



Targeted Charging Review: Minded to decision and draft impact assessment consultation

Northern Powergrid's response

Key Points

We agree that changes to charges are necessary and we agree with Ofgem that fixed or capacity charges are appropriate for recovering residual revenue, but there is scope to improve the proposals. Changes to customer segmentation and to the mechanism of allocating residual revenue to segments will improve the solution when assessed against Ofgem's criteria.

- We agree with Ofgem that fixed or capacity charges are by far the most appropriate mechanisms for residual charging, because:
 - residual revenue largely relates to the fixed costs of network businesses, and so recovery through fixed charges ensures stable revenue recovery, unlike volatile unit charges; and
 - fixed charges reduce distortions (and 'gaming'), whereas under the status quo (unit charges) 'free-riders' can reduce their residual charges without reducing system costs.
- We have mixed views on Ofgem's preferred option of fixed charges:
 - We support this option for segments for smaller users, where users in each segment have similar levels of usage and where capacity charging is impractical.
 - We do not support it for larger users, because of their diverse usage in some of the proposed customer segments, and since superior capacity based recovery is simple.
- The allocation of residual revenue to customer segments should use the same basis across all segments, e.g. net consumption for all users, before fixed or capacity charges are calculated.
- Residual revenue should be allocated to customer segments based on the proportion of the network which exists to serve each segment. There are much better options than net consumption, such as each customer segment's contribution to system peak.
- Critically we think the proposal to apply residual charging only to '*final demand*' may distort competition between different generation technologies.
- Ofgem's understanding of the status quo is not always correct. Residual charging is not applied to embedded generation and does not depend on the connection voltage.
- The timelines for implementation in April 2021 are very tight, and will require close coordination across all stakeholders including Ofgem.
- Ofgem's proposals are implicitly reliant on the current forward looking charging methodologies, so will be invalidated if changes are made under the review of access and forward looking charges. There is a strong argument for aligning implementation of both Significant Code Reviews (SCRs).
- The proposals would interact with Independent Distribution Network Operator (IDNO) charging arrangements, and increase the margin earned by IDNOs, deepening an existing regulatory distortion and leading to a windfall for IDNOs on existing connections. These IDNO issues are a distinct issue from the Targeted Charging Review (TCR), and should be addressed irrespective of it, although the TCR's outcome could make that action more urgent.

Contents

1. Introduction	3
2. Areas where further clarity is needed	3
3. Our proposed solution	6
4. Responses to questions on how the leading options were reached	10
Residual charging to ‘final demand’ only (Q1)	10
Assessment of the impacts (Q2-3)	12
Customer segmentation (Q4)	14
Treatment of on-site generation (Q5)	23
Customer benefits (Q6)	23
Practical considerations (Q7)	24
Banding and customer segmentation (Q8-9)	24
5. Responses to questions on quantifying the benefits of reform	27
Distributional and wider system impacts (Q10)	27
6. Responses to questions on remaining embedded benefits	27
Reform of embedded benefits (Q11-13)	27
7. Responses to questions on transitional arrangements	28
Implementation approach (Q14)	28
8. Responses to questions on Ofgem’s minded to position	30
The minded to decision (Q15)	30
Practical considerations (Q16)	30
9. Appendix 1	31
Impacts of our preferred option on CDCM customer segments for all licensees	31
10. Appendix 2	35
Question four charts – impacts on CDCM customer segments for larger users	35
Question four charts – impacts on EDCM customers	38
Question four charts – impacts on UMS customers	39

1. Introduction

1. We welcome the opportunity to respond to Ofgem's minded to position for reform of the 'residual' elements of use of system charges. We focus on distribution network charging where we can provide more insight. However, we have also commented at a high-level on transmission network charging.
2. We assume throughout that use of system charges are directly passed through to end users. This is often not the case for smaller users¹ at present, but we expect this position to evolve as a greater number of small customers move to half-hourly settlement.
3. Our response falls into three sections:
 - a. first we outline the key areas in Ofgem's consultation proposals where further clarity is needed (paragraphs 4 to 12);
 - b. second we draw together an 'end-to-end' proposal for distribution residual charging which builds on Ofgem's proposals and makes suggestions for improvement (paragraphs 13 to 27); and
 - c. finally we respond to each question in turn (paragraphs 28 to 122).

2. Areas where further clarity is needed

We support Ofgem's proposals to use fixed or capacity charges for residual revenues

4. Recovering all residual revenue through fixed charges allocated based on net volume represents a significant improvement on the status quo. Under current arrangements *ca.* 80% of distribution use of system (DUoS) revenue is recovered through unit charges which over-incentivises users to reduce net demand. Reductions in net demand which do not reduce demand at system peak are unlikely to reduce system costs. So current arrangements result in 'free-riding' on the network with a transfer of costs from network users who can reduce net demand to those who cannot. By contrast, fixed or agreed capacity charges cannot be avoided by any network users wishing to remain connected to the network.
5. We are strong advocates of the use of flexibility to reduce long-run system costs. But any cost signal based on system costs which can no longer be influenced by user behaviour (e.g. 'sunk' costs) will be distortionary. Ultimately, this will harm flexibility markets by distorting competition. For example, certain behaviours (or technologies) may be over-incentivised beyond their actual value if residual

¹ We use the term 'smaller users' to refer to those which are non-half-hourly or half-hourly aggregate settled (i.e. domestic and small non-domestic customers) and 'larger users' to refer to those which are half-hourly site-specific settled

charges provide a non-cost-reflective signal and so consumers will be required to fund those behaviours (or use of those technologies) for no long-term benefit.

There are a number of inaccuracies in the consultation's description of the status quo that cause some of Ofgem's proposals to be potentially confusing or, worse, misdirected

6. In places in the Consultation, Ofgem has misinterpreted the status quo. There are three key areas where this is the case:
 - a. the allocation of residual revenue to voltages;
 - b. residual charges for generation; and
 - c. the reliance of the proposals on the current forward looking charging methodology.
7. On the first on these, allocation of the residual to voltages, Ofgem has stated it wishes to maintain the status quo. The consultation indicates that it thinks customers should pay residual charges for the voltage level at which they are connected and the higher voltages that also support their connection. We agree with Ofgem's desired policy outcome. However, this policy outcome does not align with the status quo² and is not reflected in the modelling carried out in support of the consultation. We comment further in response to question three.
8. On the second issue, the application of residual charges to generation, Ofgem's consultation mistakenly concludes that there is 'double-charging' for battery storage under the status quo, and therefore proposes an overhaul. The consultation says that residual charges are applied to generation which is not correct. Distribution residual charges are not payable for distribution connected generation at any voltage³. All generators regardless of voltage contribute to residual charges only for any associated demand. In the EHV distribution charging methodology (EDCM) this is through a site-specific tariff for the associated demand connection. In the common distribution charging methodology (CDCM) the appropriate demand tariff for the voltage of connection and type of metering is assigned to the associated demand. This means that, under the current arrangements, connected battery storage only pay residual charges once, when they are charging, which is akin to the cost of fuel for a traditional generator. Because neither generators nor connected storage pay residual charges on their export under the status quo, there is no distortion

² This misrepresentation of the status quo is seen in paragraph 1.7 of annex eight of the consultation which states: *"This approach allocates the distribution residual charges among the distribution voltage levels..."*. For the vast majority of customers, this is not the case. It is also seen in the diagram at Figure 1 of annex eight of the consultation shows that high-voltage (HV) customers do not pay residual charges in respect of low voltage (LV) assets. Again, this is not the case.

