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Decision

CMP343 – Decision and final impact assessment

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This decision implements the conclusions of Ofgem's Targeted Charging Review (TCR) for Transmission Demand Residual (TDR) charges.

It changes the way that the TDR charge is collected from electricity network users, replacing the existing Half-hourly "triad" residual component and the current Non Half-hourly unit charges.

This decision also concerns particular implementation questions. We have decided that this change should be implemented from April 2023. This document outlines our decision, the reasoning behind it, and our view of the impacts.

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Executive summary

Our transmission and distribution networks are significant investments. Every year, GB consumers pay over £10bn to cover the costs of new and existing assets and to keep the complex system in balance.[1] Users need to cover these costs by paying network charges. Much of the costs of the networks needs to be picked up using "residual" charges, that ensure the owners of the regulated networks recover their allowed revenues. It is important that these charges are recovered fairly and without distortions.

In November 2019, we published our Decision on the Targeted Charging Review (TCR) Significant Code Review (SCR) which aimed to ensure the residual charges needed to cover the costs of operating, maintaining and upgrading the electricity grid are spread fairly. Through reducing harmful distortions, the TCR changes as a whole are expected to save consumers approximately £300m per year, with anticipated £4bn-£5bn consumer savings in total over the period to 2040[2].

Our TCR Decision confirmed that residual network charges, including the Transmission Demand Residual (TDR) charges that recover much of the cost of the transmission network, should be recovered through fixed charges on Final Demand[3] consumers. We reached this decision by applying the TCR Principles, which were:

- reducing harmful distortions;
- fairness; and
- practicality and proportionality.

This specific change, CMP343, is a Connection and Use of System Code (CUSC) modification that implements the TCR decision for TDR charges, and also deals with particular implementation questions, namely how to deal with negative locational charges in some regions, and the approach to segmenting Transmission-connected demand users in a fair way.

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[1] DNO allowed revenues total around £6bn and TO allowed revenues total around £2.7bn per annum, and can be seen in the Ofgem Price Control Financial Models here Network price controls 2021-2028 (RIIO-2) | Ofgem. Balancing cost summaries can be found on the ESO website, and total c£2bn for the year Apr-21 to date of publication. ESO Data Portal: Balancing Costs | National Grid Electricity System Operator (nationalgrideso.com)

[2] Targeted Charging Review: Decision and Impact Assessment | Ofgem

[3] Final Demand is defined as "electricity which is consumed other than for the purposes of generation or export onto the electricity network". The CUSC modification CMP334 defined this term and other relevant terms. We approved CMP334 on 30 November 2020, though it will not have any effect until CMP343 is implemented.

We have decided to accept CMP343 Workgroup Alternative CUSC Modification (WACM) 2, which sets out that areas with negative transmission demand charges will be subject to a floor, to prevent unhelpful demand incentives, and that four charging bands will be used to segment transmission-connected users, to ensure there is a fair balance of charges between smaller and larger users. This is in line with our earlier minded to decision for CMP343,[4] which we consulted on, along with a draft impact assessment, in May 2021.

We found WACM2 to better facilitate the achievement of the Applicable CUSC Charging Objectives (ACOs) and be consistent with our principal objective and statutory duties, and is most consistent with the TCR Principles.[5]

We are directing this change be made for an April 2023 implementation date, to allow users the time needed to adjust to this decision. We also set out in this document a number of additional changes we consider may be beneficial, and that we would like the National Grid Electricity System Operator ('NGESO' or the 'ESO') or other industry parties to consider raising change proposals for. We also consider further engagement may be appropriate, for example with regards to new and existing large demand sites.

[4] CMP343 – consultation on minded-to decision and impact assessment | Ofgem

[5] Our TCR Direction [CUSC Direction (ofgem.gov.uk)] provided at pg. 7 that NGESO, when raising modification proposals to give effect to the conclusions of the TCR, must '*have regard to (and to the fullest extent practicable comply with) the SCR Decision Principles as defined in paragraphs 3.50 of the TCR Decision* ['the TCR Principles']'. We therefore consider that there is also merit in considering the CMP343 proposals against the TCR Principles, in addition to carrying out an assessment against the ACOs and our principal objective and statutory duties.

1. Introduction

Background

1.1. In November 2019, we published our Decision (and associated Directions) on the Targeted Charging Review (TCR) Significant Code Review.[6] The TCR included a review of how residual network charges are set and recovered. The aim of the TCR was to ensure that these charges are recovered from network users in a way that meets the TCR Principles of:

- reducing harmful distortions;
- fairness; and
- proportionality and practical considerations.

1.2. For the transmission network, the Transmission Owners (TOs) recover their allowed revenue from their customers through Transmission Network Use of System (TNUoS) charges. Currently, TNUoS demand charges are a composite of locational (or 'forward-looking') and residual components, subject to overall flooring at 0. The residual component of TNUoS charges is added to the locational component, once forward-looking charges have been calculated, to recover the remaining allowed revenue for network companies set under the price controls.

1.3. In the TCR we concluded that residual charges will apply to Final Demand[7] consumers only, and that they would take the form of fixed charges, levied on a per-site basis. We also decided to separate demand TNUoS charges into discrete residual and forward-looking components, and set different charging structures for different consumers:

[6] https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-decision-and-impact-assessment

[7] Final Demand is defined as "electricity which is consumed other than for the purposes of generation or export onto the electricity network". The CUSC modification CMP334 defined this term and other relevant terms. We approved CMP334 on 30 November 2020, though it will not have any effect until CMP343 is implemented.

- For domestic consumers, that there will be a single transmission residual charge and a single distribution residual charge within each of the 14 distribution licensed areas.

- For distribution-connected non-domestic consumers, that there will be a banded charging structure made up of fixed transmission and distribution residual charges.

    - The total allowed residual revenue for each licensed distribution area is first apportioned to voltage levels based on the total contribution of users at the relevant voltage level to net volumes on each network, and then apportioned further to user segments within each voltage level, to calculate a single, fixed charge for all users in that segment.

    - Non-domestic segment boundaries are set in terms of agreed capacity levels for users at higher voltages (Extra High Voltage (EHV) and High Voltage (HV)) where this data is widely available, and net volume levels at Low Voltage (LV).

    - The band boundaries are set at the 40th, 70th and 85th percentiles of capacity, or, for LV only, consumption.

- For transmission-connected consumers (all non-domestic) we directed that consideration should be given to whether a single transmission band or alternative banding options would be appropriate.

1.4. Alongside our TCR Decision, we issued a TCR Direction to National Grid Electricity System Operator ('NGESO' or the 'ESO') to bring forward proposals to modify the Connection and Use of System Code ('CUSC') in relation to residual charges, to give effect to the terms of the TCR Decision.[8]

1.5. In our TCR Direction we noted that (p.3):

[8] https://www.ofgem.gov.uk/system/files/docs/2019/11/cusc_direction_1.pdf

Transmission-connected sites are likely to have a relatively narrow percentage range in size compared to other voltage levels, so the term of the Direction is for a single transmission band. It is acknowledged that there may be small numbers of substantially smaller sites connected, for example as part of complex sites or private networks. Therefore, the Authority considers it desirable that consideration is given to whether alternative options, for example as regards transmission banding are considered preferable.

1.6. In particular, we directed the ESO to consider (p.6):

alternative modification proposals as it considers necessary following an assessment of whether there should be more than one band for TNUoS residual charges for transmission-connected consumers for example on account of issues arising with very small users being connected at higher voltage… having regard to: a. whether there should be a similar approach to banding as for extra-high voltage (EHV) distribution-connected consumers; or b. an exceptions mechanism for very small or complex sites.

What are we deciding on?

1.7. With respect to Transmission Demand Residual ('TDR') charging, our TCR Decision confirmed that residual charges should be levied on a fixed basis for Final Demand consumers only. We decided that the allocation of charges between segments of consumers should be based on the proportion of net consumption they account for, with a single, fixed charge for all users in that segment.

1.8. NGESO raised five CUSC modification proposals[9] to implement TDR reforms in line with the TCR Decision, including CMP343 which proposes the methodology for TDR charges to be applied only to 'Final Demand' on a 'Site' basis, as well as how to treat negative

[9] Aside from CMP343, these are: CMP334, covering definitions: https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc-old/modifications/cmp334; CMP335 and CMP336, covering among other things, allocation to bands: https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc-old/modifications/cmp335; and CMP340, covering further definitions required for CMP343: https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc-old/modifications/cmp340

forward-looking charges and the charging band review process. The ESO proposed implementation of these reforms from 1 April 2022.[10]

1.9. In May 2021, we issued a minded-to decision and impact assessment of the distributional effects of implementing the TCR Decision as it relates to the TDR, based on the options presented to us under CMP343, and whether implementation should be delayed by a year until April 2023.[11] Specifically, it considered the impacts of the different proposed approaches to flooring the forward-looking element of TNUoS charging and whether and how to band TDR charges for transmission-connected final consumers. We explain the options further in Section 3.

1.10. In the consultation which accompanied our minded-to decision and impact assessment, we sought responses on the following questions:

- Question 1: Do you agree with our assessment of the distributional impacts of the flooring approaches?
- Question 2: Do you agree that, of the flooring options presented, flooring at 0 best meets the TCR Principles and Applicable CUSC Charging Objectives?
- Question 3: Do you agree with our assessment of the distributional impacts of the banding approaches?
- Question 4: Do you agree that, of the banding options presented, four bands best meets the TCR Principles and Applicable CUSC Charging Objectives?
- Question 5: Do you consider that any of the options presented adequately addresses very small users (including those associated with mixed use sites[12])?

[10] Our direction had originally directed that NGESO raise the necessary code modification proposals in sufficient time to enable the modifications to be effective as of 1 April 2021.
[11] https://www.ofgem.gov.uk/publications/cmp343-consultation-minded-decision-and-impact-assessment
[12] The TCR Direction referred to complex sites, but we now use the term 'mixed use sites' as 'complex sites' is used in the BSC for another purpose. Mixed use sites refers to sites with a mixture of Final Demand and non-Final Demand.

- Question 6: Do you agree with our minded-to decision to approve CMP343 WACM2?

- Question 7: Do you agree with our minded-to decision that implementation should be delayed by a year, until April 2023?

Our decision

1.11. We have considered the issues raised by the modification proposal and the Final Modification Report (FMR) dated 06 October 2020, as well as the accompanying views and discussion, the consultation responses we received, and the stakeholder feedback from engagement we have undertaken since the minded-to decision was published. We have also refreshed our impact assessment with updated data. In line with our minded-to decision, our final decision is to implement Working Group Alternative Modification 2 (WACM2), delaying implementation by a year to take effect from 1 April 2023. WACM2 floors the negative TNUoS forward-looking charge at 0 and creates four TDR charging bands for transmission-connected consumers.

Impact assessment

1.12. Where appropriate, regulatory proposals are accompanied by impact assessments (IAs) which assess and estimate the likely associated risks, costs and benefits that have an impact on business, individuals and the environment.

1.13. In the IA that supported our TCR Decision ("TCR IA"), we modelled the impact of a single transmission residual charging band with a single approach to flooring (no floor).[13] The static bill impact analysis prepared by our consultants for that IA was developed based on data from publicly available sources and requests from network operators. The data available did not allow the estimation of the exact charges that could be expected as a result of the reforms.

1.14. In producing their assessment, our consultants had to make a range of simplifications and assumptions. The user groups were designed to represent a reasonable spread of different levels and shapes of consumption, but they were not representative of

[13] https://www.ofgem.gov.uk/system/files/docs/2019/12/updated_tcr_ia_data2.pdf

all consumers. As a result, the charges and bill impacts estimated were illustrative to provide an indication of the expected impacts.

1.15. Undertaking a further IA on the flooring and banding options presented under CMP343, and consulting upon it, has helped inform our decision on the modification proposal. The IA reflects our published guidance except where indicated.

1.16. The IA presents analysis to inform the two areas where there are differences between the options set out in the alternative modification proposals in terms of approaches to: (i) flooring of the forward-looking charge, and (ii) banding, including the treatment of very small sites, including those associated with mixed use sites. These two areas also represent differences from the assessment included in the TCR IA.

1.17. The analysis compares the different solutions presented with one another, but not with the status quo. The change relative to the status quo has already been subject to assessment under the TCR IA. All the options are consistent in giving effect to the relevant elements of the TCR Decision and associated TCR Direction. This IA is limited to the options available under CMP343.

1.18. The quantitative aspect is limited to a distributional analysis, focussing on static bill impacts for baseline tariffs. It is supported by qualitative analysis as appropriate.

1.19. The IA is integrated within the consultation document as opposed to producing a separate IA document. This is to aid navigation of where the analysis has informed our decision. We consider this approach to be proportionate and appropriate in these circumstances given that a number of the general IA elements are not applicable in this case. Alongside this document, we are publishing a spreadsheet containing the baseline tariff impacts for all the options on a consistent basis, at Appendix 1.[14]

1.20. The data that will be used in practice to set band boundaries and to allocate users to bands will be two years of net consumption data. For setting the band boundaries, CMP343 does not specify the end date for the data to be used and so we expect, in that absence of clarification, for the ESO to use two years of up-to-date data that runs to a point that

[14] These remain estimates, as final TNUoS tariff setting will not take place for April 2023 tariffs until January 2023.

allows for tariffs to be finalised under the usual timescales. It seems to us that clarity over the exact periods may be desirable here, and we have therefore concluded that prior to the implementation of WACM2, it may be beneficial for a follow-up housekeeping modification proposal to clarify the time periods for the data to be used.

1.21. We also note that a small number of other house-keeping corrections and clarifications may be desirable or helpful in removing ambiguity, though these do not affect our decision. These are set out in detail in section 3 of this document. For the avoidance of doubt, we are satisfied that the proposed legal text is operable and effective, notwithstanding any clarifications or amendments which may follow.

1.22. For the purpose of this IA, the analysis for the transmission band boundaries is based on two full charging years consumption data to March 2021, with some updates to the data used in the minded-to IA where this was available.[15] Final tariffs for the TDR for April 2023 will be produced in line with the normal tariff setting processes. In addition, the potential for updates to data and potential future reviews of the band boundaries (as set out later in this document) mean that tariffs and band boundaries in this IA document are indicative.

1.23. The tariff impacts are based on a consistent set of assumptions that are documented in the accompanying tariff spreadsheet at Appendix 1. We consider these assumptions are appropriate for assessing the distributional impacts of the options. Unlike for our TCR IA, we have not conducted sensitivities. This is because we consider any sensitivities would not undermine our conclusions based on this IA. For example, the size of the residual could vary to a limited extent, but that would not affect the distributional impact between consumers, it would only affect the absolute value of each of the charges.

1.24. Given the time that has passed since the minded-to decision was published, we have provided revised analysis where possible to reflect updates to assumptions and the availability of new data from NGESO. In particular, the maximum allowed revenue to be recovered from the TOs has increased by around 10% with a commensurate increase in the revenue to be recovered from the TDR. As a result, most TDR tariffs are around 10% higher than in the minded-to consultation, with some variations across different bands, in

[15] This data was the most up-to-date data covering two full charging years available at the time of assessment.

part driven by a change in assumed consumption levels in those bands. As set out above, final tariffs will be produced in line with the normal tariff setting processes.

1.25. We view this IA largely as a refinement of the distributional analysis originally undertaken as part of the wider TCR project. We considered the TCR IA to be within scope of Public Sector Equality Duties[16] so these duties were considered. The choices between the banding/flooring options have only a small impact on annual fixed tariffs for domestic consumers so will not have appreciable equality impacts. As the TCR was a non-qualifying measure for the Business Impact Target, this modification falls under the same exclusion. Other aspects we consider, such as security of supply impacts, are important in the energy system. The TCR IA quantified these, but as we are considering charges for demand users rather than generation in this decision, there is no reason to revisit the issue.

1.26. As noted above, this modification concerns the precise approach for implementing TDR reforms, rather than the TCR Decision to direct that these reforms be made, and so our assessment here does not update or amend the assessment made in the TCR Decision IA or associated Directions.

Context and related publications

1.27. As noted above, CMP343 is one of five modification proposals raised by NGESO to give effect to the TCR Decision with respect to TDR reforms.[17] Three other enabling proposals directly relate to CMP343:

- CMP335 – Billing and consequential changes to CUSC Section 3 and 11
- CMP336 – Billing and consequential changes to CUSC Section 14
- CMP340 – Consequential changes for CMP343

[16] The Public sector equality duty requires public authorities, in carrying out their functions, to have due regard to the need to achieve the objectives set out under s149 of the Equality Act 2010. More information can be found here Public sector equality duty - GOV.UK (www.gov.uk)
[17] CMP343 replaced CMP332 with an implementation date delayed by one year, to 1 April 2022.

