated the CUSC Objectives than the Baseline.

Proposed Solution	Of the 6 votes, how many said that this option was better than the Baseline
Original	5
WACM1	5

The Workgroup concluded by majority that WACM1 better facilitated the Applicable CUSC Objectives than the Original by 4 votes to 2.

CMP300 Best Option

3 Workgroup Members voted that WACM1 was the best option, 2 votes were cast for the Original and 1 vote was cast for the Baseline.

Workgroup Member	Company	BEST Option?	Which objective(s) does the change better facilitate? (if baseline not applicable)
Paul Youngman	Drax Power Limited	Original	(a), (b), (d)
Garth Graham	SSE Generation Ltd.	WACM1	(b)
Grahame Neale (Alternate for Jamie Webb)	National Grid ESO	Baseline	n/a
Ewen Ellen	Scottish Power	WACM1	(b)
Karl Maryon	Haven Power	Original	(a), (b), (d)
Robert Longden	Cornwall Insight Ltd.	WACM1	(b)

First Code Administrator Consultation Summary

The First Code Administrator Consultation was issued on the 9 November 2020 and closed at 5pm on 9 December 2020. We received 2 responses. 1 respondent supported the change and implementation approach; however, the other respondent didn't. A summary of these responses can be found in the table below, and the full responses can be found in Annex 6.

Supports change and Implementation Approach	Does not support change or Implementation Approach
Supports Original and WACM 1 and argues they better facilitate the Applicable Objectives a, b and d. Setting the Response Energy Payment (REP) to zero for renewable generators receiving a Contract for Difference Feed in Tariff (CfD FiT) will better reflect the short run marginal costs (SRMC) of these CFD FiT Units than a calculated REP based on the Market Index Price (MIP). Seek Implementation 10 Working days after an Authority decision - concerned if delivery of the CMP300 solution were contingent upon delivery of a new settlement system in 2022 by the ESO given the uncertainty that is inherent in delivering system. This change will improve competition for Mandatory Frequency Response (MFR) by ensuring that the REP is cost reflective for all MFR providers. The modification should also ensure all renewable generators with a low or negative marginal cost are treated equally.	Agrees that certain CfD generators could have a SRMC which is closer to zero than market price. However, this depends on the level of profit over fuel price that the CfD provides. Original assumes that all CfD providers will have a SRMC close to zero which seems incorrect or at least inconclusive. WACM1 allows generators to elect which price they are exposed to. For plant which tend to deliver more of one type of response, then this choice can potentially be exploited to provide an inflated benefit. Suggested that the choice between using zero or the MIP as the REP level could be made by the ESO or Ofgem, based on evidence provided by the generator to demonstrate whether their SRMC is closer to zero or MIP.

Under CUSC 8.17[14] and 8.23.2(i)[15], ESO are required to justify whether or not to include the views from the Code Administrator Consultation in the CMP300 solution. The ESO Workgroup Member and ESO Panel Member noted the difference in viewpoints and that these views and debate had been addressed in this document. They also noted that a respondent had suggested as part of their Code Administrator Consultation

[14] 8.1.7 Where a CUSC Modification Proposal constitutes an EBGL Amendment, The Company, when undertaking its role in the CUSC Panel or Working Groups during the CUSC Modification Process, shall provide justification for including or not including the views of stakeholders resulting from the Code Administrator consultation.

[15] 8.23.2(l) whether the CUSC Modification Proposal and if applicable, any Workgroup Alternative CUSC Modification(s) constitutes an EBGL Amendment and if so, and in addition to (i) above, a The Company's justification for including or not including the views resulting from the relevant consultation in the CUSC Modification Proposal and if applicable, any Workgroup Alternative CUSC Modification (s)

response *"that the choice between using zero or the MIP as the REP level could be made by the ESO or Ofgem, based on evidence provided by the generator to demonstrate whether their SRMC is closer to zero or MIP'.* Unfortunately, the CUSC governance process does not allow for this to be considered as a Workgroup Alternative as the Workgroup was discharged prior to the Code Administrator Consultation being issued. However, this is something that could considered if a party wishes to raise a further Modification.

Legal text issues raised in the First Code Administrator Consultation

One respondent stated that the legal text for WACM1 would appear to benefit from two clarifications:

- The legal text says that CfD generators can elect to "*set the Reference Price to Max*", but doesn't really set out what setting the reference price to "Max" means; and
- Clarification on the process / timescales for Users to exercise their choice for the Response Energy Payment to be set at £0/MWh or at the prevailing Market Index Price.