³ This misunderstanding is most notable in paragraph 1.8 of the consultation which states that residual charges are levied on 'some' generation, with the supporting table implying that extra high voltage (EHV) connected generation pays residual charges.

in dispatch decisions between a battery or a traditional generator. We comment further in response to question one.

9. On the third issue, links to the current forward looking charging methodologies, it appears that Ofgem may not have fully appreciated the extent of the interaction between its proposals and the current forward looking charging methodologies⁴. Given the Access SCR⁵ could result in fundamentally different forward looking charging methodologies, there is a risk that any new residual charging arrangements could be immediately invalidated by changes introduced by the Access SCR. We comment further at paragraph 16 below.

We also think other improvements could be made to the proposals

10. We propose some improvements to the proposals, primarily relating to:
 - a. the use of fixed charges to recover the residual for larger customers. Capacity charges will better reflect the wide-range of customers within these segments (see response to question four);
 - b. the use of an alternative mechanism for allocating residual revenue between customer segments, such as each customer segment's contribution to system peak. This would better meet Ofgem's 'justifiability' test (see response to question two); and
 - c. proposals to apply residual charges to '*final demand*' only. The justification for doing so is based on an incorrect assertion that some customers are currently being 'double-charged' (see response to question one).

Wherever possible, costs should be allocated before resorting to a residual charging mechanism

11. The distinction Ofgem makes between forward looking and residual charges is oversimplified. The quantum of residual revenue which is arbitrarily spread across customer segments can be reduced by ensuring that costs are allocated to the user segments which drive those costs.
12. This may be achieved by Ofgem's Access SCR, by ensuring forward looking charges reflect the incremental costs of network use. But if forward looking charging arrangements focus entirely on user behaviours which drive (or defer) network reinforcement, cost elements which can be allocated to users (e.g. licence fees) will be recovered in the residual. This is not appropriate. Costs should be allocated to user segments to as great an extent as possible before applying a residual charging mechanism.

⁴ Paragraph 2.16 of the consultation implies that the only impact of a change to the forward looking charging methodologies on residual charging would be the size of the residual: "*Different approaches to valuing or allocating network access or setting forward looking charges could affect the size of the residual charges in future.*" However, there are much more significant interactions than simply the size of the residual.

⁵ Formally the '*Electricity Network Access and Forward-Looking Charging Review*' SCR

3. Our proposed solution

Determination of target residual revenue from each charging methodology

13. Under the existing arrangements, residual charging is applied in the CDCM and the EDCM by different mechanisms. But before either mechanism is applied, a calculation is carried out (in accordance with the EDCM) which determines the amount of revenue to be recovered from EDCM customers. This calculation is based on the proportional usage of network assets by EDCM customers compared to CDCM customers, determined by the respective forward looking charging (abbreviated to FLC in the diagram below) methodologies. The remainder of the DNO's revenue allowances are recovered from CDCM customers. The forward looking charges calculated in accordance with the EDCM are deducted from the revenue to be recovered from EDCM customers to derive residual revenue to be recovered from EDCM customers; similarly for CDCM customers. Figure 1 gives a diagrammatic view of this calculation.

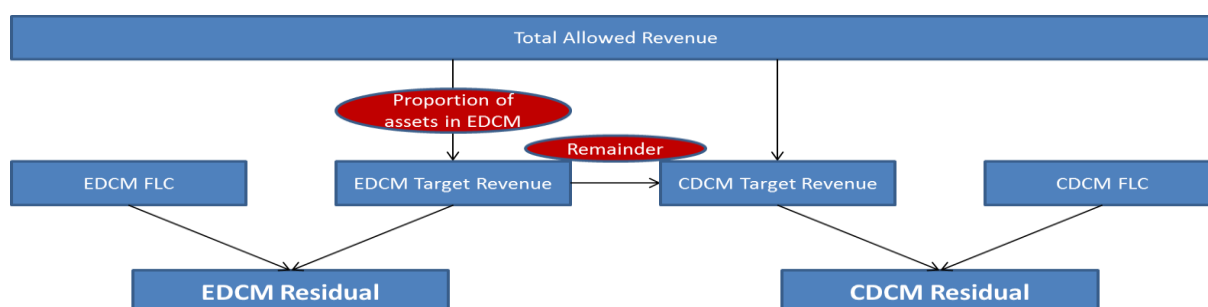


Figure 1 - Derivation of CDCM and EDCM residuals

14. **If residual charges were to be considered in isolation**, we would suggest that there should be no change to the status quo for the calculation of the total residual revenue target to be recovered from CDCM customers or the equivalent calculation for EDCM customers. This is because the method of calculating forward looking charges is fundamentally different between the CDCM and EDCM, and so the level of cost recovery through forward looking charges differs. Treating both residuals as one and allocating across both CDCM and EDCM customers would not properly recognise those differences.
15. Ofgem's proposals do not describe this element of the residual charging process. The impact analysis has been carried out on the assumption that revenue is split between CDCM and EDCM before separate residual revenue targets for CDCM and EDCM are derived. From the impact analysis we infer that Ofgem is seeking to maintain the status quo in this area.
16. The calculation of revenue to be recovered from EDCM customers is dependent on the underlying network costing models used in the existing forward looking charging methodologies. The calculation of forward looking charges is one of the key focusses of the Access SCR and so may be subject to material change in the near future. So Ofgem's proposals would introduce a residual charging mechanism which relies on forward looking charging arrangements which are highly unlikely to exist a short time after that mechanism is implemented. This is inappropriate. In order to resolve this issue, either:

- a. the solution for residual charging must be divorced from the forward looking charges calculation (in which case a new mechanism of determining revenue to be recovered from CDCM and EDCM customers respectively will need to be determined); or
 - b. implementation of the TCR must be deferred until sufficient detail on the forward looking charging methodology determined by the Access SCR is known.
17. Regardless of the methodology used to determine the residual to be recovered from CDCM and EDCM customers respectively, the co-ordinated implementation of TCR and Access SCR reform is necessary to enable stakeholders to understand the full impact on their activities.