1.28. As these proposals depend on the option selected for CMP343, we have issued our decisions on these proposals alongside this final decision on CMP343.[18]

1.29. In addition, CMP334 sought to define the terms 'Final Demand' and 'Single Site' in the CUSC in a manner which is consistent with the TCR Direction and the Distribution Connection and Use of System Agreement (DCUSA). We approved CMP334 on 30 November 2020, though it will not have any effect until CMP343 is implemented.[19]

1.30. In addition to the TCR, which concerns residual charges, other Ofgem projects continue to focus on the forward-looking elements of the demand charges. Currently, our Electricity Network Access and Forward-looking Charging reform SCR ('Access reform') is interested in the forward-looking elements of distribution network charging. Previously, Access reform was considering locational transmission charges.[20] We have now set out our intentions to develop a blueprint for charging in a Net Zero world, and to engage industry on changes to transmission charges.[21] It is possible that future work on transmission charges may interact with the approach to flooring the forward-looking charges proposed in the CMP343 options.

[18] For CMP335, CMP336 and CMP340 decision letters, please see the Subsidiary documents section on the Decision on CMP343 webpage.
[19] https://www.ofgem.gov.uk/publications-and-updates/cmp334-transmission-demand-residual-consequential-definition-changes
[20] https://www.ofgem.gov.uk/electricity/transmission-networks/charging/reform-network-access-and-forward-looking-charges
[21] TNUoS Reform - a Call for Evidence | Ofgem and TNUoS Call for Evidence - Next Steps | Ofgem

2. The modification proposal and CUSC Panel assessment

Section summary

We describe the original modification proposal and the nine alternative options, which explored different approaches to flooring and banding. The CUSC Panel's voting unanimously supported the option with a floor at 0 and four bands (WACM2) as being better than the existing provisions (baseline).

The modification proposal

2.1. NGESO raised five CUSC modification proposals to implement TDR reforms in line with the TCR Decision, including CMP343 which it raised on 12 May 2020.

2.2. CMP343 proposes the methodology for TDR charges to be applied only to 'Final Demand' on a 'Site' basis, as well as how to treat negative forward-looking charges and the charging band review process. The methodology's key considerations include:

- The approach to flooring the forward-looking TNUoS charge, where demand zones have negative forward-looking charges.

- Determining whether to split transmission-connected consumers into bands for the purposes of TDR charging, and the data these bands are based on.

2.3. The CMP343 'Original Proposal' proposed that a single charging band would be used to charge the TDR to all Final Demand Sites directly connected to the transmission network, with the exception of Unmetered Supply sites which would have a volumetric p/kWh residual charge.[22] It would have a floor of 0 applied to the forward-looking charge.

[22] Final Demand Site was defined in the CUSC for CMP334; a definition for Unmetered Supply is be introduced by CMP340.

2.4. In addition to the Original Proposal, the Workgroup developed nine Workgroup Alternative CUSC Modifications (WACMs). WACMs 1 to 8 add the following variants to the Original Proposal:

- creating two or four transmission bands determined by percentiles of consumption rather than a single transmission band;
- alternative options to flooring the forward-looking demand charge at 0 in negative forward-looking TNUoS charging zones.

2.5. WACM9 would create two transmission bands by segregating transmission-connected demand by voltage (above 132kV, or 132kV and below) rather than consumption; otherwise it is the same as the CMP343 Original Proposal. The different variations of the proposals and the outcome of the CUSC Panel vote are summarised in Table 1, below. The flooring and banding options are explained in Section 3.

Table 1: CMP343 modification proposals: key elements and CUSC Panel voting

Proposal	Flooring	Bands at Transmission	Source data (for bands)	CUSC Panel voting (out of 8)	
				Better than baseline	Best option
Original	Floor at 0	1	N/A	7	3
WACM1		2	Consumption	7	
WACM2		4		8	4
WACM3	No floor	1	N/A	3	
WACM4		2	Consumption	3	
WACM5		4		4	1
WACM6	'Floor with locational adjustment'	1	N/A	6	
WACM7		2	Consumption	6	
WACM8		4		6	
WACM9	Floor at 0	2	Voltage	7	

2.6. All of the options take a consistent approach to the changes necessary for the implementation of our TCR Decision, ie to introduce a fixed charge to Final Demand users, as described further below.

2.7. The TDR methodology involves creating seven demand charging groups between which the total TDR 'pot' is apportioned. These seven are made up of five metered distribution-connected demand groups[23] as well as transmission-connected demand and Unmetered Supplies ('UMS').

2.8. The TDR would be split between these groups based on their proportion of total Final Demand volume. Within each distribution-connected group the TDR would be apportioned by four consumption percentiles. Transmission-connected demand is subject to the banding options, outlined above.

2.9. Distribution-connected Final Demand sites, whether Half-Hourly ('HH') or Non-Half-Hourly ('NHH') demand, will face a fixed p/site/day residual charge. The exception to this is UMS sites, which through CMP343 will face a single volumetric, p/kWh residual charge. CMP343 also introduces a forward-looking charge methodology for NHH demand, calculated as the difference between the expected demand forward-looking revenue for a demand zone and HH demand revenue recovered.

2.10. CMP343 was considered together with CMP340 by the Workgroup and CUSC Panel.[24] CMP340 develops the definitions required for CMP343, and so is dependent on which CMP343 solution is chosen. We have published our decision on CMP340 alongside this decision.[25]

CUSC Panel recommendation

2.11. At the CUSC Panel meeting on 1 October 2020, the CUSC Panel unanimously considered that WACM2 would better facilitate the Applicable CUSC Charging Objectives

[23] Domestic, LV-connected Non-Domestic with Maximum Import Capacity, LV-connected Non-Domestic without Maximum Import Capacity, HV-connected, EHV-Connected.
[24] The CUSC Panel is established and constituted from time to time pursuant to and in accordance with section 8 of the CUSC.
[25] For CMP340 decision letter, please see the Subsidiary documents section on the Decision on CMP343 webpage.

(ACOs)[26] than the baseline (the existing arrangements under the CUSC). The CUSC Panel recommended by majority that the Original Proposal and WACMs 1, 6, 7, 8 and 9 would better facilitate the ACOs than the baseline. Of the eight CUSC Panel votes, four considered WACM2 would be the best option, three considered the Original Proposal would be the best option and one considered WACM5 would be the best option. The CUSC Panel votes for each option are summarised in Table 1, above. We discuss the assessment against the ACOs in Section 3.

[26] As set out in Standard Condition C5(5) of NGESO's Transmission Licence, see: https://epr.ofgem.gov.uk//Content/Documents/Electricity%20transmission%20full%20set%20of%20consolidated%20standard%20licence%20conditions%20-%20Current%20Version.pdf

3. Final decision and assessment

Section summary

We have decided to approve the option with a floor at 0 and four bands (WACM2), with implementation delayed by a year to April 2023. In our assessment of the options, we find WACM2 to better facilitate the achievement of the Applicable CUSC Charging Objectives and be consistent with our principal objective and statutory duties. We present a distributional analysis of the impact of the different options and a summary of the consultation responses.

Overall decision

Minded-to position

3.1. Our minded-to position was to implement WACM2, delaying implementation by a year to April 2023.

Consultation responses

3.2. The majority of respondents supported the approval of WACM2 and delaying implementation by a year:

- Sixteen respondents stated that they agreed with our minded-to decision to approve WACM2, with three not supporting this. The remainder did not express a clear view on this question.
- Seventeen respondents supported implementation in April 2023, with four respondents against this proposal and the remainder not expressing a clear view. Of those that opposed the implementation date, three respondents favoured April 2022 implementation. One of these respondents noted impacts on contracts made in anticipation of this earlier implementation, while two others thought that 2022 implementation was still feasible. Another respondent suggested delay would delay consumer benefits and questioned whether earlier implementation would have negative impacts. One respondent stated their support for delay, but noting they did not support any implementation of this proposal at any point.

3.3. We explore the reasons for these views in more detail in the rest of this chapter.

Final decision

3.4. We have considered the issues raised by the modification proposal and the Final Modification Report (FMR) dated 06 October 2020, the responses to the industry consultations on the modification proposal which are attached to the FMR as well as the accompanying views and discussion, the consultation responses we received, and other wider engagement including stakeholder feedback from engagement we have undertaken since the minded-to decision was published. We have also refreshed our impact assessment with updated data where this was available. We have concluded that:

1. implementation of WACM2 will better facilitate the achievement of the Applicable CUSC Charging Objectives (ACOs);

2. directing that the modification be made is consistent with our principal objective and statutory duties;[27] and

3. implementation of WACM2 complies with the specific requirements of the TCR Direction and is consistent with the TCR Principles.

3.5. We consider that WACM2 will better facilitate ACOs (a) and (e) and have a neutral impact on the other ACOs. We consider it is consistent with our statutory duties.[28] We also consider that WACM2 performs best against the TCR Principles, those being:

- Reducing harmful distortions
- Fairness (covering: equity and equality; simplicity; transparency; justifiability; and predictability)
- Practicality and proportionality

[27] The Authority's statutory duties are wider than matters which the CUSC Panel must take into consideration and are detailed mainly in the Electricity Act 1989 as amended.
[28] Particularly those concerning the reduction of electricity-supply emissions of targeted greenhouse gases - the TCR package of reforms is expected to reduce both carbon emissions and costs to consumers, and hence support decarbonisation at lower cost to consumers – as well as the regard for vulnerable users.

3.6. The TCR principles are relevant here as in our TCR Direction (p.7), we directed the ESO to '*have regard to (and to the fullest extent practicable comply with) the SCR Decision Principles* [the TCR Principles]'.

3.7. Our decision is that implementation be delayed to April 2023.

New modification proposals that may be desirable

3.8. We have identified a number of potential additional changes we consider may be beneficial and we would like the ESO or other industry parties to consider raising modification proposals. We would stress that , notwithstanding this, we do consider the CMP343 legal text as it stands to be operable and effective.

3.9. In our minded-to consultation we noted that the proposed legal text for CMPs 336 and 343 lacked clarity for setting band boundaries and allocating users to bands. As we are approving CMP343 WACM2, which involves banding, we consider that the relevant legal text would benefit from greater clarify as regards the time periods for the data to be used.

3.10. We have therefore concluded that prior to the implementation of WACM2, it may be beneficial for a follow-up housekeeping modification proposal to clarify the time periods for the data to be used and that it might be desirable to clarify this in sufficient time for implementation from April 2023. CMP343 does not specify the end date for the data to be used and so we expect, in that absence of clarification, for the ESO to use two years of up-to-date data that runs to a point that allows for tariffs to be finalised under the usual timescales.

3.11. We consider that the potential new proposal should weigh up an approach that maximises the notice period of charges against one that uses the latest available data (eg consumption to March 2022) but could cause uncertainty for consumers.

3.12. In addition, following further analysis (later in the Chapter), we would ask the ESO to consider raising a modification proposal to examine the location of the band boundaries (in terms of the percentiles that the boundary falls between[29]), particularly if updated data

[29] The bands are set by placing sites in a dataset in order of the relevant metric from smallest to largest. The boundaries are placed at particular points to separate out each groups of users. We refer

is used for allocating users to bands. Such a review of the distribution of sites across charging bands may allow band boundaries to be drawn in such a way as to help avoid clustering of similar sites either side of a given boundary.

3.13. We think it is important to undertake this review of the distribution of sites after it has been confirmed what data is to be used to minimise the potential to divide clusters of similar users. If changes were to be proposed by the ESO, ideally this should be looked at promptly to allow for implementation alongside CMP343 for April 2023. Any changes to boundaries, time periods and data should be coordinated to ensure that they work consistently together to achieve the overall goal of suitably up-to-date data with appropriately set boundaries.

3.14. In our CMP336 decision, we explain that we think there may also be benefits to the ESO or another industry party raising a modification proposal to help ensure the consistent treatment of new transmission-connected sites with those connected at distribution voltages. We would suggest that industry might also consider how best available data or estimates could be used to improve the band allocation process, and ensure consistency with distribution treatment. If this is considered, industry may also wish to consider whether particular applications, such as large new demand sites associated with electric vehicle charging, can be efficiently accommodated within the arrangements.

3.15. We also consider that a number of housekeeping modifications may usefully be considered to address the following potential issues:[30]

to the point that one band starts and another stops as the "band boundary" and typically these are set at the 40th, 70th and 85th percentiles, though we would suggest that the boundaries for transmission might benefit from further examination if and when new data is available for determining user consumption.

[30] Please note all references are to the version of the CUSC in force at the date of this decision, though we recognise further change may take place before April 2023 implementation.

Modification	Sections	Potential issues
CMP336	14.15.143	Paragraphs 2 i) and ii) could provide more clarity that data referred to is consumption data. Paragraph 2 ii) could make clearer that the mean average of available data should be used. Clarification may be beneficial as to what is meant by latest data.
CMP336	14.15.150	Text suggests "Charging Banding Interventions" are found at 14.15.153, which should be 14.15.147.
CMP336	General	End dates or definition / clarification of latest data may be beneficial.
CMP343		End dates or definition of data to be used in allocation may be beneficial.
CMP343	14.15.137	More clarity on the consumption data used, how long it is valid for and how it is reviewed may be beneficial.
CMP343	14.15.138	More clarity on timescales may be beneficial.
CMP343	14.15.139	More clarity on the consumption data used, how long it is used for and how it is reviewed may be beneficial.

3.16. We expect the ESO to use its judgement as to whether any of these issues can be combined into fewer proposals while achieving the same coherent outcome.

Decision notice

3.17. In accordance with Standard Condition C10 of the Transmission Licence, the Authority hereby directs that the WACM2 of CMP343: *Transmission Demand Residual bandings and allocation for 1 April 2022 implementation* be made with an implementation date of 01 April 2023.

Assessment criteria

3.18. As noted above, the key elements of this proposal that we have decided upon are the approaches to flooring the forward-looking transmission demand charge and banding transmission-connected consumers. We focus our assessment by theme (flooring/banding) against the criteria: firstly, compliance with the TCR Direction insofar as the proposals are consistent with the TCR Principles, then the ACOs. In addition, we ensure the proposals are consistent with our principal objective, which is to protect the interests of existing and future energy consumers, as well as our wider statutory duties.

3.19. As stated in the TCR Decision (p.32):

'our final decision on whether the modification proposals raised should be implemented will be based upon: whether the proposal better facilitates the achievement of the relevant code objectives, compared with current arrangements, and whether the proposal is consistent with our wider statutory objectives and duties, including those under European law.'

3.20. The CUSC sets out ACOs that are used in modification decisions, with changes to the code being required to better facilitate these objectives. There are different objectives for charging and non-charging decisions. The charging ACOs are relevant to this decision, and are as follows:

a) Facilitating effective competition

that compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity

b) Cost-reflective charging

that compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and in accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard condition C26 (Requirements of a connect and manage connection)

c) Taking account of the developments of transmission licensees' businesses

that, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses

d) Compliance with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Cooperation of Energy Regulators

e) Promoting efficiency in the implementation and administration of the charging methodology

3.21. As approaches to flooring/banding were not definitively determined in the TCR Direction, we consider there is also merit in considering these elements against the TCR Principles that informed our TCR Decision. Our requirement for proposals to be consistent with the TCR principles links to the TCR Directions where we directed the ESO to 'have regard to (and to the fullest extent practicable comply with) the SCR Decision Principles [the TCR Principles]'.

3.22. We consider all of the options for CMP343 implement the key conclusion of the TCR Direction relative to the TDR to introduce a fixed TDR charge to Final Demand users. Therefore, the focus of our analysis against the TCR Principles is a comparison between the options presented rather than with the status quo.

3.23. There is a certain degree of equivalence between the ACOs and the TCR Principles. In particular, reducing harmful distortions is most closely related to ACO (a) which concerns facilitating effective competition, while proportionality and practical considerations is most closely related to ACO (e) which concerns promoting efficiency in the charging methodology. However, for transparency and because the assessment criteria have differences, we have separated out our assessment between the TCR Principles and the ACOs.

3.24. After our assessment of the flooring and banding options against the assessment criteria, we also present a summary of our final assessment of the WACMs against the ACOs.

Flooring approach

3.25. The existing methodology for TNUoS demand charging involves a composite charge made up of both forward-looking and residual elements. The residual component is applied in a uniform way across GB, while the forward-looking element varies by the 14 demand zones (aligning with Distribution Network Operator ('DNO') areas).