A meeting was held on 7 December 2020 between the Code Administrator, the ESO, the respondent, the Proposer and the Proposer of WACM1 to discuss these points and agree revised legal text. The following changes were agreed (the changes since the Code Administrator Consultation was issued are highlighted in red text):

*A User with a "CfD BMU" (a BM Unit registered in respect of a Power Station whose operator is a party to an agreement with the CfD Counterparty) the User can elect within 28 calendar days of ESO's notice asking them to indicate their choice, at the outset of the agreement with the CfD Counterparty, to set the Reference Price to max ($\sum_s$ {**PXP**$_{sj}$ x **QXP**$_{sj}$} / $\sum_s$ {**QXP**$_{sj}$} x 1.25, 0)~~Max~~ for Response Energy Payments for that CfD BMU for the duration of that agreement. In the absence of ~~Until~~ such election, which can only be made once by reference to that CfD agreement, the Reference Price shall be ~~0~~zero by default.*

The CUSC Panel on 18 December 2020 considered these changes and by majority agreed that these changes were minor rather than typographical. In accordance with CUSC 8.23.4[16], the CUSC Panel directed the CMP300 Workgroup to review these changes. If the CMP300 Workgroup unanimously agreed that these changes were minor, then the Draft Final Modification Report would be presented for recommendation vote at a Special Panel already scheduled for 8 January 2021. The CMP300 Workgroup unanimously did agree that the proposed changes to the legal text were minor.

The CUSC Panel on 8 January 2021 held their recommendation vote for CMP300. The Panel recommended by majority that both the Proposer's solution and WACM1 better facilitated the CUSC objectives than the current CUSC arrangements. The full CUSC Panel recommendation vote can be found within Annex 7.

[16] CUSC 8.23.4(ii) if the change required is not considered to be a typographical error then the CUSC Modifications Panel may direct the Workgroup to review the change. If the Workgroup unanimously agree that the change is minor the CUSC Modifications Panel may instruct the Code Administrator to make the appropriate change and the Panel Chairman will undertake the CUSC Modifications Panel Recommendation Vote otherwise the Code Administrator shall issue the CUSC Modification Proposal for further Code Administrator consultation after which the Panel Chairman will undertake the CUSC Modifications Panel Recommendation Vote.

Authority Decision to send – back CMP300

On 9 July 2021, the Authority sent back CMP300 and directed that the CUSC Panel re-submit the Final Modification Report (FMR) to address the following:

- Provide more evidence that demonstrates objective (b) would be better facilitated for CfD BMUs as a class of users;
- Seek further feedback from industry and affected parties to improve the robustness of the assessment of the proposals; and
- Make best endeavours to secure further supporting evidence to demonstrate the economic impact of the Proposal against the class of users that would be affected.

The CUSC Panel on 30 July 2021 agreed next steps following send-back on 9 July 2021:

- They noted that Ofgem are asking the Final Modification Report to be revised and resubmitted
- They agreed that this needs to be assessed by a Workgroup *(there is no Workgroup Consultation, or Workgroup Report and no further Workgroup Alternatives can be raised)*
- They agreed the Workgroup's Terms of Reference
- They agreed (following the assessment by the Workgroup) that a Code Administrator Consultation is needed to be run before it is re-presented to Panel for Recommendation Vote

The CUSC Panel also agreed the following Terms of Reference to address Send-Back

- Provide more evidence that demonstrates CUSC Objective (b) would be better facilitated for CfD Balancing Mechanism Units (BMUs) as a class of users.
    - Confirm that there is only 1 CfD BMU currently impacted; and
    - Assess whether or not any future CfD BMUs are likely to come online in the future and assess how it can be ensured that they are not negatively impacted.
- Seek further feedback from industry and affected parties to improve the robustness of the assessment of the proposals.
- Secure further supporting evidence to demonstrate the economic impact of the Proposal against the class of users that would be affected or clearly articulate why this has not been possible.

Workgroup Discussions following Authority decision

The Workgroup met on 8 and 25 November 2021 to address the above Terms of Reference and these discussions and conclusions are set out below:

Provide more evidence that demonstrates CUSC Objective (b) would be better facilitated for CfD Balancing Mechanism Units (BMUs) as a class of users.

- **Confirm that there is only 1 CfD BMU currently impacted; and**
- **Assess whether or not any future CfD BMUs are likely to come online in the future and assess how it can be ensured that they are not negatively impacted.**

There is only one CfD BMU currently impacted. The key question that the Workgroup sought to explore is the extent that new technologies may require a CfD or equivalent support mechanism in the future. The Workgroup agreed that the Future Energy Scenarios (FES) data was the most appropriate data source to quickly help the Workgroup provide a view of "whether or not any future CfD BMUs are likely to come on-line in the future". It was confirmed by the ESO representative that the baseline FES data will only consider the CfD auctions that have occurred and therefore does not provide a direct forward view of what technology may or may not receive a CFD or similar incentive in the future. This meant that the quantitative analysis was limited to a view of potential technology types (and the associated predicted capacity) that may come on-line.