Allocation of residual revenue to customer segments

18. Once the CDCM and EDCM residuals have been derived, it is important that the mechanism by which residual revenue is allocated to customer segments is consistent across all segments contributing to each of the two residuals. This is to ensure that the contributions from different customer segments are not skewed by the use of different allocation mechanisms.
19. We think that the mechanism by which this allocation to customer segments is achieved should aim to reflect the **proportion of the existing network which exists to serve each segment**. This will meet Ofgem's 'justifiability' test. In order to differentiate between the proportions of the network which exist to serve customers connected at different voltages, it is necessary to notionally allocate residual revenue to voltages. We comment further in response to question three.
20. Ofgem's current proposal is to allocate residual revenue to customer segments based on net volume. We think, however, that a more appropriate mechanism would be to determine each customer segment's contribution to peak(s) on the system. We comment further in response to question two.
21. Figure 2 shows our proposal for the allocation of the CDCM residual to CDCM customer segments⁶.

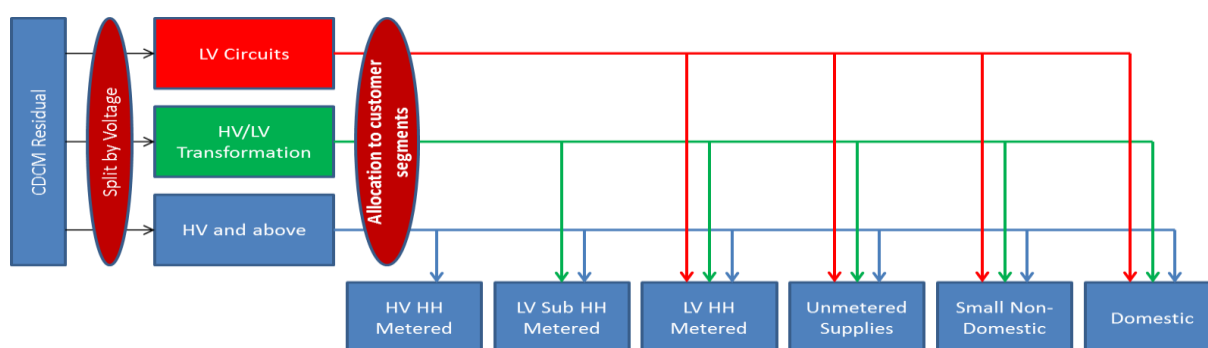


Figure 2 – Proposed allocation of CDCM residual revenue to customer segments

⁶ The notional allocation to voltages is shown only up to HV as this is the highest voltage at which CDCM customers are connected.

22. A similar process should also be followed for EDCM customers, but with customers segmented based on the voltages which they use. This information is available from existing input data. Hence, rather than assuming every EDCM customer uses all voltages above the voltage of connection, residual revenue can be allocated to customers only in respect of voltages which that customer uses.
23. Table 1 shows the allocation of residual revenue to a subset of CDCM customer segments in the Northeast. The equivalent for the other 13 DNOs is presented in Appendix 1. This is based on information from the published 2019/20 CDCM models. Three approaches have been considered:
- The status quo:** allocation to customer segments is based on net volumes for each segment.
 - Our interpretation of Ofgem's proposals:** allocation to customer segments is based on net volumes for each segment at each voltage (adjusted for losses). The notional allocation of residual revenue to voltages is based on the proportion of assets at each network level in the 500MW model. We comment further on this in response to question three.
 - Our proposed mechanism:** allocation to customer segments is based on each segment's contribution to peak demand at each voltage.

Residual Revenue Allocation Options (Northeast)	Status Quo	Our Interpretation of Ofgem's Proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
Domestic	51.6	57.6	6.0	11.6%	68.0	16.4	31.7%
Small Non-Domestic	17.4	19.4	2.0	11.6%	19.9	2.5	14.5%
LV HH Metered	24.5	27.4	2.8	11.6%	22.1	-2.4	-9.8%
LV Sub HH Metered	5.0	3.9	-1.1	-21.8%	2.8	-2.1	-42.6%
HV HH Metered	28.0	18.1	-10.0	-35.5%	13.0	-15.1	-53.7%
Unmetered	1.7	1.9	0.2	11.6%	2.4	0.7	39.6%

Table 1 - Impact of residual allocation options on CDCM customers in the Northeast

24. Our suggested approach would create a significant step change for domestic customers. But the conclusions of the TCR need to be justified on a sound basis, which goes beyond aligning revenue from each segment to the status quo. Our proposal will more closely align the proportion of residual revenue recovered from each customer segment to the proportion of the existing network which exists to serve that segment. As a result, our proposal will result in more equitable charges and better meet Ofgem's 'justifiability' test. If Ofgem's minded to position were adopted, the solution would be more open to challenge, and potentially the subject of greater changes to the distribution connection and use of system agreement (DCUSA) post implementation, creating further uncertainty on the level of future charges.
25. The increase in domestic charges would cause an increase in the margin available to Independent Distribution Network Operators (IDNOs), and in so doing would deepen existing regulatory

distortions. Those distortions should be addressed regardless of the TCR, although if the TCR widens the existing disparity it would make that action more urgent.

Recovery of residual revenue within each segment

26. Once the total contribution of each customer segment has been determined, the most appropriate recovery mechanism needs to be determined. We think Ofgem's proposal of fixed charges for all customer segments is too simplistic, and does not properly recognise the diversity of customers within some segments (see response to question four):
- Customer segments for larger users are naturally sub-segmented into customers of different sizes based on the agreed capacity each customer has with the DNO. A capacity charge recovery mechanism would naturally differentiate between sizes of customer within those segments.
 - Similarly, the proposal of a fixed charge is not appropriate for unmetered supplies (UMS) customer segments. The current tariff structure includes unit rates only which should be maintained due to the diversity of customers within those segments.
27. Figure 3 shows our proposal for the allocation of the CDCM residual to customer segments, along with the proposed recovery mechanism for each segment.