- For HH consumers, TNUoS is charged on a £/kW basis for average demand during triads. Triads are the three half-hour periods of highest GB net demand during November to February, separated from each other by a minimum of ten clear days.

- For NHH consumers, TNUoS is a p/kWh charge based on aggregated annual consumption during 4-7pm each day.

3.26. The forward-looking component is the product of a charging model that aims, in broad terms, to reflect the relative impact of demand and generation on likely future investment needs in a particular location under modelled scenarios. Where demand is deemed, according to the model, to be reducing a need for generation-driven future investment, the signal generated by this model is a negative one. Where demand is assumed to add to future investment needs, the signal generated is a positive one.

3.27. The system is designed to reflect the difference in relative cost impacts in different locations, rather than reflect an absolute cost or benefit in monetary terms. It is therefore important to note that a negative signal does not necessarily relate to a direct absolute cost saving, only a cost saving when compared to another, more expensive part of the network.

3.28. Currently, should the composite demand charge (ie forward-looking and residual components together) be negative, it would be floored at 0. At the moment, owing to its relative size, the residual component turns any negative forward-looking element into a positive charge overall, so flooring does not have to be applied and the forward-looking differentiation by demand zone is maintained without adjustment.

3.29. The extent to which this forward-looking signal materialises for HH consumers depends on their ability to reduce demand during the triad periods. Those able to remove demand entirely during triad periods currently face no TNUoS demand charges regardless of location, as both the residual and forward-looking parts of the signal are chargeable on triad demand. Even though currently all zones have a positive charge due to the combined residual and forward-looking elements, because it is levied only on certain periods, users who can avoid those periods do not pay, as their chargeable triad demand usage is zero.

This is particularly relevant for users with significant onsite generation. Negative demand forward-looking charges are typically in demand zones where there is relatively more generation and less demand than elsewhere.[31]

3.30. The TCR reforms separate out the forward-looking and residual components so that for any zone with a negative forward-looking charge, this charge would not be combined with a positive residual charge. Instead, the residual would be charged separately on a fixed basis for HH and NHH consumers.

3.31. Consequently, the Workgroup developed three proposals for dealing with any negative forward-looking charges. As noted above, the forward-looking element of the demand charge will be under consideration as part of our proposed further work on transmission charges[32], and so it is feasible that the mechanisms that deal with negative forward-looking charges may be impacted. It is possible that as a result, changes to locational signals introduced by CMP343 may be altered, or the mechanism itself may only be temporary, because it is subsequently superseded by other TNUoS reforms.

3.32. The options under CMP343 include three options to deal with negative forward-looking charges:

- **floor at 0** - those consumers in a zone with a negative forward-looking signal face a £0/kW or 0p/kWh forward-looking charge and the residual 'pot' for all consumers is reduced. This option is reflected in the Original Proposal, WACM1, WACM2 and WACM9.

- **no floor** - the negative £/kW or p/kWh charge is maintained, resulting in a larger residual pot than for floor at 0. This is because, with no floor, the forward-looking 'credits' to areas with a negative forward-looking charge need to be recovered from the TDR, adding to the total TDR 'pot' (assuming the total allowed revenue is unchanged). This option is reflected in WACMs 3-5.

- 'floor at 0 with a locational adjustment' ("**locational adjustment**" for the purposes of this document) - those consumers in a zone with a negative

[31] Final TNUoS Tariffs for 2021/22: https://www.nationalgrideso.com/document/186176/download
[32] TNUoS Call for Evidence - Next Steps | Ofgem

forward-looking signal, face a £0/kW or 0p/kWh forward-looking charge. Residual charges in affected areas are reduced in a way that attempts to preserve this forward-looking signal, with the negative £/kW or p/kWh forward-looking charge converted to a lower fixed p/site/day residual. Areas with a positive forward-looking signal face a higher residual charge. This option is reflected in WACMs 6-8.

3.33. The approach to the flooring question also affects the TNUoS charges faced by distribution-connected Final Demand consumers (unlike the approach to banding). This is because it affects the share of the TDR for all consumers in each DNO region.

Minded-to assessment of the distributional impacts of the flooring approaches

3.34. Our minded-to assessment explored the distributional impacts of the flooring approaches. We have updated this assessment with more up-to-date numbers and additional analysis as explained further below.

Consultation responses on distributional impacts of the flooring approaches

3.35. Thirteen respondents agreed, and one disagreed, with our assessment of the distributional impacts of the flooring approaches.

3.36. One respondent, that did not express a direct response to this consultation question, sought an explanation as to why the flooring approach has the potential to affect the total revenue to be recovered by the residual charge. This is because residual charges are calculated to recover total allowed revenue, after the forward-looking charge has been levied. Assuming no change in allowed revenue, a reduction in forward-looking revenue recovery (eg where the negative £/kW charge is maintained with no floor) increases the amount to be recovered from residual charges.

3.37. Two respondents (that agreed with our assessment) noted that there could be a dynamic (behavioural) response to the different approaches that deal with negative forward looking charges, including flooring at zero, which we haven't modelled.

3.38. They note that all of the options could affect the signal to reduce demand at triad in different ways when compared to the baseline level of triad response. These changes would affect the overall revenue split between the forward-looking and residual components of the charge. For instance, with no floor, in areas with a negative forward-looking signal, there

could be a behavioural response to increase demand at triad, meaning the level of demand is different than it would be under the other options. In turn, more demand would see more money paid to the users in these areas, which will increase the overall revenue to be recovered from residual charges, affecting the residual levels. This may mean that the option without a floor provides higher site charges than in our assessment. We acknowledge this limitation in our analysis, but do not consider this would undermine the conclusions of our assessment, which is fundamentally based on the principles, informed by the impact assessment.

3.39. In response to comments made by some respondents, in our updated assessment below, we have included some additional distributional analysis of the flooring options on different customer types. In particular, we compare areas with positive and negative forward-looking signals.

3.40. The respondent that disagreed with our assessment stated that WACM2 would only represent the best implementation option if combined with a subsequent Access reform decision creating a new locational credit in areas affected by a floored locational charge. As set out above, it is possible that future work on transmission charges may interact with the approach to flooring the forward-looking adopted by CMP343.

Final assessment of the distributional impacts of the flooring approaches

3.41. We have updated our assessment of the distributional impacts of the flooring approaches with revised numbers and carried out further analysis to address consultation responses.

3.42. There is a distributional impact on residual charges between either of the flooring options and no flooring approach, with an additional c.£200m (or c.8% of the total TDR) to be recovered from the residual when no floor is applied. As a result, the residual charges are uniformly (all bands and zones) c. 8% higher with no floor than with floor at 0. This is a marginally smaller proportion than the c. 10% in our minded-to IA and does not affect our overall conclusions. Under the locational adjustment approach, there is also differentiation in the residual charge by DNO region. Full data on the charges under the different options, by DNO area and voltage level, is available at Appendix 1.

3.43. Table 2, below, summarises the impact of the different approaches. It includes the equivalent data to that presented in the TCR IA, which was modelled based on a 'no floor' approach. The differences between the TCR IA and the current CMP343 'no floor' options

principally relate to the assumptions about consumption volumes and customer numbers in different bands at the time of the TCR IA.

3.44. Table 2 considers only a single band for transmission consumers to illustrate the regional differences. The impact of different banding approaches on charges is considered in the next section. Under the locational adjustment approach, the table includes the maximum and minimum charge by DNO region; the majority of the lowest charges would apply to consumers in Northern and Southern Scotland, while the highest charges are for a mixture of regions in south Wales and in England south of the midlands, most commonly London.

3.45. Under the floor at 0 and no floor approach, each site has a consistent TDR charge across GB (no regional variation), according to voltage level and banding (where banding is applied). With no floor, the TDR is c.8% higher than with a floor at 0. The distinction between floor at 0 and no floor would have a distributional impact regionally, but it would not be manifested in the residual charge. Instead, for areas with a negative forward-looking charge, with a floor at 0 approach, the forward-looking signal would be dampened. The largest reduction in the forward-looking signal is for those with the most negative forward-looking charge – the two regions in Scotland.

3.46. The distributional impact of flooring/not flooring can be partly represented by the locational adjustment approach. In this instance, the regional differentiation that is reduced from flooring the forward-looking charge at 0 is approximated in the residual charge. As a result, there is a direct differential impact in the residual charge faced by Final Demand consumers in the 14 different demand zones. This includes domestic consumers where the TDR varies from £8/yr in Northern Scotland to £33.6/yr in Southern England. Similarly, a transmission-connected consumer in Northern Scotland would pay c.£327k/yr compared with c.£728k in South East England.

Table 2: estimated TDR tariff impact of flooring options

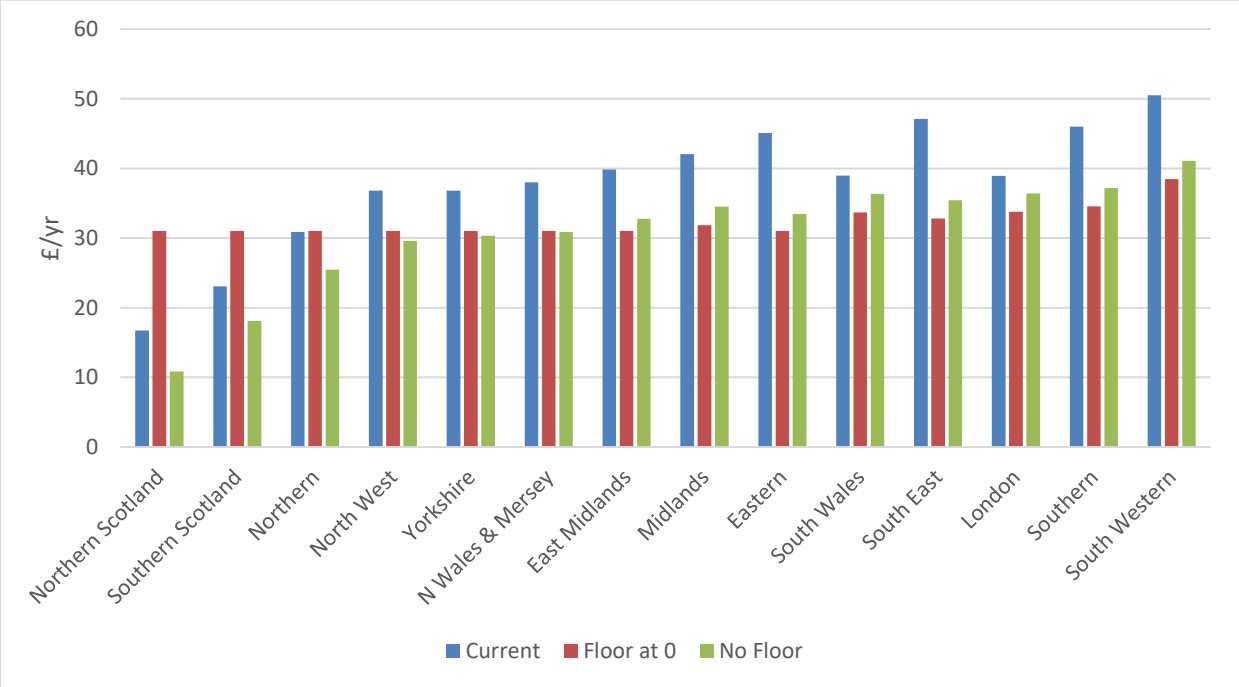
TDR £/site/year		Flooring approach			
		Floor at 0	No Floor	Locational Adjustment	
		GB-wide		Lowest (All Scotland)	Highest (Various)
Domestic		30	33	8	33.6
LV No MIC	Band 1	13	15	6	14.9
	Band 2	73	79	33	81.1
	Band 3	175	190	80	194.8
	Band 4	548	585	241	610
LV MIC	Band 1	951	1,033	425	1,069
	Band 2	1,732	1,881	773	1,931
	Band 3	2,777	3,016	1,188	3,091
	Band 4	6,320	6,865	2,622	7,009
HV	Band 1	4,102	4,456	2,735	4,737
	Band 2	14,333	15,569	7,164	16,017
	Band 3	29,235	31,756	13,589	32,166
	Band 4	76,597	83,203	44,740	84,310
EHV	Band 1	34,092	37,032	13,407	37,914
	Band 2	175,022	190,118	92,831	192,503
	Band 3	368,590	440,382	173,574	410,629
	Band 4	916,426	995,470	716,024	1,035,694
Transmission	Single band	670,305	727,067	327,007	728,064
Unmetered	p/kWh	0.89	0.96	0.34	0.98

3.47. In response to consultation responses, we have included further analysis of the distributional impact of the flooring approach, exploring the impact on archetypes of domestic and non-domestic consumers. We have assessed the overall TNUoS charges faced by these consumers – a combination of both the residual and forward-looking components.

3.48. Firstly, we have considered domestic consumers, comparing the status quo with the floor at 0 and no floor options, adopting the medium consumption level assumptions

adopted by our Price Cap team. We have focused on the floor and no floor options, based on updated data for forecast tariffs for 2023/24 for these options published by NGESO.[33]

Chart 1: estimated impact of floor at 0 and no floor on annual TNUoS charges for medium consumption domestic consumers relative to the status quo



3.49. Chart [1], above, shows that, under these assumptions, Northern and Southern Scotland domestic consumers would pay more under CMP343 proposals with a floor at 0 than currently, while Northern England consumers would pay about the same as currently. These three regions would face the lowest charges with no floor. Consumers in other regions would face lower charges relative to the status quo with each of the floor at 0 and no floor options.

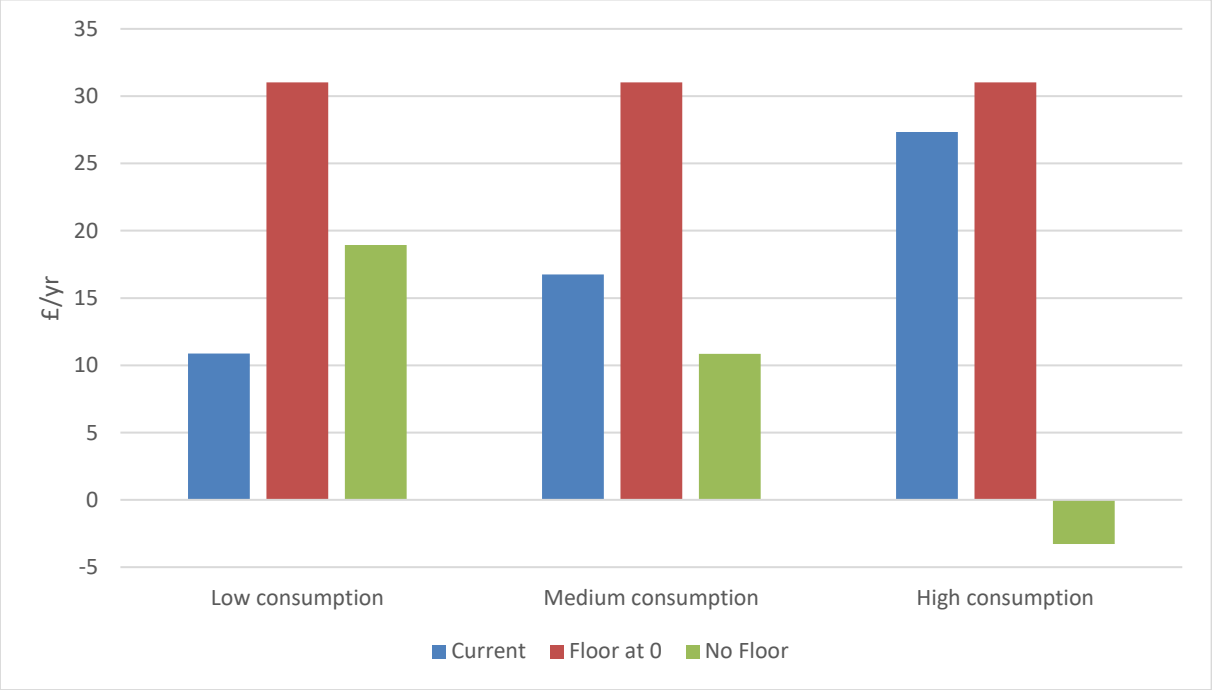
3.50. The option with a floor at 0 is more costly for Scottish consumers. Under no floor, Scottish consumers benefit markedly compared to the floor at 0 (~42-65% lower charges).