Source Data

The analysis (see Annex 7 for full analysis) used the Future Energy Scenarios 2021 Data Workbook (FES Workbook), which details all of the graphs, charts and supporting data published in FES from the ESO modelling - as the baseline. The focus of the analysis is the 'ES1' worksheet as this provides a yearly view (out to 2050) of MW Capacity predicted to be connected to the system (both at Distribution & Transmission) broken down by technology type/sub technology by each of the FES of ' Steady Progression', 'System Transformation', 'Consumer Transformation' and 'Leading the Way'.

Methodology and Rationale

The analysis created a separate ES1 worksheet for each of the 4 FES to provide a range in terms of a view of the technologies and capacities coming on-line and then removed the following technologies:

- Those that are not ordinarily connected at Transmission this provides a view of those technologies (similar to the Transmission connected CfD BMU mentioned in the CMP300 proposal) that may potentially connect
- Removed the 'Storage' technologies such as 'Compressed Air' (primarily because in the example of compressed air the stored air previously pumped underground is used to run a turbine so it is assumed there is no fuel/or cost associated with that air which runs the turbines).
- Removed 'Interconnectors' and then 'Thermal' technologies (e.g. coal, oil)

This then leaves the remaining categories of 'Low Carbon' and 'Renewable' technologies which aligns with the Contracts for Difference (CfD) scheme being the government's main

mechanism for supporting low-carbon electricity generation by incentivising investment in renewable energy.

- Following this, the technologies considered as 'non-fuel cost Power Stations' in Section 4 of the CUSC (which have a zero reference price) have been removed (these include Onshore wind, Offshore wind, Solar, Tidal, Wave). Marine has then been removed given it uses the natural movement of water.
- Hydrogen (showing in both the System Transformation and Consumer Transformation scenarios) was removed given that it appears from the FES that those Hydrogen projects are focused on decarbonising heat and transport with several mentions of Hydrogen (produced via electrolysis) primarily being used for residential heating as well as transportation.
- Finally, 'Waste' & 'Waste CHP' has also been removed – from studying the business models for Energy from Waste it appears that although they have a fuel (that being the waste product) they don't have a fuel cost as the business model tends runs off two revenue streams, a "gate fee" (tipping fee) which they charge to take the waste and then revenue from generating the energy from the waste.

The CUSC Panel on 17 December 2021 queried why Battery Storage was also removed from the data set. The conclusion to remove this technology was driven by the reasoning that "fuel" as a basic concept (in the context of electricity supply) is a material used (or that can be made to react with other substances) to produce/release electrical energy, which in itself is not the same as the "electricity" a Battery Storage unit will import (to charge) and then later export back on to the system at peak periods. As it was assumed that the electricity itself was not a fuel as such, then there was no associated fuel cost and therefore the technology was removed. However, the CUSC doesn't currently have a definition of fuel (or indeed electricity) so it could equally be argued/interpreted that they are one and the same, and that similar to a Biomass plant in having a cost associated with the biomass pellets (the fuel), a Battery Storage plant indeed does have a "fuel" source (that being the electricity) and with that an associated fuel cost being the electricity price/cost that has to be paid when charging the battery itself.

Conclusions

This then essentially leaves the following results:

FES Scenarios	Technologies that would potentially require a CfD or equivalent subsidy
Steady Progression	**Nuclear*, Biomass, Biomass CHP, & CCS Gas**
System Transformation	**Nuclear*, CCS Biomass, CCS Gas, Biomass, & Biomass CHP**
Consumer Transformation	**Nuclear*, Biomass, Biomass CHP, & CCS Biomass**
Leading the Way	**Nuclear*, Biomass, Biomass CHP, & CCS Biomass**

*Assumption made following discussion by the Workgroup that Nuclear would not be used for Response.

The results are similar in terms of the technology types identified with 'Consumer Transformation' the same as the 'Leading the Way' scenario.
In some scenarios however, the mix of those technology types differs as does the timing of when capacity is due to connect as well as the capacity values themselves, e.g. the 'System Transformation' scenario adopts both 'Biomass and Gas CCS' technologies.

However, there are some instances where those particular technology types (detailed in the table above) don't have any new capacity connecting and are either static or show capacity coming offline over the period i.e. Biomass CHP in the Steady Progression scenario has some capacity coming online in 2021 then nothing further, whereas Biomass under the Consumer Transformation scenario only sees the capacity coming offline steadily from 2034 onwards.

From a qualitative perspective the Workgroup discussed the likelihood that different forms of generation will have a CfD or similar support mechanism in the future as we transition to net zero. The majority of the Workgroup concluded that the potential for the applicability of CMP300 to multiple BMU's in the future was probable, though given the limitations of the FES, the Workgroup were unable to determine how many this would be.