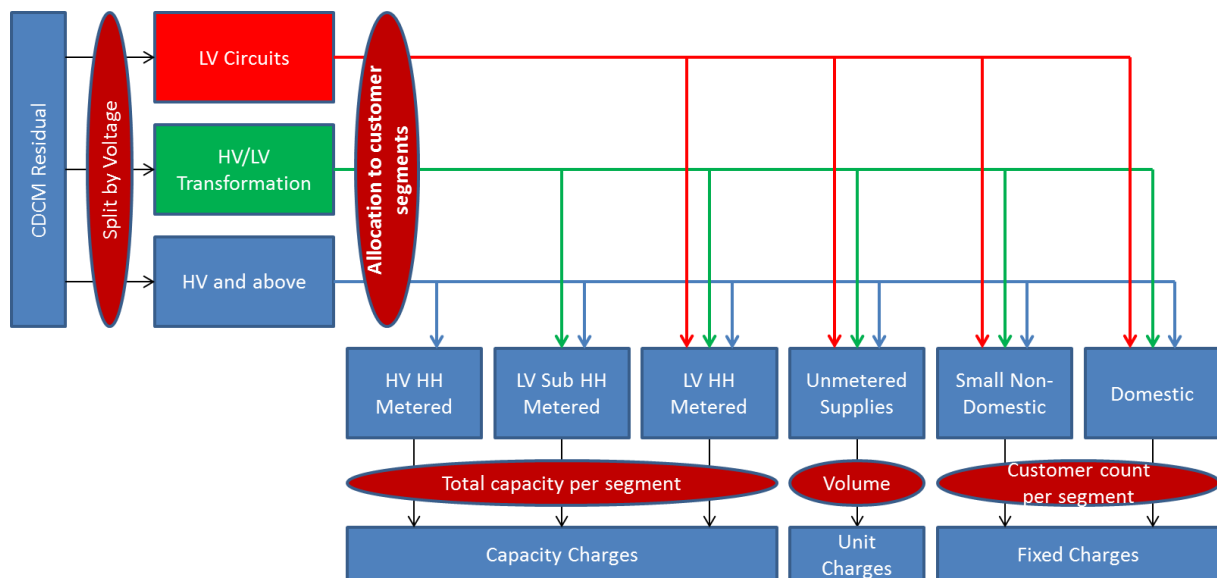


Figure 3 - Allocation and recovery method for customer segments

4. Responses to questions on how the leading options were reached

Residual charging to *'final demand'* only (Q1)

Question 1: Do you agree that residual charges should be levied on final demand only?

28. *'Final demand'* has not been sufficiently well defined for us to offer a firm answer. Both the policy principles and practical implementation challenges need careful consideration. Our observations on the treatment of *'final demand'* are covered in three sections, focussing on:
- a. **the status quo for generation** and the potential unintended consequences of Ofgem's favoured option;
 - b. **possible definitions of *'final demand'*** and the risks associated with exempting other demand from residual charges; and
 - c. **practical hurdles to be overcome** when considering levying residual charges on *'final demand'* only.

The status quo for generation

29. The application of residual charges to embedded generators has been misunderstood. Distribution charges for generators connected at all voltage levels do not include residual charges. However, generators typically have an import meter point administration number (MPAN) with an associated import capacity.
- a. Charges for demand associated with EDCM generators are calculated on a site-specific basis. As with other EDCM demand, residual charges are applied as a capacity charge.
 - b. Demand associated with CDCM generators is charged the appropriate tariff for a demand customer connected at that voltage with that type of metering. For example, the demand associated with a generator connected at LV with current transformer (CT) metering will be assigned the 'LV HH Metered' tariff. As with other CDCM demand, residual charges are applied as a 'fixed adder' to the unit rates.
30. The import capacity and net demand volumes associated with generation are typically small, and so residual contributions are also small. Ofgem's favoured option will result in these generators being charged the same level of residual charges as any demand customer connected at the same voltage with the same type of metering. We do not believe this to be the policy intent.

*Definition of *'final demand'**

31. The simplest way to define *'final demand'* may be to properly define *'interim demand'*, with *'final demand'* being the remainder.

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32. Ofgem appears to have attempted this definition in footnote 19 of the consultation: “*Final demand users are end consumers who use the electricity supplied by electricity networks, whereas storage facilities are intermediate users of electricity which stores electricity for later consumption.*” This definition suggests that the only ‘*interim demand*’ is that for storage. This does not align with other areas of the consultation where the implication is that residual charges should not apply to the imports associated with the operation of a generator.
33. It would be more appropriate to define ‘*interim demand*’ as demands which are solely for the purpose of operating a generator. This would incorporate both the parasitic load for the operation of (for example) a wind turbine, or load required to charge a battery.
34. Exempting such ‘*interim demand*’ from residual charging would artificially reduce the costs of generation technologies with high demand requirements for operation. This would distort competition between different generation technologies in favour of technologies with high demand requirements.
35. When residual charging is applied on the basis of net demand per customer, the same unit (kWh) of energy would attract a residual charge when being metered as ‘*interim demand*’ (e.g. when charging a battery) and again when being metered as ‘*final demand*’ (i.e. by a downstream customer). Hence, residual ‘double-charging’ has been applied for a single unit of energy. However, no customer has been ‘double-charged’, which would only occur if residual charges were applied to both imports and exports from the same site. This cannot occur under either the status quo or Ofgem’s proposals.
36. We agree with Ofgem that residual charges should be payable per customer rather than per unit (i.e. a fixed charge rather than a unit charge). No ‘double-charging’ exists with fixed charges, either for a given customer or for a given unit of energy. All demand customers (be that ‘*final demand*’ or ‘*interim demand*’) contribute to residual charges to the extent that they use the existing network.

Implementation of residual charging for ‘*final demand*’ only

37. A policy of exempting ‘*interim demand*’ from residual charges will necessitate distinguishing between ‘*interim demand*’ and ‘*final demand*’ for charging purposes. This raises significant practical challenges.
38. ‘Generation only’ sites (being those whose associated demand is only for the purposes of parasitic load and onsite lighting etc.) could easily be made exempt from residual charging:
- In the CDCM, new tariffs would be required which would have no residual element and would be assigned to sites with only ‘*interim demand*’.
 - In the EDCM, site-specific charging enables such sites to be explicitly identified and the residual contributions set to zero.
39. Under this approach, a standalone generator would be exempt from residual charging whilst a co-located generator would not. This would create a distortion between co-located and standalone generation.
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40. In order to treat both standalone and co-located generation equally, it will be necessary to disaggregate demands behind the same meter into *'interim demand'* and *'final demand'*. This is likely to require 'sub-metering' within a site, and could create a need for differencing calculations to be applied to the main meter to avoid double-counting demand. We do not think this is a practical option at this stage.
41. Consistent treatment can be achieved with minimal impact by applying residual charges on a capacity basis for larger users. With this option, the standalone generator would be subject to residual charging in respect of its *'interim demand'*, but only in respect of a very small import capacity. Similarly, any agreed capacity associated with the *'interim demand'* for a co-located generator would be subject to residual charging in the same way. We think this presents a pragmatic solution for all generators with small imports. A different arrangement may be required to reduce the residual contributions of storage under this solution, as storage will typically have significant demand requirements. We would again highlight that we consider any such arrangements would distort competition between different generation technologies.

Assessment of the impacts (Q2-3)

Question 2: Do you agree with how we have assessed the impacts of the changes we have considered against the principles? If you disagree with our assessment, please provide evidence for your reasoning.

42. We have commented on the assessment of the two leading options and each of the principles in Table 2.

Principle	Fixed Charges	Capacity Charges
Reducing Harmful Distortions	<ul style="list-style-type: none"> We broadly agree with Ofgem's assessment. This will remove the existing distortions which allow 'free-riders' to reduce their exposure to residual charging without reducing system costs. 	<ul style="list-style-type: none"> The introduction of banding for domestic customers does not align with this principle. Users who can reduce their net consumption will continue to be able to reduce their exposure so harmful distortions will remain.
Fairness	<ul style="list-style-type: none"> Alternatives for allocating residual revenue to segments will be more justifiable and so better meet this principle (see Q9). Customers should only pay residual revenue which notionally relates to the voltage of connection and voltages above (see Q3). 	<ul style="list-style-type: none"> We do not agree that segmentation of domestic customers achieves greater equity – the segmentation of domestic customers into groups appears entirely arbitrary. The predictability of charges would be undermined by users moving between segments.
Practicality	<ul style="list-style-type: none"> The move to fixed charges for all users presents a significant shift in the charging structure for transmission network use of system (TNUoS) charges with associated costs for the electricity system operator (ESO) and suppliers. These should be quantified. 	<ul style="list-style-type: none"> With the data which is currently available to distributors, there is no means of allocating domestic customers to segments. This would require usage data for individual users which distributors do not currently receive for smaller customers.