[33] We think using updated data where it is available and where particularly relevant to the proposed implementation date is useful for understanding, and the benefits of more relevant data outweighs any concerns around consistency. The equivalent updated data does not exist for all bands, where the current data is based on 2022/23 forecast tariffs, but updated data is used in table 5 below. As set out previously, all tariffs are indicative and subject to change in line with the normal tariff setting processes.

The disadvantage to those paying more with no floor compared with floor at 0 is relatively small (~6-8% higher charges).

3.51. We have extended the analysis to consider different consumption levels, focusing on Northern Scotland, with the biggest differential in overall TNUoS charges between the floor at 0 and no floor approaches, in Chart [2], below.

Chart 2: estimated impact of floor at 0 and no floor on annual TNUoS charges for Northern Scotland domestic consumers relative to the status quo

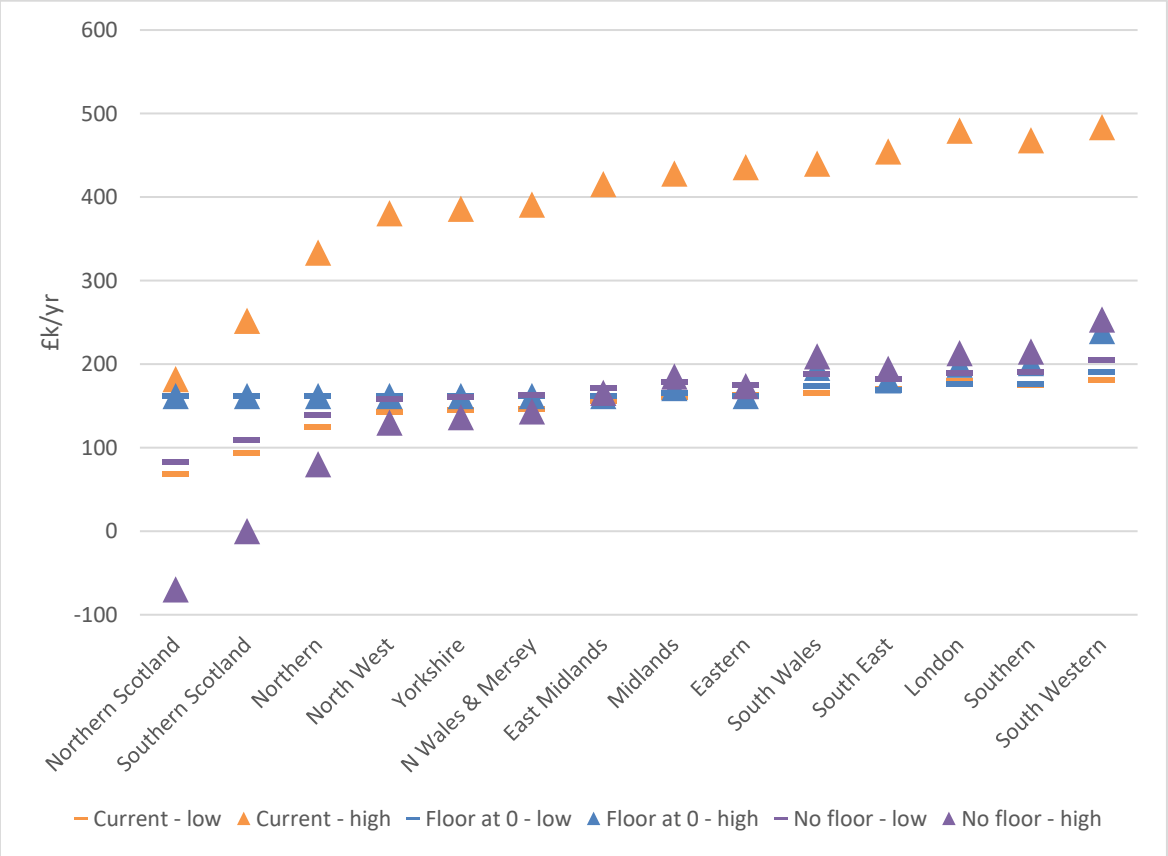


3.52. Those consumers with the highest consumption levels would benefit most from no floor, as part of their consumption would occur during the evening peak with negative prices. This is to the extent that the high consumption consumers could receive a net TNUoS credit, though it is unlikely that any domestic consumers would see an overall signal to consume once other charges and costs are included. The lowest consuming customers would see the biggest increase in charges with floor at 0 or no floor relative to the status quo.

3.53. Secondly, we have considered two relevant consumer archetypes developed by our consultants for the TCR IA, of large demand consumers connected at EHV and at transmission. These users face the half-hourly charges, and so the forward-looking charges give stronger signals than are present for domestic users, who face non-half-hourly charges. The capacity/consumption of the archetypes would place the respective consumers in EHV Band 2 (assumed capacity of 10MW) and transmission Band 3 (assumed annual consumption of 100GWh).

3.54. The charges depend to a significant degree on the amount of demand at triad so we have illustrated a range for all consumers from 30-80% of total capacity consumed on average over the triad periods, noting that consumption outside of this range would increase the range in charges further. For consumers in zones with negative forward-looking signals, higher demand at triad will result in lower charges; whereas the opposite is true for areas with positive forward-looking signals.

Chart 3: Range of charges (FL and residual) for EHV Band 2 users under different options, by location

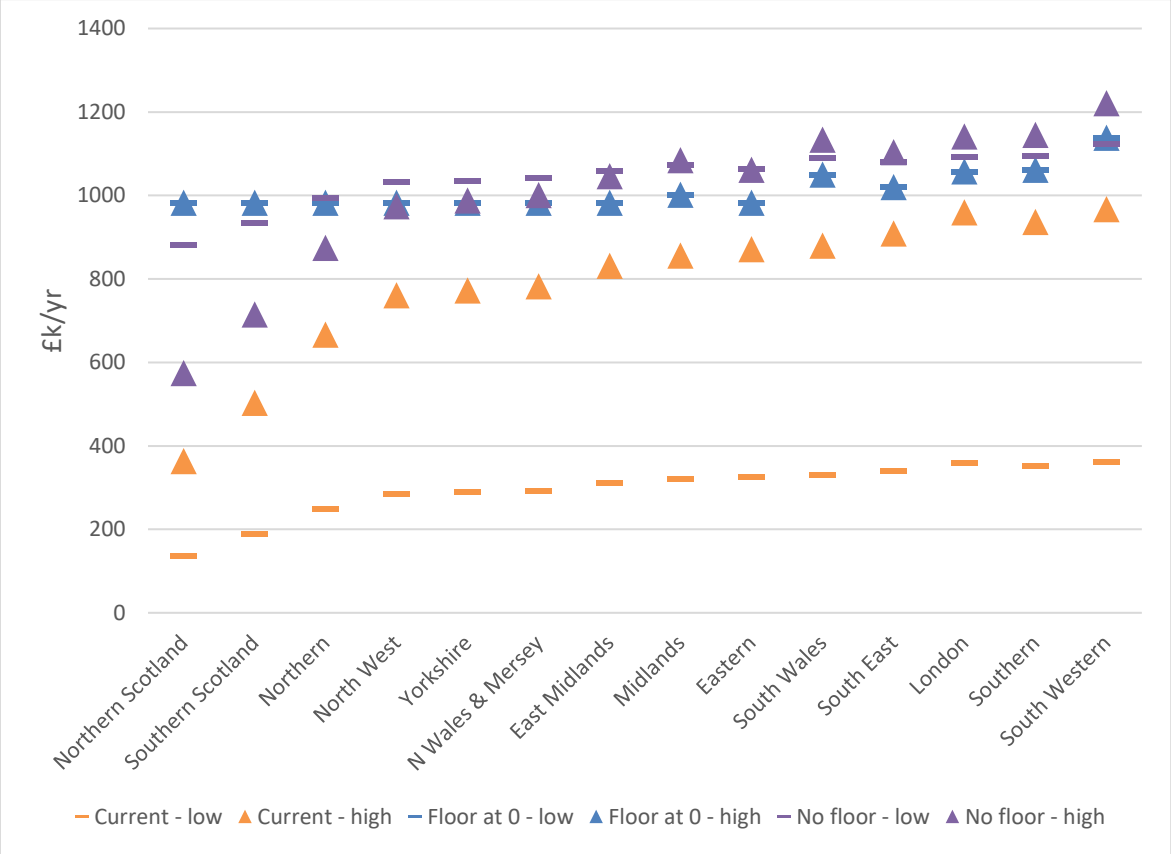


3.55. For EHV-connected Band 2 consumers, the residual component of their total charge is relatively low and accordingly the flooring approach makes a notable difference to the

overall charge for consumers in Scotland and Northern England. A floor at 0 would likely result in an increase in current charges for these consumers unless they already have relatively high demand at triad. With no floor, consumers in those regions would benefit from increasing demand at triad. Specifically, for Northern Scotland, a no floor approach could result in negative charges as consumers are incentivised to increase consumption during triad (all else being equal).

3.56. In the rest of GB, there is relatively little difference in the annual charge faced among the approaches except where there is already high consumption at triad. In these cases, all of the flooring options would result in reduced charges.

Chart 4: Range of charges (FL and residual) for transmission-connected Band 3 users under different options, by location



3.57. For transmission-connected Band 3 consumers, the residual is a much larger component of the total charge so the flooring approach has a smaller impact on the overall charges faced. As for EHV, with no floor, consumers in areas with negative forward-looking signals would be incentivised to increase demand during triad (all else being equal), particularly in Scotland. Whereas, currently increased demand at triad would increase

network charges. With no floor, high triad demand would still represent an increase in charges for these consumers.

3.58. Owing to the relatively large portion of the charge that is recovered through the residual, the floor at 0 would result in relatively uniform charges across GB. They would be higher than the current charges in all cases, with the biggest increases relative to the status quo for those with a negative forward-looking signal.

Summary of minded-to flooring assessment against the TCR Principles

3.59. Our minded-to assessment considered flooring against each of the TCR Principles. Overall, we concluded that options which apply a floor at 0 to the forward-looking charge (without a locational adjustment) to, on balance, better facilitate the TCR Principles than the other options. We considered:

3.59.1. Options which floor the forward-looking charge at 0 to better facilitate ACOs (a) and (e)

3.59.2. Options with no floor to be negative against ACO (a) and neutral against ACO (e)

3.59.3. Options with a locational adjustment to be neutral against ACO (a) and to be negative against ACO (e)

3.59.4. All the flooring options to be neutral against ACOs (b), (c) and (d)

Consultation responses on flooring assessment

3.60. Twelve respondents agreed, and two disagreed, with our minded-to decision that flooring at 0 best facilitates achievement of Applicable CUSC Charging Objectives meets the TCR Principles and Applicable CUSC Charging Objectives.

3.61. Respondents supportive of our position highlighted that no floor has the potential to send a distortive signal, and that the locational adjustment option introduces unnecessary complexity that could introduce uncertainty and is inconsistent with the residual charge not being used for locational signals.

3.62. Some respondents commented on the value of further analysis of the distributional impact of the flooring options on different customer types in different regions. In particular,

some respondents considered that more analysis was needed to demonstrate that the benefits of simplicity outweigh the higher costs for some consumers with a floor at 0 approach. One of these respondents suggested that the Assistance for Areas with High Electricity Distribution Costs (AAHEDC) should be taken into account.[34] The respondent proposed implementing the locational adjustment for domestic consumers only.

3.63. As an approach that deals with the HH and NHH incentives separately is not one of the WACMs presented by the Workgroup, we cannot assess this proposal. We do understand the rationale of exclusively applying the locational adjustment to NHH consumers who are not exposed to the triad signal. Should an industry party raise such a modification, or another modification that aimed to reflect the different nature of HH and NHH consumers in this context, we would consider this on its merits, in particular assessing whether it better facilitated the ACOs and its consistency with our statutory duties.

3.64. In response to comments seeking further analysis, we have included additional analysis in the section above, which has been used to inform our final assessment of the flooring options, below.

3.65. Another respondent also claimed that the locational signal should be removed from generation charges on the perception that our minded-to decision would remove the locational signal from demand charges. We disagree that a floor at 0 would remove the locational signal from demand charges; instead it would be dampened to avoid unhelpful incentives. In addition, this suggestion is not part of any of the proposals under CMP343. As noted in the minded-to decision, we do not consider the comparison directly appropriate as generation charging signals are delivered to users in a fundamentally different way to demand signals, and provide entirely different incentives.

3.66. Some respondents highlighted the links between this and Access reform noting the benefits of reforms to forward-looking charges alongside residual charges. As set out above, we now expect changes to transmission charges to be considered with industry outside of the Access Reform project.[35]

[34] AAHEDC is scheme designed to reduce the cost of electricity distribution in specified areas https://www.nationalgrideso.com/industry-information/charging/assistance-areas-high-electricity-distribution-costs-aahedc

[35] TNUoS Reform - a Call for Evidence | Ofgem and TNUoS Call for Evidence - Next Steps | Ofgem

Final flooring assessment against the TCR Principles

3.67. We have refreshed our assessment with updated numbers and further analysis in light of consultation responses. We have reached the same overall conclusions that options which apply a floor at 0 to the forward-looking charge (without a locational adjustment), on balance, better facilitate the TCR Principles than the other options and the status quo and as such are more consistent with the terms of the TCR Direction, which, as noted above, set out our requirement for proposals to be consistent with the TCR principles.

Reducing harmful distortions

3.68. The main distortions for residual charging that we were seeking to reduce through the TCR involved behavioural responses by users to reduce exposure to residual network charges that are not intended to send a forward-looking signal (e.g. installing onsite generation). In giving effect to our TCR Decision, all the options presented help reduce these distortions to some degree. However, there are other issues that differentiate our assessment of the flooring options in terms of reducing harmful distortions.

3.69. The no floor option has the potential to introduce a distortion that doesn't currently exist. If negative forward-looking charges are not floored, it could incentivise demand to increase in these zones at a time of system peak, potentially increasing system costs, eg by adding to constraints on the distribution network in peak periods and increasing overall system demand.

3.70. This could occur because introducing a fixed residual charge means that the forward-looking signal is not dampened by the residual in terms of consumption at times of peak. For instance, the 2021/22 HH demand tariffs for North Scotland is £20.4/kW, of which minus £32.9/kW is the forward-looking and £53.2/kW is the residual. Currently, this composite charge, which is based on demand at triad, is positive because of the residual, and is anyway subject to a floor at 0. Separating out a fixed residual charge, with no floor, would result in those sites receiving a forward-looking credit of £32.9/kW, and consumption at peak would not affect the residual charge.

3.71. By way of a further example, a transmission-connected demand site in South Scotland (forward-looking charge of -£23.9/kW), with capacity of 25MW, could be credited c.£600k for TNUoS if demanding at full capacity for all triad periods. To further illustrate this point, a Final Demand consumer in North Scotland consuming at triad would face an effective unit credit of c.£22,000/MWh, though the actual signal would be significantly

dampened given that triad periods are not announced in advance. If, for example, a user thought there was a 2% chance of a half-hour being a triad period then they would be facing an expected unit benefit of £146/MWh from consuming. We note that decisions to consume at peak will also take into account other costs such as balancing charges and wholesale prices, but consider network charging-related credits of this magnitude could influence consumption decisions.

3.72. Our new analysis of large EHV and transmission-connected consumer archetypes, above, demonstrates the scope for negative overall network charges in some instances with no floor. We consider that modelling on the likely overall impact on levels of demand during peak would be largely assumptions driven, as we do not have access to data on the ability of demand to flexibly increase their load, but would note that options that include flooring the forward-looking charge at 0 avoid introducing this (or any other) potential distortions.

3.73. Our analysis of domestic consumers highlights that the no floor approach could result in some (high-consuming) consumers in North Scotland receiving credits, driven by consumption during the evening peak. We consider this would introduce a harmful distortion that doesn't exist in the current charging arrangements where there are no negative forward-looking signals for demand.

3.74. The locational adjustment would dilute the residual charge by introducing regional variation in TDR charges that are not related to residual cost recovery. Instead, the variation would simply be a consequence of translating a forward-looking charge on a unit basis (£/kW or p/kWh) to the residual on a fixed charge basis (p/site/day). We introduced a fixed residual charge in part to avoid sending behavioural signals. So, to mimic part of the forward-looking signal on a fixed charge basis would appear illogical. It is an approach that has the potential to introduce a distortion to the residual charge, introducing a locational signal element to it, which would not be present with the floor at 0 and no flooring options.