Seek further feedback from industry and affected parties to improve the robustness of the assessment of the proposals.

There will be a Code Administrator Consultation run before the Draft Final Modification Report is presented to Panel - this will also target the potential new technology types identified by the FES (that may be seeking connection to the transmission system) coming forward.

Secure further supporting evidence to demonstrate the economic impact of the Proposal against the class of users that would be affected or clearly articulate why this has not been possible.

The Workgroup noted that there is only 1 User in this class currently but noted that there will be a Code Administrator Consultation run before the Draft Final Modification Report is presented to Panel and this will also target the potential new technology types identified by the FES (that may be seeking connection to the transmission system) coming forward.

Second Code Administrator Consultation Summary

The Second Code Administrator Consultation was issued on the 17 January 2022 and closed on 16 February 2022 and received 3 responses (all non-confidential). A summary of the non-confidential responses and the full non-confidential responses can be found in Annexes 9 and 10 respectively. In summary:

- Respondents were supportive of either or both of the proposed changes predominantly as thus creates a level playing field for all transmission connected low carbon projects in receipt of a CfD;
- Respondents supported the Workgroup's analysis re: technologies that may benefit in the future from a CfD or similar support mechanism. One respondent identified parties that will benefit in the near term at transmission level and added there are further projects set to commission and connect at distribution, who may also benefit if precedent for this arrangement is set at transmission; and
- One respondent noted that CMP300 is positive in relation to the Electricity Balancing Regulation Article 3 objectives, and in particular enhancement of objective (e) as it removes an undue distortion between generators that receive renewable subsidy payments.

Panel recommendation vote

The Panel will meet on the 25 February 2022 to carry out their recommendation vote.

They will assess whether a change should be made to the CUSC by assessing the proposed change and any alternatives against the Applicable Objectives.

When will this change take place?

Implementation date
The view of the Proposer was that CMP300 would require being implemented at the earliest opportunity to ensure there is a level playing field for all generators providing MFR. The Proposer of the Original and WACM1 has requested implementation to be 10 working days after decision from Authority.

Date decision required by

As soon as possible

Implementation approach

If WACM1 is implemented, the ESO would, within 28 calendar days, write to all those relevant Users (those who, as per CMP300 Original, would be classified as being potential parties to whom CMP300 would apply) asking them to reply, within 28 calendar days, to the ESO confirming if they wished their REP (per asset) to be priced as either £0 per MWh or at the prevailing Market Price (which could be positive or negative) as per the current

baseline. The National Grid ESO representative would prefer implementation of CMP300 to be aligned with the delivery of Release 2[17] of a new settlements system ~ end 2022.

Interactions

☐Grid Code	☐BSC	☐STC	☐SQSS
☐European Network Codes	× EBR Article 18 T&Cs[18]	☐Other modifications	☐Other

CMP300 requires changes to CUSC 4.1.3.9A, and so impacts on the EBR Article 18 Terms and Conditions

[17] The system fix for CMP300 will be captured in Release 2. Release 1 is anticipated ~ June/July 2022.
[18] If the modification has an impact on Article 18 T&Cs, it will need to follow the process set out in Article 18 of the Electricity Balancing Regulation (EBR – EU Regulation 2017/2195) – the main aspect of this is that the modification will need to be consulted on for 1 month in the Code Administrator Consultation phase. N.B. This will also satisfy the requirements of the NCER process.

Acronyms, key terms and reference material

Acronym / key term	Meaning
Baseline	The CUSC as it is currently
BM	Balancing Mechanism
CfD FiT	Contracts for Difference Feed in Tariff – difference payments are made by either LCCC to the generator or vice versa depending on whether the Reference Price is greater than or less than the 'strike price'.
HFR	High Frequency Response
LCCC	Low Carbon Contracts Company whose primary role is to manage CFDs with low carbon generators throughout their lifetime.
LFR	Low Frequency Response
MIP	Market Index Price
REP	Response Energy Payment
Reference Price	A measure of the average market price for electricity in the GB market
SRMC	Short Run Marginal Cost
Strike Price	A price for electricity reflecting the cost of investing in a particular low carbon technology

Reference material

- CMP237 Ofgem decision

Annexes

Annex	Information
Annex 1	Proposal form
Annex 2	Terms of reference
Annex 3	CMP300 Workgroup consultation responses
Annex 4	CMP300 Workgroup vote
Annex 5	CMP300 Legal Text
Annex 6	CMP300 Code Administrator Consultation responses
Annex 7	CMP300 Final Modification Report
Annex 8	CMP300 FES Analysis
Annex 9	CMP300 Second Code Administrator Consultation responses summary
Annex 10	CMP300 Second Code Administrator Consultation responses