Principle	Fixed Charges	Capacity Charges
Distributional impacts	<ul style="list-style-type: none"> We do not believe the solution described in the consultation has been modelled for users paying residual for voltages above their connection only so the analysis may need to be revisited (see Q3). The distributional impacts within each customer segment have been understated in segments for larger users (see Q4). 	<ul style="list-style-type: none"> We broadly agree with Ofgem's assessment of the relatively low distributional impacts of this option. As with fixed charges, the modelling does not align to the solution described so the between segment impact may need to be reassessed.

Table 2 - Comments on Ofgem's assessment of the leading options

Question 3: For each user, residual charges are currently based on the costs of the voltage level of the network to which a user is connected and the higher voltage levels of the network, but not from lower voltage levels below the user's connection. At this stage, we are not proposing changes to this aspect of the current arrangements. Are there other approaches that would better meet our TCR principles reducing harmful distortions, fairness and proportionality and practical considerations?

43. In the CDCM, residual charges currently have no link to the voltage of connection. A fixed p/kWh adder is applied to all unit rates. This adder is calculated as the revenue shortfall divided by total units, albeit subject to adjustment where residual revenue is negative in order to avoid negative unit rates. This is then applied to every unit rate of every tariff, regardless of the voltage of connection.
44. The split of revenue between the CDCM and EDCM is on the basis of assets used, and so ensures that EDCM customers do not pay residual charges which are notionally in respect of LV and HV assets. In the EDCM, 20% of residual revenue is allocated using a 'fixed adder' whilst the remaining 80% is allocated based on asset usage. Both of these are applied as a p/kVA/day adjustment to both the agreed capacity charge and excess capacity charge.
- The fixed adder element is applied in two parts, one of which is relative to agreed capacity and the other relative to the customer's usage in the peak 'super-red' period.
 - The element allocated based on asset usage is determined from:
 - the average £/kW for assets at each voltage level determined in the CDCM; and
 - the relative use of assets by each EDCM customer, using 'network use factors' which encode the relative use of assets at a given voltage by an EDCM customer compared to CDCM customers. The charge for assets at the voltage of connection is allocated using agreed capacity. The charge for assets at higher voltages is allocated using each customer's usage in the DNO's peak 'super-red' period.
45. The statement "*residual charges are currently based on the costs of the voltage level of the network to which a user is connected and the higher voltage levels of the network*" is therefore true for 80% of residual revenue in the EDCM only, representing less than 2% of our residual revenue.
46. Notwithstanding the misunderstanding of the status quo, the proposed option involving notionally allocating the residual to voltage levels and then to customers who use those voltage levels is the right policy decision, because:

- a. this calculation will result in a more accurate means of determining the proportion of the existing network which exists to serve each customer segment; and
 - b. to not do so would discriminate against HV customers. EDCM customers would only contribute to residual revenue which notionally relates to EHV voltage levels because of the allocation of revenue between CDCM and EDCM (see paragraph 13). So EDCM customers would not contribute to residual revenues which notionally relate to voltage levels below the voltage of connection. But HV customers would contribute to residual revenue which notionally relates to the HV/LV transformation and LV circuits levels. Hence customers connected at HV would be the only customer segments contributing to residual revenue which notionally relates to voltages below their voltage of connection. This risks distorting investment decisions, where residual charges may overly influence a decision to (for example) connect at HV or EHV.
47. Ofgem and Frontier have not modelled Ofgem's minded to position (as described in paragraph 8.4 (b) of the consultation) of users only paying residual in respect of their voltage of connection and voltages above. By allocating revenue to customer segments based on net volumes, Ofgem has recreated the status quo for the allocation of revenue to segments.
 48. The notional allocation of residual revenue to voltages needs careful consideration. The simplest way to do so would be based on asset values in the CDCM at each voltage. But this would create an additional reliance on the existing forward looking charging methodology beyond that identified in paragraph 16.
 49. Any notional allocation of residual revenues to voltages would be made on the assumption that the costs which are recovered through residual charges are proportional to some measure of cost split across voltage levels. If this notional split is to be used, it is even more important that costs are allocated to the user segments which drive those costs wherever possible, as noted in paragraph 11. If not, costs which actually relate to customer counts (e.g. licence fees) will be arbitrarily spread across voltage levels when in fact the cost itself is in no way influenced by the proportion of assets at each voltage.

Customer segmentation (Q4)

Question 4: As explained in paragraphs 4.41, 4.43, 4.46, 4.49, 4.80, we think we should prioritise equality within charging segments and equity across all segments. Do you agree that it is fair for all users in the same segment to pay the same charge, and the manner in which we have set the segments? If not, do you know of another approach with available data which would address this issue? Please provide evidence to support your answer.

50. We have commented on Ofgem's proposed user segmentation in response to question nine. For our customers, segmentation by line loss factor class (LLFC) or by CDCM tariff results in the same segmentation as we have a one-to-one mapping between LLFC and CDCM tariff. Hence we have used the CDCM tariff names as the identifiers for each segment in response to this question.
51. We have a number of concerns over the segmentation methods chosen, centred on:

- a. fixed charges for non-homogeneous customer segments where equality has been prioritised too heavily over equity;
 - b. fixed charges for EDCM customers where equality has been prioritised too heavily over equity;
 - c. fixed charges to unmetered customers which achieve neither equality nor equity; and
 - d. seemingly arbitrary segmentation of domestic customers for the capacity charge option.
52. We provide more detail on each of these in turn, along with our proposals for more appropriate approaches. Regardless of the recovery mechanism used within each customer segment, it is essential that a consistent measure is used to allocate residual revenue to customer segments (e.g. net volume or contribution to peak demand as per our response to question two). Different mechanisms can then be used for the recovery of the residual within each segment without distorting the contribution of each segment as a whole.

Fixed charges for non-homogeneous customer segments

53. A common fixed charge has the potential to create material distributional effects within a given customer segment. Such effects are relatively small when customers within a given customer segment have similar usage patterns. For those customer segments, we agree with Ofgem's approach to prioritise equality over equity. Ofgem has presented detailed analysis of the within-segment distributional impacts of applying the same fixed charge to all domestic users, but does not appear to have properly considered these impacts for other customer groups. The variability of levels of usage can be much greater in other segments so equity should be prioritised over equality. A fixed charge for smaller users and capacity charge for larger users will ensure that the variability in the size of users is properly taken into account in segments for larger users, achieving greater equity.
54. Table 3 shows the range of residual contributions from our customers in each of the LV HH Metered, LV Sub HH Metered and HV HH Metered customer segments.