3.75. The locational signal in question would be present regardless of use of the system, in contrast with the transmission demand locational signals in other areas without negative forward-looking charges that are related to use, either in a volumetric or time of use demand sense. In sending a signal that would incentivise demand to locate in an area but does not relate to use of the system, this signal appears to suggest that there is a relative or absolute cost impact on the network from this action. The current forward-looking charges do recognise system use, whereas the locational adjustment suggests simply being located in a particular part of the network implies the same cost impact as using the system, which does not align with the broader charges seen in other areas.

3.76. Overall, we consider that the floor at 0 option best meets this principle, as it does not introduce potential new distortions, while also reducing the existing distortion by removing the forward-looking signal from the TDR.

Fairness

3.77. As noted above, we consider a number of factors in our assessment of fairness: equity and equality; simplicity; transparency; justifiability; and predictability.

3.78. In terms of **simplicity, transparency** and **predictability,** the locational adjustment option performs worst. As a charge with regional differentiation that relies on a series of assumptions to convert a unit charge into a fixed charge, it would introduce complexity, reduce transparency and make predictions more difficult. The factors that influence the calculation of charges for the other options are more straightforward and are broadly equivalent to one another (the size of the TDR 'pot' would be different but the process followed from that point would be the same with floor at 0 and no floor). We therefore consider that the floor at 0 and no floor options better meet this element of this principle.

3.79. The floor at 0 and no floor options also better meet the **equality** principle, with a common charge across GB for the relevant voltage levels (and bands if applicable). By contrast, the locational adjustment option performs worse against equality as it would introduce a charge which varied across the 14 DNO regions. This outcome is inconsistent with one element of our TCR decision, which directed a single TDR charge across all domestic consumers.

3.80. We note that, as a result of Distribution Use of System ('DUoS') residual charges, there is already a differential residual charge by distribution area; the locational adjustment would be consistent with this level of differentiation. The regional pattern in distribution residual charges is different to that for the TDR under the locational adjustment approach. Overall, the locational adjustment would serve to increase the differentiation in residual charges faced by consumers in different DNO regions.

3.81. With respect to vulnerable consumers, we noted in the TCR Decision (p.73):

> *Significantly, we continue to believe that the network charging structure is not the right vehicle to address vulnerability concerns because of the inability to target support accurately onto those consumers who most need it, and the inherent trade-offs involved. We are conscious of the potential impact on affordability, particularly*

for consumers who may use less electricity or are on a lower income, but consider that more targeted approaches, such as retail market or wider policy solutions would be better suited to mitigating any concerns with the effects of changes to the recovery of residual charges. Over time, we expect the majority of domestic consumers to benefit from our reforms overall.

3.82. We consider the above statement applies to all the flooring options for CMP343. We note that for domestic consumers the highest modelled residual charge would be £32.94/yr with no floor, lower than the £34/yr assumed in the TCR IA.

3.83. With a floor at 0, there would be a uniform annual TDR charge across GB of £30/yr. Our additional analysis of domestic consumers, above, shows that this would result in an overall decrease in TNUoS charges for typical domestic consumers apart from those in Scotland. For North Scotland, in particular, we note that the increase compared with current charges would amount to c.£14/yr to a typical consumer bill in N. Scotland. By way of comparison, the AAHEDC typically reduces costs by c.£40/yr to N. Scotland consumers.[36] While AAHEDC does not exist to compensate for transmission charges, we recognise the motivation of AAHEDC is to reduce the charges seen in the N. Scotland region, and the overall charges paid across all networks will increase under CMP343 WACM2. We understand the concerns expressed by respondents about this increase. However, we think, in the round, avoiding the distortive incentives that could lead to unhelpful dispatch decisions will benefit all consumers and outweighs this specific issue.

3.84. Our further analysis of the different consumption types demonstrates issues with the no floor approach. In particular, no floor could result in negative overall TNUoS charges for high consuming consumers in N. Scotland. We consider this to undermine the fairness principles, as the shortfall would have to be picked up by remaining consumers.

3.85. Of the options available, we consider floor at 0 best meets the fairness principle. We do note that the potential distortion for NHH consumers is not as significant as that for HH consumers. As noted above, industry parties may wish to make proposals for a differential

36 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/815822/HBRS-CTO-consultation.pdf

approach between HH and NHH consumers. We would expect parties to demonstrate how such an approach might better facilitate the ACOs.

3.86. We consider the **equity** element of the fairness principle in more detail in our fairness assessment in relation to banding, below.

3.87. We have considered the **justifiability** of the options based on their ability to accommodate signals from the forward-looking charges. If we assume that a negative forward-looking charge sends a useful signal, then it is more justifiable to have a residual charge design that accommodates this signal. Flooring at 0 reduces that forward-looking signal for areas with a negative forward-looking charge. The other two options maintain this signal, but the locational adjustment maintains it as a fixed approximation of that regional differentiation, with the operational signal removed. The signal is altered, with the forward-looking charge converted to a fixed charge based on a set of assumptions, and becomes a signal that users cannot readily respond to. In this sense, locational adjustment seems less justifiable than the no floor approach. In summary, a residual element that can accommodate a general negative forward-looking charge – when it is desirable - seems more justifiable. We should note here that further work is likely to take place on the locational signals.

3.88. That said, the existing triad forward-looking network charging signals were not directly designed to provide "demand turn-up" signals that the negative charges seen here provide. While it is entirely possible for network charges to provide operational signals for flexibility, we do not think that a signal to turn up at peak time is likely to achieve efficient flexibility unless very well designed and targeted in terms of location and timing. In the absence of a well designed, dedicated signal from network charges, we think operational incentives for flexibility are really better provided by market signals and dedicated flexibility signals.

Flooring Fairness	Floor at Zero	No Floor	Locational Adjustment
Simplicity, transparency and predictability	Better	Better	Worse

Equality	Better	Better	Worse
Justifiability	Worse	Better	Better

3.89. Overall, we consider that the no floor option appears to perform best in our assessment of fairness, while the locational adjustment option performs worst.

Practicality and proportionality

3.90. The locational adjustment approach would introduce 14 times as many tariffs as the other options, with tariffs varying by the 14 DNO regions rather than being consistent on a GB-wide basis. As such, this approach would result in the most significant system changes, which we consider to be disproportionate when compared to the limited benefits. There is also the possibility that such changes would be superseded by further industry work on forward-looking transmission charges, meaning there is a potential for system changes to be made that are later found not to be needed. We do not consider the locational adjustment option costs to be justified by its benefits.

3.91. The other two approaches are relatively straightforward by comparison. The main difference is that the floor at 0 option would avoid disruption by maintaining the status quo, by flooring demand tariffs. Unlike for the locational adjustment, the floor at 0 and no floor approach mechanisms would not introduce complex system changes.

3.92. Overall, we consider the locational adjustment option to perform worse than the other two options, and for the floor at 0 option to perform best, in our assessment of practicality and proportionality. We would also suggest that as a principle, a simpler option that deals specifically with a particular issue in a limited way seems preferable to one that addresses that issue more broadly but in a way that adds complexity and introduces other inconsistencies with the wider regime.

Final flooring assessment against the ACOs

ACO (a) Facilitating effective competition

Workgroup, Panel and Consultation Respondents' Views

3.93. All Workgroup members considered[37] objective (a) to be better facilitated in the Workgroup vote on the best option. Views on the flooring approaches were mixed in the Workgroup. The majority of Panel members considered this ACO to be better facilitated, with options with the floor at 0 most consistently considered to be better facilitated. Some Panel members noted that locational adjustments introduce regional variations, but did not specifically link this to competition. Others noted that the floor at 0 prevents incentives to use more at peak time, but again did not explicitly link this to competition.

3.94. One Panel member noted that the TCR as a whole found competition would be improved by changes implemented further to the TCR, and so considered all options to better facilitate this objective. Some Panel members explicitly stated that options that were not floored at 0 would be worse for competition, as they were driven by perverse incentives, and as some noted in only parts of GB. Some users felt that while the locational adjustment avoided perverse incentives, it did not solve the fundamental issues and so could not facilitate this objective.

3.95. Some respondents that made specific reference to ACO(a) noted that flooring at 0 was positive, while options without floors were negative, but this may be in tension with the cost-reflectivity ACO (ACO(b)). Several respondents felt that the no floor option was distortive. Other responses referred to options lacking a floor as being distortive between users that could increase their usage during triad periods and those without, which would be negative against this ACO. Some suggested that in mimicking the cost reflective values without being truly cost reflective, locational adjustment models would be regionally distortive. Others noted locational adjustment models may also add complexity, which may be a barrier for smaller entrants.

3.96. There were specific concerns about the regional impacts of the floor at 0, and concerns that the floor, in reducing payments to users in certain areas may hinder the take-up of certain technologies. One respondent suggested that the locational adjustment should be provided for domestic consumers only, which will still ensure HH businesses do

[37] Workgroup concluded by majority that the Original, WACM1, WACM2, WACM3, WACM4, WACM5 and WACM9 better facilitated the CUSC Objectives than the Baseline. There was also support for WACM6, WACM7 and WACM8. 5 members felt the Original was best, while one member each felt WACMs 2,3 and 5 were best.

not respond to the incentives. More broadly, one respondent felt that in addressing the existing TNUoS distortions, this change would improve competition.

Our view

3.97. We consider flooring the forward-looking charge at 0 to be beneficial to facilitating competition in the purchase of electricity and positive against ACO (a). Options without a floor are negative for competition by introducing the potential for perverse incentives, and locational adjustment options neutral. We think in avoiding the potential for signals that incentivise users to increase their use of the system at times of peak demand, the floor at 0 is the most proportionate response and will best facilitate the ACO. While we recognise that the no floor option may provide revenue possibilities for some business models, given the peak demand time at which these would be generated, we think these are signals are unlikely to be providing a useful service to the networks and that the revenues may therefore come at consumer cost but without consumer benefit. It would not serve consumers interests or effective competition in the market for revenues to be provided which we think think drive distortive or counterproductive behaviours. The floor at 0 also provides the least disruption and potential inconsistency in charging arrangements, which may provide a more stable long-term investment signal, facilitating competition. The no floor option risks distortive signals, as well as providing a distortive advantage to users in one part of the system. The locational adjustment model avoids unhelpful incentives but in delivering a locational signal through the residual, diverges from the broader arrangements and so does not better facilitate competition.

ACO (b) Cost-reflective charging

Workgroup, Panel and Consultation Respondents' Views

3.98. All Workgroup members voted that CMP343 better facilitated this objective in the vote on the best option. One member suggested cost-reflectivity was a result identified by the TCR, and so all options would facilitate this objective. One respondent to the code administrator consultation felt that options that set a floor at 0 would not be cost-reflective, and preferred locational adjustment options, while another felt changes to the locational signals should be out of scope. One Panel member felt that in producing unavoidable charges, all options would better facilitate this ACO. While discussing ACO (a), one respondent suggested that options without a floor do not better facilitate that objective, as the signal to use more is, in their opinion, contrary to the signals that the Transport Model produces, which we would interpret as being equally a question of cost reflectivity. Another

member suggested the negative triad signals themselves may not be correct. One respondent felt fixed charges (in the form of the locational adjustment) would not improve cost reflectivity.

3.99. Some consultation respondents felt although more technically cost reflective, options without a floor might be more distortive, and options with a locational adjustment would mimic, but not achieve, cost-reflectivity as it will not reflect the times of system peak use.

3.100. One respondent felt that the locational adjustment was more cost reflective, and suggested that if locational signals could be removed from demand, they should be removed from generation also.

Our view

3.101. We consider all the options to be, on balance, neutral against ACO (b). While flooring at 0 could reduce the strength of the cost-reflective signal of the forward-looking charge, it does avoid introducing potentially non-cost-reflective negative charges at times of system peak. By incentivising demand during peak periods, some consumers may respond by unnecessarily increasing consumption, causing network constraints. There are a number of factors in the current model that moderate the cost-reflectivity of the charges, and so we do not see a significant difference in the floor at 0. No floor would preserve the forward-looking signal but introduce potentially distortive effects, while the locational adjustment delivers a variation on the forward-looking signal for cost-reflectivity through the fixed residual charge. All of these options have limitations, and none better facilitate this ACO. We would stress that cost-reflectivity is not a significant concern for residual charges, which exist for cost recovery, though in the case of the locational adjustment, the residual charge itself is amended to replicate an element of cost reflectivity. Regarding the relationship of adjusted signals for demand with the signals for generation, the charges are communicated to users on entirely different basis and lead to different behavioural responses, and are not comparable.

ACO (c) Taking account of the developments of transmission licensees' business

Workgroup, Panel and Consultation Respondents' Views

3.102. Just over half the Workgroup felt this ACO was better facilitated in the Workgroup vote. Four Panel members thought this proposal was neutral against this ACO, while three thought it positive and one felt WACMs 3-5 were negative, with the remaining options positive against this ACO. Of those that gave explicit reasoning, one Panel member felt that the options that prevented the signal to use more at peak times in areas with negative forward-looking charges were positive for this ACO. This member also felt that the options with no floor were negative against this ACO.

Our view

3.103. All the options give effect to relevant parts of our TCR Direction related to the TDR, helping NGESO fulfil the requirements placed upon it as regards this development in its transmission business. On the subject of flooring alone, and given that the TCR Direction was silent in this respect, we consider all options to be neutral against this ACO.

ACO (d) Compliance with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Cooperation of Energy Regulators

Workgroup, Panel and Consultation Respondents' Views

3.104. None of the Workgroup participants considered this objective to be better facilitated and considered it neutral. Consultation respondents and Panel members considered all the options to be neutral against this objective.

Our view

3.105. We also consider options to be neutral against this objective.

ACO (e) Promoting efficiency in the implementation and administration of the charging methodology

Workgroup, Panel and Consultation Respondents' Views

3.106. None of the Workgroup participants considered this objective to be better facilitated, mainly considering it neutral, though one felt that all options were worse for this ACO due to additional complexity. Others felt that options incorporating the locational adjustment were only worse for this objective, and noted it could be a long term solution, but could equally be superseded by Access reform changes.

3.107. Some respondents felt flooring at 0 was the simplest option. One user felt the locational adjustment made the charges harder to understand.

Our view

3.108. Options that floor the forward-looking charge at 0 without an adjustment are the closest to the current status quo, which floors the composite demand TNUoS charge. We therefore consider such options to be positive against this ACO. Options without a floor are considered neutral in that they represent a simple change to the status quo, while the locational option, which adds complexity, is considered negative against this ACO.

3.109. The proposals which apply a locational adjustment would introduce a new, complex process into tariff-setting, for which we do not see a strong justification. We see unnecessary complexity and disruption as a potential barrier and burden for smaller suppliers (for whom system changes have a relatively larger impact), which is negative against ACO (a) as well as (e). From an efficiency and fairness perspective, we consider that no flooring options provide simplicity, but introduce disruption from the current status quo. No flooring options may also present inconsistency and uncertainty given the potential for further changes to TNUoS as set out previously. On balance, we consider the no flooring options to be neutral against ACO (e).

Overall

3.110. We consider options which apply a floor of 0 to the forward-looking charge to, on balance, better facilitate the ACOs than the other options.

3.111. In summary, we consider:

- Options which floor the forward-looking charge at 0 to better facilitate ACOs (a) and (e)

- Options with no floor to be negative against ACO (a) and neutral against ACO (e)

- Options with a locational adjustment to be neutral against ACO (a) and to be negative against ACO (e)

- All the flooring options to be neutral against ACOs (b), (c) and (d).

Table 4: final assessment of flooring options against the ACOs

Proposed Solution	Does the proposal better facilitate the ACO?				
	ACO (a)	ACO (b)	ACO (c)	ACO (d)	ACO (e)
Floor at 0	Yes	Neutral	Neutral	Neutral	Yes
No Floor	No	Neutral	Neutral	Neutral	Neutral
Locational Adjustment	Neutral	Neutral	Neutral	Neutral	No

Banding approach

3.112. In our TCR Decision we provided that a single band should be applied for the TDR for transmission-connected consumers. But in our TCR Direction, we did direct the ESO to consider (p.6):

> *'such alternative modification proposals as it considers necessary following an assessment of whether there should be more than one band for TNUoS residual charges for transmission-connected consumers for example on account of issues arising with very small users being connected at higher voltage…having regard to:*
>
> > *a. whether there should be a similar approach to banding as for extra-high voltage (EHV) distribution-connected consumers; or*
> >
> > *b. an exceptions mechanism for very small or complex [mixed use] sites.'*

3.113. Our TCR Decision was partly based on the assumption that (p.42):

> *Consumers connected to the transmission network were thought to span around one order of magnitude range in size - less than other groups.*

3.114. In fact, data provided by the ESO since the TCR Decision reveals that transmission-connected consumers vary in annual consumption from less than 5GWh to more than 500GWh, a multiple of more than 100 between the lowest and highest consumers. This is relevant for the consideration of banding for transmission-connected consumers.