Residual Contribution by Customer Segment (£k)		LV HH Metered	LV Sub HH Metered	HV HH Metered
Northeast	Minimum	0.0	0.0	0.0
	Average	2.4	12.9	34.1
	Maximum	61.4	152.6	1,174.9
Yorkshire	Minimum	0.0	0.0	0.0
	Average	2.2	8.1	27.1
	Maximum	47.4	41.1	499.1

Table 3 - Range of residual contributions for larger customer segments

55. Figure 4 shows the distribution of annual residual charges for LV HH Metered⁷ customers in the Northeast, with the average charge marked⁸.

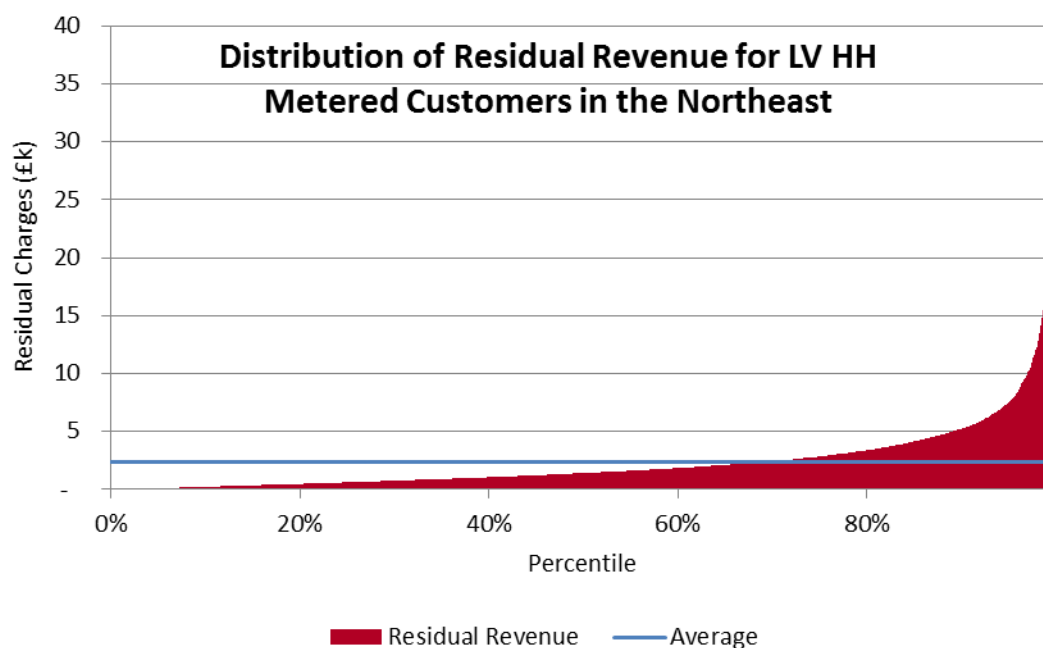


Figure 4 - Annual residual charge for LV HH Metered customers in the Northeast

56. Under the status quo, customers with very low unit consumption pay very low residual charges, as represented by the extreme left of Figure 4. Under Ofgem's proposals, these customers will see their use of system charge increase by many orders of magnitude. A small number of customers with high unit consumption pay high residual charges. Under Ofgem's proposals, these customers will see their residual contribution reduce by up to 95% as represented by the extreme right of Figure 4. For LV HH Metered customers in the Northeast alone, the total redistribution from high usage customers onto low usage customers would be *ca.* £9.8m (41% of the total residual contribution of this segment).
57. The proposed approach of the same fixed charge applying to all customers within these segments does not reflect the relative proportion of the network which exists to serve each customer and has undesirable within segment distributional impacts, with costs moving from high users to low users. This is avoided by applying a capacity charge. All customers within these segments have explicit capacity agreements with the DNO so no 'deeming' of capacity would be necessary.

⁷ The charts in this section are based on LV HH Metered customers in the Northeast. Equivalent charts HV HH Metered customers in the Northeast, LV HH Metered customers in Yorkshire and HV HH Metered customers in Yorkshire are shown in Appendix 2.

⁸ Note - the nine highest contributors with charges above £40k are not shown to enable the detail of lower users to be visualised

58. Under current forward looking charging arrangements, adding residual charges to capacity charges would make the same absolute £/kVA increase to both the agreed and excess capacity charge, so would reduce the proportion by which the excess capacity charge exceeds the agreed capacity charge. This could create a situation where the costs to a customer of occasional excess capacity would be more than offset by lower residual charges. There are two reasons this is unlikely to arise:
- We would not agree to a lower capacity than the customer's recent maximum demand.
 - The risk to the customer of operating outside of their connection agreement (being that the capacity they require may not be available in the future) is likely to more than offset any marginal benefit through lower residual charges.
59. Capacity charging would still have within segment distributional impacts. Costs would move from those customers with consistently high usage when compared to their agreed capacity to customers with lower usage when compared to their agreed capacity.
60. Figure 5 shows the average usage of agreed capacity⁹ by each LV HH Metered customer in the Northeast.

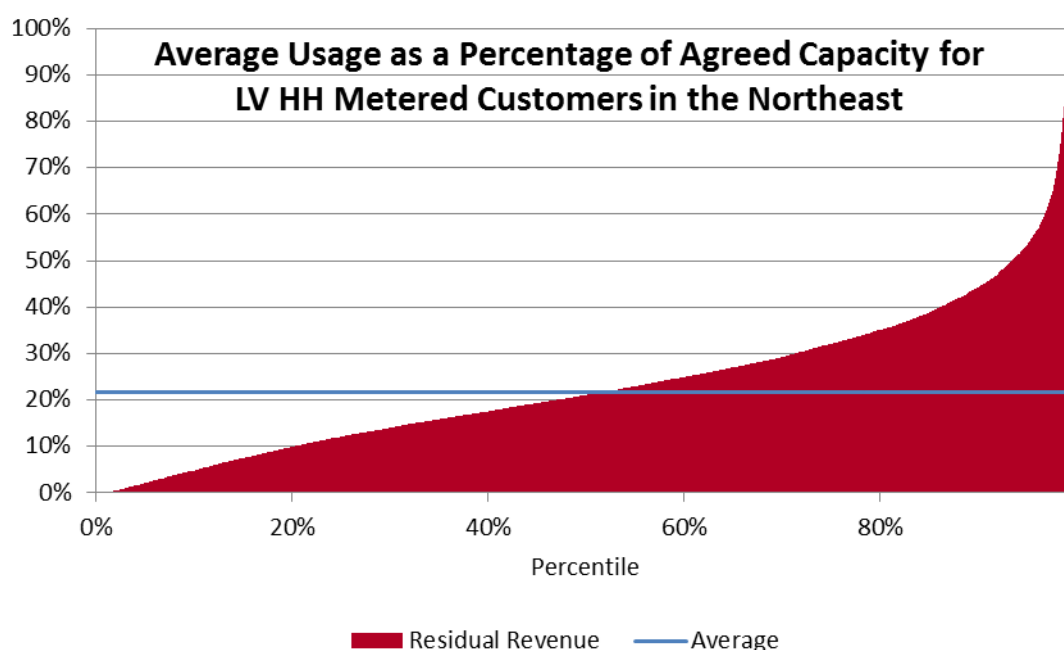


Figure 5 - Average capacity usage by LV HH Metered customers in the Northeast

61. Customers on the left of Figure 5 with low average usage as a percentage of agreed capacity would see an increase in charges under a capacity charge option, whilst customers on the right with a high percentage would see a decrease. But the impact is markedly lower than under the fixed charge

⁹ Customers with a low percentage on this chart should not be assumed to have an agreed capacity which is higher than they need; rather these customers are likely to use up to their agreed capacity less frequently than those with a high percentage and so, when averaged over a long period of time, use a lower percentage of their agreed capacity than a customer using up to their agreed capacity on a more frequent basis.

option, with the transfer of cost for LV HH Metered customers in the Northeast from users with a high percentage to those with a low percentage of *ca.* £6.5m (27% of the total residual contribution for this segment).

62. Figure 6 shows the impact on LV HH Metered customers in both the Northeast and Yorkshire, split into six bands by current residual contributions, with the average residual contribution per customer in each band shown under the status quo, a fixed charge option or a capacity charge option.

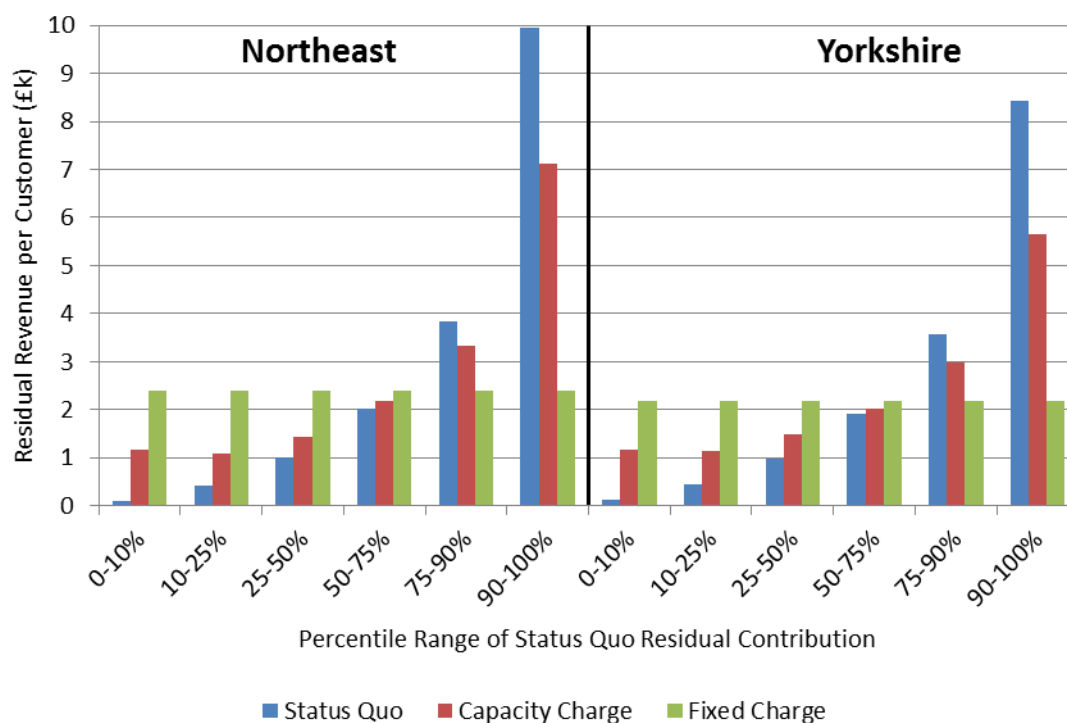


Figure 6 - Impact on LV HH Metered Customers of fixed and capacity charge options

Fixed charges for the EDCM customer segment

63. Ofgem's policy intent for EDCM customers is not clear. Paragraph 8.4(d) of the consultation states *"the extra high voltage levels should form a single segment"*. We understand from this statement that Ofgem's intent is for every EDCM customer to face the same fixed charge. But paragraph 8.4(b) of the consultation states *"users should pay residual charges for the voltage at which they are connected and those levels with higher voltages"*. Users in the EDCM can be connected at one of five voltages¹⁰. The policies suggested by 8.4 (b) and 8.4 (d) are contradictory.

¹⁰ At an EHV/HV substation, to EHV circuits, at a 132kV/EHV substation, to 132kV circuits, or direct to a grid supply point (GSP)

64. Under the status quo, the range of residual contributions by EDCM customers is significant, as shown for EDCM customers in Yorkshire¹¹ in Figure 7. An equivalent chart for EDCM customers in the Northeast can be found in Appendix 2.