3.115. In contrast, distribution bands typically cover a multiple of around two, with the top of the band roughly double the capacity or consumption of the bottom of the band. For example, the third banded charge (of four bands) for distribution-connected EHV consumers captures capacities ranging from 12MVA to 21.5MVA, a multiple of less than two. This illustration demonstrates that a single band for transmission would lead to a far greater variety in consumer size than for a given band at EHV, the distribution voltage level of connection most similar to transmission. This contrast, and the overall range in transmission consumer size, informed the Workgroup's exploration of appropriate banding approaches.

3.116. Our TCR Direction included references to the need to consider consumers connected to very small and mixed use sites. This included a direction to consider (i) a mechanism for identifying Final Demand consumers within a private wire or mixed use site for the purpose of determining their applicable TDR contribution; and (ii) appropriate banding arrangements or an exceptions mechanism for very small sites, including those within such mixed use sites.

3.117. CMP334 was concerned with how to define and identify Final Demand sites. In our decision on CMP334 we noted that the Workgroup:

> *'failed to bring forward a proposal that covers private wires and complex* [mixed use] *sites. …our view is that this obligation of the TCR Direction has not been discharged and will continue to apply notwithstanding our decision on this proposal.'*

3.118. As a consequence, the ESO has brought forward two new proposals to cover identifying consumers within private wire and mixed use sites, referred to as sites with a

mix of Final and non-Final Demand.[38] The proposals concern whether or not consumers within such sites are Final Demand and how to account for sites where Final Demand and non- Final Demand with regard to the TDR.

3.119. We note that Final Demand consumers within a mixed use site or private wire may be very small compared with most transmission-connected Final Demand consumers. CMP343 concerns approaches for potentially banding Final Demand consumers, including any very small consumers, irrespective of whether or not they are part of a mixed use site. We consider that the identification of Final Demand on mixed use sites is being considered in the new ESO proposals CMP363 and CMP364, and in the equivalent DCUSA proposals DCP388. For the purpose of this consultation, our focus is on the treatment, rather than the classification, of very small sites, including those that are part of a mixed use site. Subsequent references to very small users capture those that are part of a mixed use site.

3.120. Unlike for distribution-connected consumers, there is no transmission equivalent to a maximum import capacity, which is used to derive bands for distribution consumers with an agreed capacity. The Workgroup considered different sources of data for separating out bands. In addition to a single band, the Workgroup ultimately made proposals to separate consumers based on annual net consumption or voltage level (excluding transmission connection assets).

3.121. The single band approach is reflected in the Original Proposal, WACM3 and WACM6.

3.122. The Workgroup proposed two different banding sets based on consumption:

- Two bands, with a top band for the largest 15% of consumers and a separate band for the remaining consumers. This option is reflected in WACMs 1, 4 and 7.

- Four bands, with a split that mirrors that at distribution, separating bands at the 40th, 70th and 85th percentiles. This option is reflected in WACMs 2, 5 and 8.

[38] CMP363 and CMP364 - https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc-old/modifications/cmp363-cmp364

3.123. The Workgroup also proposed two bands for the voltage level delineation, separating those connected at 132kV and below from those connected at above 132kV. This is WACM9.

Summary of minded-to assessment of the distributional impacts of the banding approaches

3.124. Our minded-to assessment explored the distributional impacts of the banding approaches. We have updated this assessment with more up-to-date numbers and further analysis, below.

Consultation responses on distributional impacts of the banding approaches

3.125. Twelve respondents agreed, and two disagreed, with our assessment of the distributional impacts of the banding approaches.

3.126. Respondents agreeing with our assessment typically noted the importance of recognising the wide range in size of consumers connecting to the transmission network.

3.127. One respondent considered that the analysis did not adequately consider the impact of the TCR reforms on steel manufacturers' international competitiveness. It considered that Ofgem and the CUSC Panel should have taken industrial vulnerability into account and considered the broader distributional implications of the proposal, including on jobs, economic activity, the ability to compete, and consequences for investment in decarbonisation.

3.128. We understand that a number of industries do operate in international markets and that investment will be required for Net Zero, which presents different problems to different industries. We will continue to ensure network charges are fair and proportionate and are incentivising the right behaviour in terms of system use. Residual charges should not be incentivising behaviours as to do so is likely to lead to a less efficient and more expensive network.

3.129. Regarding decarbonisation, we did not see evidence that this change would be a barrier to efficient decarbonisation though we fully intend to continue our engagement with industry and government to understand more about these challenges. We would welcome engagement on this issue, and particularly the opportunity to understand ahead of time the challenges industry sees as coming in future years so that these can be considered in a collaborative way.

3.130. Our principal objective to protect the interests of all consumers, which includes industrial users. We think that considerations around industrial strategy and international competitiveness sit more appropriately with government. Ofgem is responsible for network charging under our framework as an economic regulator, and in this capacity, we think it is reasonable all users, large and small, pay an appropriate contribution towards the cost of the ongoing running and management of the electricity networks. This does not preclude further development to these arrangements and we will continue to work on these issues alongside BEIS and stakeholders to ensure they are discussed and considered.

3.131. Two respondents noted that banding has the potential to produce cliff edges at the band boundaries. One added that this is particularly stark between the third and fourth bands given the difference in charges between the two, with the potential to lead to incentives to change behaviour. We acknowledge that boundaries lead to step changes and have provided further analysis on the distribution of consumers by consumption, based on two years of data to March 2021 in the section below. We consider that there may be benefits to work here to ensure that when the relevant data has been produced the appropriateness of the band boundaries is reviewed to ensure it fits the the distribution of users. The ESO may consider whether a new modification proposal is beneficial here.

Final assessment of the distributional impacts of the banding approaches

3.132. Unlike for flooring, the approach to banding will only affect charges for transmission-connected Final Demand consumers. Our TCR IA showed that the reforms would increase overall TNUoS charges for these consumers; the CMP343 banding options affect the distribution of this overall increase between different types of user.

3.133. Table 5, below, summarises the impact of the different approaches, showing the bands under a floor at 0 and no floor approach (the charges for no floor are uniformly c.8% higher than for floor at 0). The table also includes the highest and lowest charges under the locational adjustment approach to show the differential impact across bands and regions. Whether or not a charge is applied in a region is contingent upon there being consumers of a certain size in that region, so the regions with the lowest and highest charges in each band vary as a result, based on existing consumers.

3.134. For example, with the most negative forward-looking charge, the lowest locational adjustment charge would be North Scotland for each banding approach. But North Scotland does not have Final Demand transmission-connected consumers in the top 15% or bottom

40% by annual consumption. Southern Scotland, as the region with next lowest forward-looking charge accounts for the lowest charge in the top 15% and bottom 40% bands.

Table 5: estimated TDR tariff impact of banding options

TDR £/site/year			Flooring approach			
			Floor at 0	No Floor	Locational Adjustment	
Banding approach	Approx. upper bound (GWh/ yr)	Band	GB-wide		Lowest (various)	Highest (various)
One Band			670k	727k	327k	728k
Two - consumption	128	Band 1	356k	386k	12k	397k
		Band 2	2,628k	2,851k	1,496k	2,831k
Four – consumption	24	Band 1	108k	117k	61k	123k
	68	Band 2	416k	451k	161k	461k
	128	Band 3	879k	953k	447k	975k
		Band 4	2,628k	2,851k	1,496k	2,831k
Two - voltage	<=132kV	Band 1	385k			
		Band 2	788k			

3.135. Under a single band, all users would pay the same charge across GB (or by DNO region with the locational adjustment approach). With a floor at 0 approach, the charge would be c.£670k/year, or c.£727k/yr with no floor. This compares with c.£550k in our TCR Decision document, which was based on a single band with no floor, with the difference principally owing to more up-to-date data on consumption and customer numbers in each band.

3.136. Introducing bands brings variability to the charges depending on consumer type. With banding by consumption and flooring at 0, the top 15% of consumers would pay c.£2.63m/year. This would represent those consuming more than around 128GWh/year and include the largest consumers, consuming over 500GWh/year. With a locational adjustment, the charge for this top band would vary from c.£1.50m for those in the area with the most negative forward-looking signal, to up to c.£2.83m for those in areas with the most positive forward-looking signal.

3.137. With a two-band approach by consumption, the remaining 85% of consumers would pay c.£356k (floor at 0) or c.£386k (no floor). The regional variability in residual charges for this group, introduced by the locational adjustment approach, would range from c.£12k to c.£397k, depending on location.

3.138. Of the proposals under CMP343, the two-band approach based on voltage would only apply with no floor. In this instance, the difference between the two bands is smaller. About 70% of consumers in the top band would pay c.£788k with the remaining 30% paying c.£384k.

3.139. A four-band approach (using consumption data) would bring the greatest variability in charges by consumer size. With a floor at 0 approach, the smallest 40% of consumers would pay c.£108k, compared to c.£2.63m for the largest 15%. The middle two bands would encompass the 30th-70th percentile consumers, paying c.£416k, and the second largest 15% (70th-85th percentile consumers), paying c.£879k. Again, the locational adjustment approach would introduce regional variation; regions with the lowest charges would typically face around 50% of the charges for the floor at 0 approach, and the regions with highest charges would be about 10% higher than the floor at 0 approach.

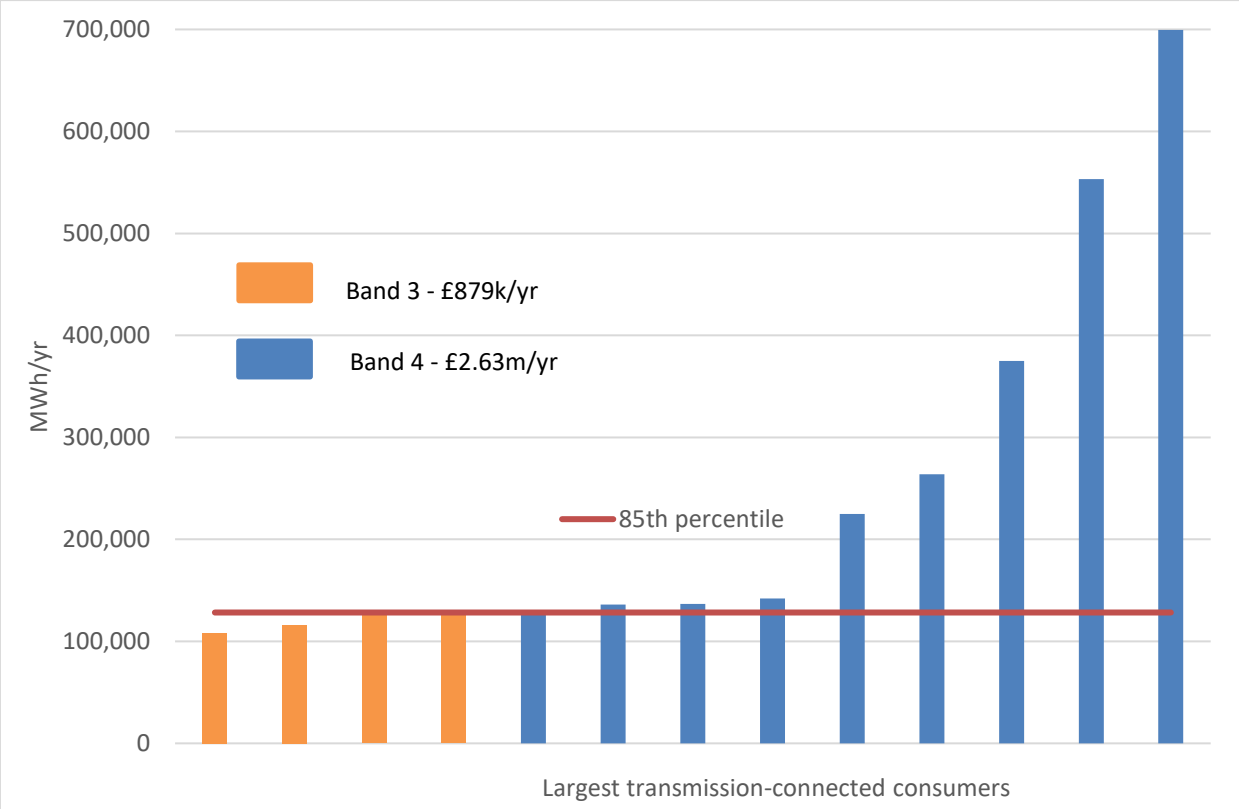
3.140. Our decision is to implement a four-band approach. This would introduce significantly different charges to those on which we consulted as part of the TCR Decision. As a consequence, we have decided to delay implementation by a year to April 2023. We discuss this further under Implementation Date, below.

3.141. We have examined the location of the band boundaries against the annual consumption of the 65 transmission-connected sites. The Workgroup proposed the positions of the boundaries to be consistent with those adopted for distribution-connected sites. For distribution-connected sites, there are typically thousands of consumers at each voltage level. The lowest number of consumers is at EHV, where there are about 900 consumers.

3.142. Our analysis suggests that applying the same percentiles for band boundaries may not be appropriate for the relatively small number of transmission sites which, though small in number, cover a significant range of consumption. For instance, based on two years of consumption data to March 2021, we note that a number of consumers that would be categorised in Band 4 have consumption levels just above the 85th percentile.

3.143. The Band 4 charge is around three times that of the Band 3 charge. This is because a small number of very large consumers draw a significant share of the TDR in Band 4 (as the share of the TDR pot for each is consumption-weighted and then split evenly among all consumers in a given band). For example, the top two consuming sites combined account for around a quarter of all transmission-connected consumption. We illustrate this on the chart below and consider this further in our assessment of Fairness.

Chart 5: Range of energy consumption among the largest transmission-connected consumers, including the 85th percentile boundary between Band 3 and Band 4



Summary of minded-to banding assessment against the TCR Principles

3.144. Our minded-to assessment considered banding against each of the TCR Principles. Overall, we concluded that the four-band approach better facilitates the TCR Principles than the other options.

Consultation responses on banding assessment

3.145. Sixteen respondents agreed, and two disagreed, with our minded-to decision that the four band approach best facilitates the TCR Principles and Applicable CUSC Charging Objectives.

3.146. Those agreeing typically highlighted that the range in size of transmission-connected users necessitated a banding approach, and that four bands would provide the most proportionate and fair treatment between users. Several respondents also saw merit in an approach consistent with that used at distribution.

3.147. One respondent considered that a four band approach does not meet fairness and proportionality principles in the treatment of Energy Intensive Industries (EIIs) and the consequences for their competitiveness. It noted that the proposal would make network costs the biggest single element of a power bill for steelmakers.

3.148. Under the current regime, some users have installed their own on-site electricity generation so they can generate their own power when wholesale prices are high, reducing their overall energy costs. Others manage their demand to minimise their use of the networks at times of peak demand, reducing costs. This has meant that they have avoided paying for some network charges. These avoided costs, which cover the ongoing cost of building, maintaining and operating the grid, are allocated to other consumers, including domestic consumers.

3.149. We acknowledge that this decision could result in an increase to some companies' electricity costs. However, we think that residual charges should not be influencing operational decisions because that leads to a network that is less efficient and, as a result, more expensive for all. This decision makes a strong contribution towards our broader charging objective of removing distortions from cost-recovery charges.

3.150. One respondent considered a four band approach would introduce an unpredicted fixed cost for the largest users. We note that the prospect of a four-banded charge was consulted on as part of the CMP343 development during 2020 and that the delay to implementation further increases the notice period, giving users an opportunity to respond accordingly.

3.151. Three respondents considered that a unit-based charge may be more appropriate than the banding approach. One respondent considered something that allowed dynamic movement between bands would be more appropriate.

3.152. We assessed and consulted on a unit-based charge as part of our TCR Decision and discounted it at the time. One of the reasons is that it would have a direct link to consumption, whereas one of the objectives of the TCR was to avoid incentivising a direct response to an overall cost that is not directly related to consumption levels.[39]

[39] Throughout the TCR project we noted that volumetric charges, or volumetric elements of hybrid charges, would continue to allow full or partial avoidance of residual charges using generation.

Furthermore, in accordance with the terms of the TCR Direction, the Workgroup did not present a unit charge option.

3.153. Two respondents considered that the data for bandings should be reviewed to exclude or take account of Covid-19 impacts on consumption levels. As noted above, we consider that the data used to calculate bandings could benefit from further specification in the legal text and could be subject to a further clarity, such as a housekeeping modification, to clarify the period to be used. This will allow market participants to propose alternative approaches as deemed necessary.

Final banding assessment against the TCR Principles

3.154. In addition to the components of the TCR Principles highlighted above, in assessing the banding approach, we have also assessed the options on a comparable basis to that applied to our TCR Decision on banding for distribution residual charges, to ensure consistent application of the TCR Principles and alignment with our previous decisions and the TCR Directions. This is summarised in Figure 1, below.

Figure 1: Applying TCR Principles to non-domestic customer segmentation for refined fixed charge

Reducing harmful distortions	• Lowest number of segments needed to objectives • Segments avoid splitting dense clusters, of similar user types where possible • Sufficient users per segment to avoid gaming, volatility and commercial considerations (such as the confidentiality of EDCM charges)
Fairness	• Broadly consistent upper limit on range of user types facing the same charge across segments • Segments well balanced with a broadly consistent basis, aiming to distinguishing user groups with significantly distinct characteristics, or clear reasons for differences. • Tangible, justifiable link to energy usage in the basis for segment boundaries
Practicality and proportionality	• Lowest number of segments necessary to achieve objectives • Broadly consistent basis for segments for simplicity • Uses available data and any system changes are proportionate • Distributional effects and complexity are no greater than necessary to achieve objectives

The EDCM is the charging methodology for customers connected at extra-high voltage on the distribution network.

3.155. We consider, on balance, that the four-band approach best meets our TCR Principles. We consider this to be the fairest approach, which limits harmful distortions and can be implemented in a proportionate manner, while allowing a more refined approach by differentiating by consumer size. We do note some of the advantages of a single band, particularly equality, simplicity, and practicality. However, the four-band approach is the most equitable of the options, in particular with respect to very small users.

Reducing harmful distortions

3.156. Of the options available, the single band introduces the lowest number of segments, while four bands has the highest number. Even with four bands, there is a sufficient number of users per segment because the banding is derived from and applied to the same population of all transmission-connected Final Demand users, with a minimum of 15% of consumers in the smallest bands.

3.157. In light of information on the distribution of transmission-connected demand users, the four-band approach helps to ensure that similar types of users are grouped together with smaller differences between consumers within a given band; though we note that any approach to drawing boundaries across a population means that there is some scope for similar users to be separated by band boundaries. A single band results in large differences in types of users falling within the same segment, while a two-band option based on consumption, groups similar users in the top band, but 85% of users continue to be grouped together.

3.158. The voltage delineation does not appear to correlate with either consumption or capacity of users, so those bands do not group similar types of user on these measures of size. We explore the characteristics of the user groupings further under Fairness, below.

3.159. The banding based on voltages could be seen to introduce a new distortion, between consumers connected in Scotland and those connected in England and Wales. As 132kV is a distribution voltage in England and Wales, there may be less opportunity for transmission-connected consumers in England and Wales to be in the lower band.

3.160. As noted in our TCR Decision, as part of our TCR policy development, our Office for Research and Economics (ORE) considered how large users might respond to changes in the way in which residual charges are recovered, particularly if they have a large onsite generation capability. We wanted to consider the potential likelihood of such users disconnecting from the network if new residual charges were introduced which were unrelated to net volumetric usage of electricity. This work concluded that large scale disconnection was unlikely, but identified a number of considerations which we have taken

into account.[40] As set out above, we will continue to engage with consumers on this and other areas related to large users.

3.161. A banded approach based on consumption introduces a top band with annual TDR charges of c.£2.63m with a floor at 0. In our analysis to inform our TCR Decision we considered a capacity-based charge, which we ultimately decided not to pursue. Our analysis of such an approach identified that a capacity-based charge could result in annual charges of over £4m for the largest transmission consumers, compared with c.£2.63m with a four-band approach.

3.162. We consider it instructive to compare the proposed TDR charges of the largest users under a four-band approach to other energy costs. Though the TDR is not designed to be a £/MWh charge, the charge can be converted to that basis for comparison with other unit costs. With four bands, the largest 15% of consumers would face TDR charges equivalent to £4/MWh (for the largest) to £20/MWh (for the smallest in the top band). This compares with:

- A typical pre-2021[41] wholesale price of c.£25-£50/MWh.[42]
- Gross environmental taxes and levies of c.£44/MWh,[43] which with exemptions, could be as low as £13/MWh for industries eligible for all available exemptions.[44]

3.163. At the other end of the scale, a single or two-band approach has a relatively high charge for the smallest users. Assuming a floor at 0, the annual charge would be c.£356k for the smallest users with a two-band approach (based on consumption) or c.£670k with a single band. (Table 7, below, shows the ranges with different banding options as effective £/MWh rates.) By comparison, the range of TDR charges for all EHV consumers is c.£34k to c.£916k depending on band (assuming a floor at 0).

[40] https://www.ofgem.gov.uk/system/files/docs/2018/11/annex_6_-_large_users.pdf
[41] We note at the time of this decision, wholesale and balancing costs are above typical historical levels.
[42] ICIS baseload day-ahead historical data, Jul-20.
[43] BEIS energy taxation for 'extra-large' users, Jul-Dec-19, https://www.gov.uk/government/statistical-data-sets/international-industrial-energy-prices
[44] Ofgem internal analysis.

3.164. We have assessed the size of residual charges between transmission-connected and distribution-connected consumers, making some assumptions about capacity and typical DNO region residual charges. This comparison considers only residual charges, with different transmission banding scenarios. Transmission-connected consumers would face TDR charges only, while distribution-connected consumers would also face distribution demand residual charges. The analysis assumes a floor at 0 (and no locational adjustment). Our analysis is static, ie it does not take into account the fact the proportion of the TDR to be recovered at different voltage levels is affected by the total consumption at the voltage level. If, for example, a site re-connected at a different voltage level that would affect the total TDR to be recovered (and consequent charges) for both its old and new voltage level of connection.

3.165. With a single or two-band approach (based on consumption), the majority of the smallest transmission-connected consumers (bottom 40% by consumption), could face lower residual charges if they re-connected to the distribution network. With four bands, the majority of this group would face lower residual charges if they continued to stay connected at the transmission level.

3.166. On the other hand, all the largest 15% of transmission-connected consumers would face lower residual charges if they re-connected to the distribution network than with a two- or four-band approach.

3.167. For the middle groups of transmission-connected users (40-85th percentiles), a two-band approach has a bigger influence on relative charges than four bands. With a two-band approach, around 40% of 40-70th percentile consumers, and all in the 70-85th percentile would face higher residual charges if distribution-connected than if transmission-connected.

3.168. Based on the estimated capacity levels, Table 6, below, summarises the residual charges under different banding approaches with the broadly equivalent charges for a distribution connection in a typical DNO region. The biggest difference in residual charges is between the transmission top band and the EHV top band, with a larger proportion of transmission-connection users in the very high capacity/consumption category than distribution-connected.

Table 6: comparison of estimated residual charge between equivalent bands for transmission-connected and distribution-connected users in Northern PowerGrid Northeast

Transmission-connected			EHV-connected		
Transmission band (4 bands by consumption)	**Lower threshold (GWh/yr)**	**TDR**	**Equivalent EHV distribution band**	**Lower threshold (MVA)**	**Total distribution-connected residual (DUoS + TDR)**
Band 1		£108k	Band 2	5	£200k
Band 2	24	£416k	Band 3	12	£435k
Band 3	68	£879k	Band 4	21.5	£1.25m
Band 4	128	£2.63m			

3.169. As noted in the TCR Decision, the design of the fixed charge limits the ability of users to change bands regardless of whether they are based on voltage or annual consumption. This is because users would have to change their voltage of connection, or significantly change capacity or consumption to move bands within a price control period (five years).

3.170. Overall, with respect to reducing harmful distortions, there are pros and cons to either the single-band or four-band approach. The four-band approach is better able to group similar users together. On the other hand, the single band groups all users together and leads to relatively high charges for the smallest users, which could potentially be addressed by an exceptions mechanism for the smallest users. The two-banded options offer an alternative method that does not appear to address these issues for either the smallest or largest users, with the top band facing the same charges as with the four-band approach, and the smallest users still facing relatively high charges.

Fairness

3.171. In assessing **equity and equality**, a single band approach is positive for equality as all users face the same charge (with either a floor at 0 or no floor approach; a locational adjustment would introduce regional differentiation in the residual charge). However, a single band reduces equity as it does not recognise the differences between consumers connected at the transmission level.

3.172. The revenue to be recovered from the TDR is split across the user base according to overall net consumption. The average band charge for the TDR is about £9/MWh and this is the average charge for all bands on a GB-level, across all voltage levels, and regardless of the number of bands at a voltage level. However, the charge individual users face varies

according to their MWh volumes, due to there being a single charge per band, but varying volumetric consumptions. Within any given band, the smallest users will be facing the highest effective £/MWh charge, while the largest users will face the smallest effective unit charge.

Table 7: estimated effective TDR unit charge for smallest and largest users in each consumption banding option

£/MWh	Band	Smallest users	Largest users	Range
1 band		212	1	211
2 bands	1	113	3	110
	2	20	4	17
4 bands	1	34	5	30
	2	17	6	11
	3	13	7	6
	4	20	4	17

Note: numbers have been rounded. Smallest user based on two years of non-zero consumption.

3.173. Table 7, above, shows the range in residual charges in £/MWh in each of the bands, based on the top and bottom of each band, assuming a floor at 0. It also includes an estimate of annual consumption of the lowest consumer and largest consumer to calculate the £/MWh charge for the bottom of the lowest band and top of the highest band. Though the residual is not a unit charge, the £/MWh comparison indicates the range in size of users between and within groups.

3.174. Under a single band, there is the largest range in effective unit charge, from £1/MWh for the largest user to £212/MWh for the smallest user. Introducing a band for the top 15% reduces this range to £17/MWh for the largest users. But with two bands, there is still a notable range for the remaining 85% of £110/MWh.

3.175. Only with four bands is the range for the bottom band appreciably reduced to £30/MWh.

3.176. With a four-band approach, the top three bands all have relatively narrow ranges, indicating greater equity. Indeed, the ranges are more equivalent to those for the banded TDR charge at EHV. For EHV consumers, the middle two bands have a range of £19/kVA for the second band and £13/kVA for the third band. Though a different unit measure, these ranges are far closer to the transmission four-band approach than the single or two-banded options.

3.177. Though only accounting for 15% of users, it is notable that under a four-band approach, the top band has the second largest range in unit charge. As highlighted in our analysis above, this is because there is a relatively wide range in consumption levels within this band.

3.178. By applying a single charge within a band (with a floor at 0 or no floor approach), all the banded options have equality within bands.

3.179. The two-band by voltage option has overlapping consumption boundaries as the voltage level does not correlate with consumption level. This approach to banding does not distinguish users by consumption level.

3.180. The single band approach is the **simplest** and most **transparent** option as it does not require additional inputs (which are not readily available to users) to separate users into bands and calculate charges. A four-band approach is more complex, though is consistent with what we consider appropriate for distribution charges. The designation of banding based on consumption is based on an existing, transparent dataset that users will be aware of. The voltage delineation, though relatively simple, excludes the transmission connection assets that reflect the voltage actually required by each site.

3.181. Under all the options, there will be variability in charges year to year, reducing **predictability**, but this is related to the way the charging methodology derives the TDR 'pot' rather than anything inherent in a particular banding approach. Banding approaches, though relatively stable, are less predictable than a single band as the boundaries are reset before a new price control period.

3.182. We consider that banding based on consumption is more **justifiable** than that based on voltage. Consumption links energy use to segments, with broadly similar users grouped together. In contrast, our analysis suggests that, at transmission level, voltage is not a good proxy for capacity or consumption, as the voltage to which a site is connected is in many cases a locational consideration related to the way the transmission system has been engineered in specific regions, rather than being related to the size of the site.

3.183. Overall, we consider that a four-band approach performs best in terms of fairness, balancing equity between users and equality within bands. While a single band has some advantages in terms of predictability, simplicity and transparency, we consider the resulting inequity, particularly for the smallest users, is a fundamental concern with this approach. The two-band approach does not appear to address these concerns in a meaningful way.

3.184. While we support the four-band approach, we consider that the precise location of the band boundaries could be fairer by better reflecting the distribution of transmission-connected consumers. The only four-band option presented by the workgroup involved boundaries at the 40th, 70th and 85th percentiles.

3.185. We consider that the ESO should raise a new modification proposal to examine the appropriateness of the band boundaries to help avoid clustering of similar sites around the boundaries.

Practicality and proportionality

3.186. A single-band approach would be the most straightforward to implement. While more than one band would introduce practical challenges, we consider the implementation of a multiple band approach would be proportionate, partly as it would use available data to derive the band boundaries. A four-band approach would also be consistent with the approach taken to banding for distribution consumers.

Banding assessment against the ACOs

ACO (a) Facilitating effective competition

Workgroup, Panel and Consultation Respondents' Views

3.187. All Workgroup members considered objective (a) to be better facilitated in the Workgroup vote on the best option. Views on the banding approaches were mixed in the Workgroup. Of the code administrator consultation responses, the majority of respondents supported options that used four transmission bands, citing comparable treatment with distribution-connected sites, and the prevention of charges that appear disproportionate in relation to the size of the sites. Respondents were concerned one- and two-band models would discriminate against differently sized sites, and could present a disincentive to connecting small demand, which would be distortive and may harm innovation.

3.188. The majority of Panel members considered this ACO to be better facilitated. One member noted that the use of consumption-based four-band models would provide much more granular allocation of charges based on size of customer than options related to voltage level. Another expressed similar support, thinking the four-band options more equitable. One Panel member suggested that options without four bands would lead to unaffordable charges for smaller sites, harming innovation. They also suggested that

banding based on voltage would lead to regional discrimination, due to the differences between the networks in Scotland and elsewhere, and raised concerns that there may be incentives to choose connections with residual costs in mind. One Panel member noted that the TCR as a whole found competition would be improved, and so considered all options to better facilitate this objective, while others considered the various band options in CMP343 to be neutral for removing distortions, this having been already resolved through the use of a fixed charge.

3.189. One respondent suggested that greater numbers of bands may support innovation, in ensuring small tertiary connections remain viable, but considered that a different type of charge altogether may be preferable. Another user also suggested the four band model may be more likely to produce charges that users can bear, and this is also the view of another respondent who feels that, with proper methods to recognise non- Final Demand, small storage sites would be better accommodated. They do note that fewer, broader bands reduce the impact of users on other users within the bands.

3.190. Several consultation respondents considered four band options more proportionate, or better reflective of the range of users on the system, though one response suggested that given the range of sites present, a different type of charge might be more appropriate. Another respondent suggests the four band option, and in particular the largest band charge, could lead to significant repercussions such as disconnection for impacted sites. They also suggest that the transmission voltages and in particular the 132kV level could be treated separately or further subdivided into bands to remove some differences between Scottish connectees and those elsewhere. One respondent suggests that bands based on voltage may increase distortions between Scotland and elsewhere, and may lead to less cost-conscious connection choices.

3.191. Some noted that four band options would avoid perverse incentives that might unduly advantage large users over smaller users. One respondent did suggest that small connections should provide an element of subsidy to larger connections; while they do not specify, this implies support for few bands.

Our view

3.192. We consider the four-banded proposals to have the greatest degree of equity of the options. The four-band option separates out different size users and has a reasonable level of practicality, granularity and equality within bands. This facilitates effective competition in the sale and purchase of electricity by properly differentiating groups of larger users from

groups of small users, thereby moving small and large users towards a more level playing field, and so is positive against ACO (a). In providing greater recognition of differently sized users, it also reduces the likelihood of smaller users making inefficient decisions to disconnect entirely or reconnect to different networks, but its higher charges for the larger users on the system may on balance increase the risk of such behaviours for the larger users.

3.193. Whilst the two-banded proposals based on user consumption can be seen to be more equitable than a single band by separating out the very highest consumers, this would result in the same charge being applied to circa 85% of remaining users of varying consumption. This prevents undue advantages to larger users which might be present if all users faced a single band. On balance, we consider this to be broadly neutral against ACO (a), though we would note that the bottom band would encompass a very wide spread of users, and therefore potentially lead to a larger variability in network charge burden between potential competitors than is desirable. The impact on larger users is the same as for the four band option, but there is no corresponding improvement to smaller users.

3.194. The two-band proposal based on voltage (WACM9) similarly separates to some extent between small and large users by virtue of the two voltage levels. However, we see voltage as an arbitrary rather than equitable delineation, without a clear relationship to scale or size of user. The use of voltage may also introduce connection-related distortions. We therefore see WACM9 as negative against ACO (a).

3.195. One respondent claimed that the approach for transmission "actively discriminates between identical users connected at different voltages", creating "a long-term incentive for sites to reconnect (or for new sites to make connection applications to connect) to voltages that may not be most suitable or readily accessible." We disagree. There is only a very weak correlation between consumption (used to set the TDR) and voltage level at the transmission level. In contrast, the voltage level at distribution does more closely relate to a site's capacity, which, where available, is used to calculate residual charges.

3.196. A single band approach avoids the largest consumers being exposed to higher charges, but it also means that small users face relatively high charges, particularly the smallest users. Without consideration of small users, given the range in the size of users on the transmission system, a single band approach appears less likely to lead to a level playing field between larger and smaller users We consider a single band approach to be negative against ACO (a).

ACO (b) Cost-reflective charging

Workgroup, Panel and Consultation Respondents' Views

3.197. All Workgroup members voted that CMP343 better facilitated this objective in the vote on the best option.

3.198. One Panel member suggested cost-reflectivity was a result identified by the TCR project, and so all options would facilitate this objective. One Panel member considered that options with more bands were more cost-reflective than options with fewer bands, but considered them "more volatile", settling on options with more bands being fairer. Another Panel member noted that with single band options, there was a lower charge than that for the largest EHV sites, which they considered to suggest cross-subsidisation, something which implies lower cost-reflectivity.

3.199. One respondent suggested that bands based on voltage may lead to less cost-conscious connection choices as users choose more expensive connections to avoid residual charges.

Our view

3.200. As we stated in the TCR Decision, residual charges are cost-recovery charges, which are not supposed to send signals for how the networks should be used. As such we consider the options for different charging bands for the TDR to be an allocation issue, not a cost-reflectivity issue, and all the banding proposals to be neutral against ACO (b). We do recognise that to the extent that they may interfere with the signals provided by the connection regime, there is the potential for some negative impact to cost-reflectivity from WACM9, though this may be marginal.

ACO (c) Taking account of the developments of transmission licensees' business

Workgroup, Panel and Consultation Respondents' Views

3.201. Just over half the Workgroup felt this ACO was better facilitated in the Workgroup vote. One member felt the option with banding by voltage level option was negative against ACO (c) as they considered the TCR Direction to refer to differentiation on size, not on voltage level. One consultation respondent noted that options with four bands resembled the arrangements at EHV, and considered this to align with the TCR Direction.

Our view

3.202. All the options give effect to relevant parts of our TCR Direction related to the TDR, specifically the direction to levy residual charges on Final Demand on a single site basis. The existence of the TCR Direction is a development in NGESO's transmission business, and we therefore consider that options which achieve compliance with the Direction to better facilitate this objective. We consider only the options involving four bands gives consideration to the very small users that we highlighted in our Direction. Our assessment therefore is that four-banded options are positive against ACO (c), with all other options neutral against this objective.

ACO (d) Compliance with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Cooperation of Energy Regulators

Workgroup, Panel and Consultation Respondents' Views

3.203. None of the Workgroup participants considered this objective to be better facilitated, instead considering it neutral or not addressing at all. All Panel members consider the impact of this proposal to be neutral against this objective.

Our view

3.204. We consider all the options to be neutral against ACO (d) as they do not concern compliance with European (or Retained EU) law.

ACO (e) Promoting efficiency in the implementation and administration of the charging methodology

Workgroup, Panel and Consultation Respondents' Views

3.205. None of the Workgroup participants considered this objective to be better facilitated. Most considered it neutral, while one Panel member suggested that banding of transmission users was an additional complication, and considered options with banding to be worse against this objective, with single band options better. One member felt the option with banding by voltage level option was negative against ACO (e) as it would not evolve without further code modifications. One consultation respondent felt that while more bands added complexity, in reality the industry is accustomed to numerous bands and was well prepared for these changes as they exist on the other voltage levels.

Our view

3.206. We consider proposals for a single band to be the only options which are positive against ACO (e) in terms of banding due to the simplicity of implementation. Increasing the granularity of banding would add some further complexity to tariff-setting and consumption-based banding, as under WACM2, will require a banding review process, but none of the banding options would introduce more complexity than the four-band approach for distribution residual charging. We therefore consider all banding approaches, other than the single band approach, to be neutral against ACO (e).

Overall

3.207. In summary, we consider:

- Options with a single band to be negative against ACO (a), neutral against ACO (c) and positive against ACO (e), and so neutral overall
- Options with two bands based on consumption data to be neutral against ACOs (a), (c) and (e), and so neutral overall
- Options with four bands to be positive against ACOs (a) and (c) and neutral against ACO (e), and so positive against the ACOs overall
- Options with two bands based on voltage level to be neutral against ACOs (c) and (e) and negative against ACO (a).

- All the banding options to be neutral against ACOs (b) and (d).

Table 8: final assessment of banding options against the ACOs

Proposed Solution	Does the proposal better facilitate the ACO?				
	ACO (a)	ACO (b)	ACO (c)	ACO (d)	ACO (e)
Single band	No	Neutral	Neutral	Neutral	Yes
Two bands – consumption	Neutral	Neutral	Neutral	Neutral	Neutral
Four bands – consumption	Yes	Neutral	Yes	Neutral	Neutral
Two bands - voltage	No	Neutral	Neutral	Neutral	Neutral

Very small and mixed use sites

Summary of minded-to

3.208. We considered that, of the options available, the four-band approach is the only option that gives sufficient consideration to very small users, including those identified within mixed use sites.

Consultation responses

3.209. We asked respondents: Do you consider that any of the options presented adequately addresses very small users (including those associated with mixed use sites)?

3.210. There were limited direct responses to this question, though a variety of views were expressed. Those that considered that the options didn't adequately address very small sites advocated more work being undertaken to explore solutions to address this. They were concerned with the effective £/MWh cost for the smallest sites and potential for equivalent sites to have lower TNUoS charges if distribution connected (despite using less of the network).

3.211. Other respondents considered it would be proportionate to have alternative mechanisms for very small sites. They cited concerns with inconsistent treatment with distribution-connected sites (which adopts the same four-band approach as WACM2) and the potential to send a signal to low load-factor sites to re-connect at the transmission network.

3.212. Some respondents considered that more evidence is required on the state of the issue, with one noting that any additional bands should be aligned with price control periods to minimise disruption.

Final assessment

3.213. We consider that, of the options available, the four-band approach gives most consideration to very small users, and we have not received evidence that leads us to believe another option would give better consideration to very small sites in line with our TCR Direction. We note that, based on the latest data, the range in charges for the bottom band has reduced from £81/MWh in our minded-to, to £30/MWh; far more in line with the ranges for the other bands. This is still the largest range, but this is to be expected given it is the band with the largest number of consumers (40% compared with 30% for Band 2 and 15% for Bands 3 and 4).

3.214. We have not been presented with any evidence that the four-band approach (without an exceptions process for smaller sites) would undermine our assessment relating to the ACOs or the TCR Principles of reducing harmful distortions and fairness. In particular, we note that it could introduce differential treatment between the smaller sites connected at transmission with those at distribution voltages.

3.215. However, it is open to industry parties to raise modification further proposals for the TDR charge, for example, for very small sites, if they consider there is a case for further consideration. This may be something that is considered as part of a new modification reviewing the location of the band boundaries, or could take another form.

Summary of final assessment against the ACOs

3.216. Table 9 shows a summary of our final assessment of the CMP343 options against the ACOs. In the following section we explain our final assessment against the ACOs. We have included the Workgroup and CUSC Panel views and other supporting materials received with the FMR in the relevant sections above.

Table 9: final assessment of CMP343 options against the ACOs

Proposed Solution	Bands	Floor	Does the proposal better facilitate the ACO?				
			ACO (a)	ACO (b)	ACO (c)	ACO (d)	ACO (e)
Original	1	0	*Neutral*	*Neutral*	*Neutral*	*Neutral*	Yes
WACM1	2	0	Yes	*Neutral*	*Neutral*	*Neutral*	Yes
WACM2	4	0	Yes	*Neutral*	Yes	*Neutral*	Yes
WACM3	1	NF	No	*Neutral*	*Neutral*	*Neutral*	Yes
WACM4	2	NF	No	*Neutral*	*Neutral*	*Neutral*	*Neutral*
WACM5	4	NF	*Neutral*	*Neutral*	Yes	*Neutral*	*Neutral*
WACM6	1	LA	No	*Neutral*	*Neutral*	*Neutral*	*Neutral*
WACM7	2	LA	*Neutral*	*Neutral*	*Neutral*	*Neutral*	No
WACM8	4	LA	Yes	*Neutral*	Yes	*Neutral*	No
WACM9	2 (V)	0	*Neutral*	*Neutral*	*Neutral*	*Neutral*	Yes

V = voltage
NF = No Floor
LA = Locational Adjustment

CUSC Charging Objective (a) – Facilitating Effective Competition

(a) that compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity

Our position

3.217. As explained above, we consider options that floor the forward-looking charge at 0 to be positive against ACO (a), not flooring to be negative against this objective and locational adjustment options neutral. We consider banding options with a four-band approach based on consumption to be positive against ACO (a), two-band consumption options to be neutral against ACO (a), and a single TDR band or two-band approach based on voltage to be negative against this objective.

3.218. While we recognise the concerns of larger users about banding causing substantially higher charges and potential distortions between transmission-connected and distribution-connected consumers, as explained above, a single band approach would be fundamentally inequitable given the range in user sizes. In light of the concerns of large users, we are delaying implementation by a year as explained further below.

3.219. Based on this, WACMs 1, 2 and 8 are the only proposals positive against ACO (a).

CUSC Charging Objective (b) – Cost-reflective Charging

(b) that compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and in accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard condition C26 (Requirements of a connect and manage connection)

Our position

3.220. As explained above, we consider all options to be neutral against ACO (b). We consider the options for different charging bands for the TDR to be an allocation issue, not a cost-reflectivity issue, and all the banding proposals to be neutral against ACO (b).

3.221. For flooring, we consider all the options to be, on balance, neutral against ACO (b). While flooring at 0 could reduce the strength of the cost-reflective signal of the forward-looking charge, it does avoid introducing potentially non-cost-reflective negative charges at times of system peak. We also note that the strength of the existing forward-looking signal is dampened by: being combined with the residual; existing flooring at 0; and the potential for all HH users (irrespective of location) to reduce or avoid all TNUoS demand charges by changing consumption behaviour during triad periods. On the other hand, no floor would preserve the forward-looking signal but is potentially distortive, as it could incentivise demand during peak periods.[45] A locational adjustment maintains the forward-looking signal for cost-reflectivity but does this through a fixed residual charge that is not intended to be cost-reflective.

CUSC Charging Objective (c) – Facilitating charges that take account of the developments in transmission licensees' transmission businesses

(c) that, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;

Our position

[45] This is in contrast to the forward-looking generation signal, which is calculated on a fundamentally different basis, including being based on capacity.

3.222. All the options give effect to relevant parts of our TCR Direction related to the TDR, helping NGESO fulfil the requirements placed upon it as regards this development in its transmission business. The options involving four bands best address the very small users that we highlighted in our Direction. Our assessment therefore is that four-banded options (WACMs 2, 5 and 8) are positive against ACO (c), with all other options neutral against this objective.

CUSC Charging Objective (d) – Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency[46]

3.223. Consultation respondents and CUSC Panel members consider all the options to be neutral against this objective. We agree that it is neutral.

CUSC Charging Objective (e) – Promoting efficiency in the implementation and administration of the system charging methodology

Our position

3.224. As explained above, we consider options which floor the forward-looking charge at 0 to be positive against ACO (e), no flooring options to be neutral, and flooring with a locational adjustment to be negative against this objective. We consider a single TDR band to be positive against ACO (e) and banded approaches to be neutral against this objective.

3.225. Based on this, the Original Proposal and WACMs 1, 2, 3 and 9 are the only proposals that are positive against ACO (e).

Implementation date

Minded-to position

3.226. We were minded-to consider that a one-year delay to implementation would be in the interest of consumers..

Consultation responses

[46] Objective (d) refers specifically to European Regulation 2009/714/EC. The Agency referred to is the Agency for the Cooperation of Energy Regulators (ACER).

3.227. Sixteen respondents agreed, and three disagreed, with our minded-to proposal to delay implementation to April 2023.

3.228. Some respondents that disagreed were concerned about a delay to consumer benefits, with one considering the risk of disconnection, which delayed implementation seeks to avoid, was low. Another considered that these changes could have been well anticipated, and a delay could mean those on fixed term contracts lose out.

3.229. Those agreeing considered the potential to coincide implementation with any Access reforms would be beneficial. NGESO indicated that April 2022 implementation would be unachievable from a process perspective. Another respondent, while supporting a delay, was sceptical that a year's delay would give sufficient benefits (e.g. through participation in the Capacity Market) to offset the impact of the reforms.

3.230. Other respondents made general comments highlighting that the delay and uncertainty with our decision making with this modification has caused problems for suppliers. And that reversing the minded-to decision to delay would be detrimental to planning and investments.

Final decision

3.231. We have decided to delay implementation to April 2023. We continue to consider that, on balance, a one year delay to implementation is in the interest of consumers. We received overall majority support for this position and have not been presented with any compelling evidence to change our view. Furthermore, given the relatively short period to April 2022, practical implementation by that time would prove challenging, and would involve changes to final tariffs at a late stage, which we consider is best avoided. This delay has not been driven by a desire to bring TCR changes in alongside other specific reforms, though as we noted previously Access reform work is ongoing and we have set out our intentions to develop a blueprint for charging changes needed to support Net Zero, which is likely to include TNUoS work.

3.232. Though we are reluctant to delay the realisation of the consumer benefits, we are concerned that, if limited notice is given of the impacts on the largest users, which significantly differ to those signalled in our earlier TCR IA, this could undermine the consumer benefit. For instance, if it were to result in large users disconnecting from the network, the costs would have to be recovered from the remaining consumers. In addition, delay to April 2023 gives large users more time to make any relevant adjustments and

potentially explore other revenue opportunities that might be available, such as through flexibility.

Principal objective and statutory duties

3.233. We consider that the approval of WACM2 is consistent with our statutory duties, including our principal objective to protect the interests of existing and future consumers, and our other statutory duties. We have assessed the options against our TCR Principles, which closely align with our principal objective and statutory duties, as noted in our TCR Decision (p.22):

> *Reducing harmful distortions protects consumers since anything which distorts wholesale markets is likely to increase network costs impacts consumer prices in the short and long term. Fairness between end consumers of energy is an important aspect of protecting consumers. We also have responsibilities to ensure that industry participants are treated fairly (on legal and procedural grounds) and consistently, and that the markets in which electricity, and services for its production, are sold are functioning well is promoting effective competition. By having proportionality and practical considerations as a TCR principle, we can also ensure that we do not overburden energy market participants with new processes. We have been mindful of our environmental obligations and have formally assessed the carbon impacts of proposed reforms. In doing so we are trying to be fair, proportionate and practical.*

3.234. We have rejected proposals that introduce harmful distortions associated with no flooring and the locational adjustment approach. As a key component of fairness, we have rejected proposals that introduce the greatest inequity through a single band.

3.235. We consider that WACM2 would protect the interests of existing and future consumers. It would avoid introducing distortions through the forward-looking signal, while it would introduce the greatest equity of the options available in recognising the different characteristics of different users. We consider WACM2 to be practical and proportionate, limiting potentially temporary change in the approach to forward-looking charges and bringing consistency with the banding approach for distribution connections. Furthermore, the four-band approach would better enable relatively low consumption connections to the

transmission network that can help achieve net zero greenhouse gas emissions targets, such as EV charging hubs.

3.236. Our decision will introduce different charges for some consumers than were indicated as part of our TCR IA. We are concerned that this may increase the risk of disconnections with consequential impacts on consumers overall, and also note that this decision comes after the Covid-19 pandemic which brought significant impacts to many users, as noted by consultation respondents. We consider that a delay of one year will better allow users time to adjust to these changes, something that will be of particular benefit to the largest consumers. We recognise that this will delay realisation of the benefits of the reforms, but will allow the TCR to be implemented sustainably and ensure the reforms realise benefits over the long-term.

Appendices

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Appendix	Name of appendix	Page no.
1	Attached spreadsheet of tariffs for each option	Published alongside this document