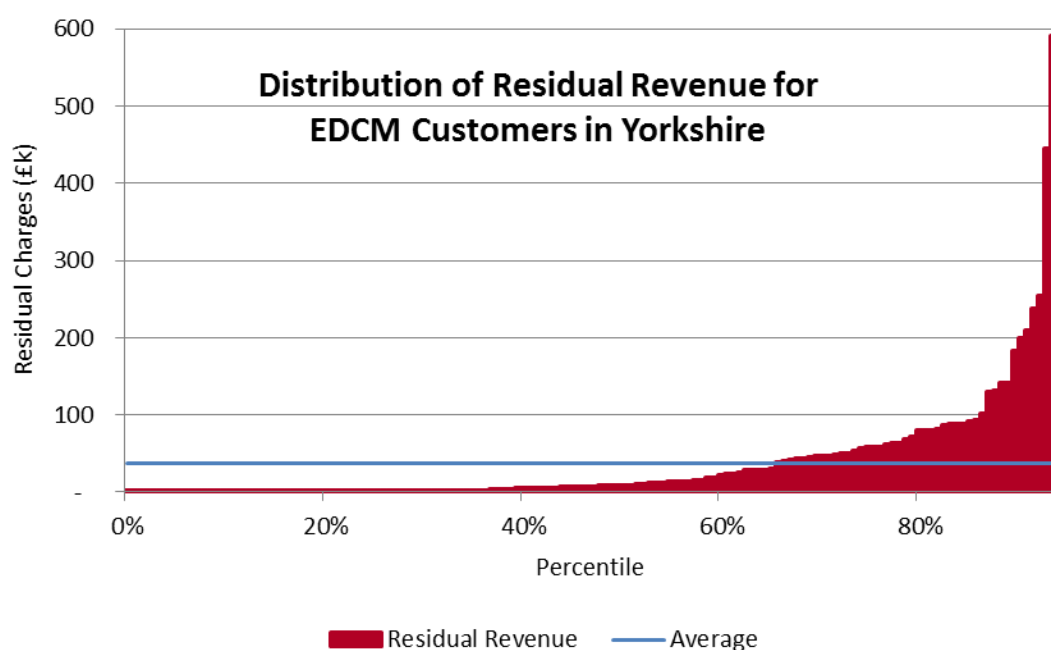


Figure 7 – Annual residual charge for EDCM customers in Yorkshire

65. If a single fixed charge were applied to all EDCM customers regardless of the voltage of connection, each EDCM customer would be charged a fixed charge as shown on the 'average' line in Figure 7. This ranges from an over 300-fold increase to a 95% decrease in residual contributions with *ca.* £3.2m (58% of the total residual from this segment) being transferred from high users to low users in Yorkshire alone. We have not seen sufficient justification for this level of within-segment redistribution of residual contributions.
66. The impact of this could be lessened by continuing with the approach of charges not varying by voltage of connection, but instead recovering residual revenue through a capacity charge rather than a fixed charge, as we have suggested for other segments for larger customers. In Yorkshire this would result in a shift of *ca.* £1.8m (33% of the total residual from this segment) from those customers who will pay less onto those who will pay more.
67. Figure 8 shows EDCM customers in both the Northeast and Yorkshire, split into six bands by current residual contributions, with the average residual contribution per customer in each band shown under the status quo, a fixed charge option or a capacity charge option. We think this clearly shows that the impact on customers in the outlying bands is unjustifiably high under the fixed charge option, with capacity charges presenting a sensible alternative to avoid the undesirable consequences of an impact of this magnitude.

¹¹ We have used Yorkshire here as we have more than twice as many EDCM customers in Yorkshire compared to the Northeast so have a larger sample on which to base the analysis.

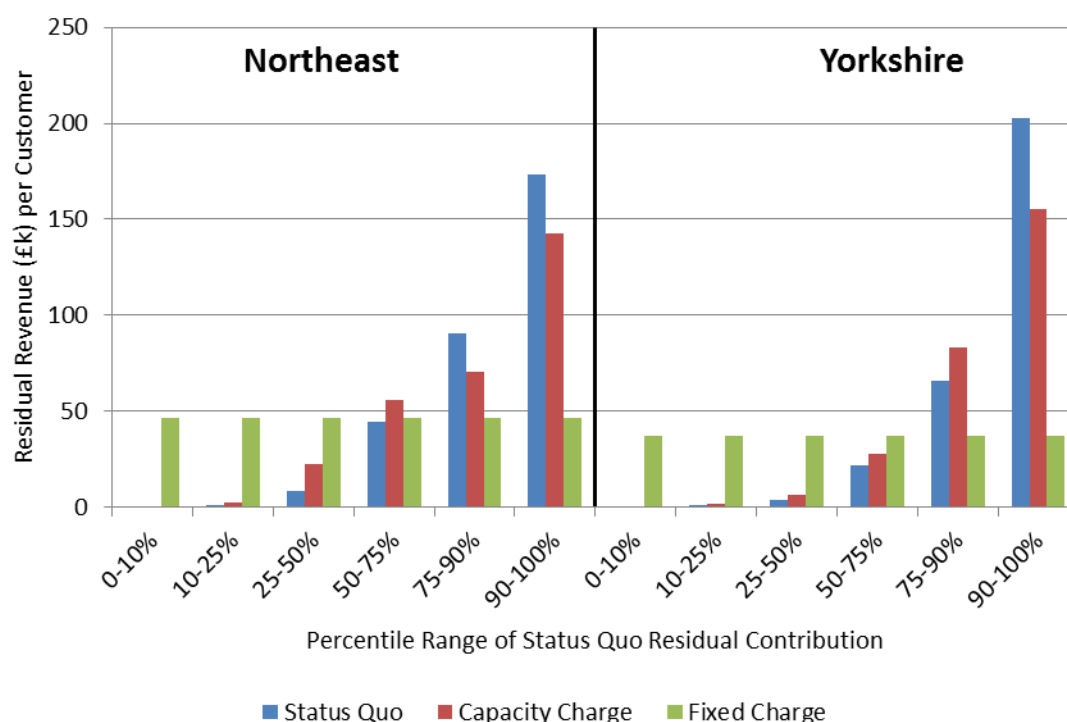


Figure 8 - Impact on EDCM customers of fixed and capacity charge options

68. Capacity charging represents a more equitable means of recovering residual from EDCM customers by avoiding the extreme swings in revenue from a fixed charge. But this still does not take into account the voltage of connection.
69. The most appropriate mechanism of calculating residual charges for EDCM customers would be to notionally split residual revenue by voltage, with each customer's contribution to each voltage based on its contribution to loads at that voltage. This could be determined by net volume or by contribution to system peak(s).
70. The 'customer category for demand scaling' input in the EDCM (also known as the 'point of common coupling' or POCC) is a four digit binary identifier which encodes the voltages at which each customer uses shared assets. For example, a POCC of 1111 reflects that the customer uses shared assets at all EHV voltages; a POCC of 0000 reflects that the customer uses no shared assets (i.e. they connect direct to a GSP). Hence it is straightforward to go a step further than Ofgem proposes and calculate residual charges for each customer based only on the voltages of the network which that customer uses. This would give a more justifiable end result, with each customer's residual contribution reflecting the proportion of the existing network which exists to serve that customer.

Fixed charges for unmetered customers

71. The application of a fixed charge to UMS customers creates a material redistribution of residual revenue within those customer segments. There is a significant range in size of UMS portfolios, from parish councils with a very small inventory through to major city councils with many thousands of connections under a single inventory. Each inventory typically has a single MPAN, hence if a fixed

charge were applied per MPAN all inventories would be subject to the same residual charge regardless of size.

72. In the Northeast and Yorkshire, over 97% of residual revenue from UMS customers is charged for only 10% of MPANs, associated with the largest inventories. Moving to a fixed charge basis would result in a significant decrease in residual contributions for these largest inventories, with the remaining 90% of MPANs associated with much smaller inventories seeing significant increases.
73. The only practical solution for UMS customers is to continue to apply residual charges on a volumetric basis. This will inevitably maintain some of the distortions which the TCR is seeking to remove, but these are small for UMS users given their limited scope to reduce net demand.
74. UMS customers are currently split into five segments, as shown in Table 4:

Tariff Name	Usage Profile	Northeast		Yorkshire	
		MPAN Count	Annual Units (MWh)	MPAN Count	Annual Units (MWh)
NHH UMS Category A	Continuous	687	14,638	447	16,874
NHH UMS Category B	Dusk to Dawn	525	89,104	282	34,152
NHH UMS Category C	Part Night	43	3,089	23	1,265
NHH UMS Category D	Dawn to Dusk	27	1,358	15	800
Pseudo HH Metered	Bespoke*	11	57,231	16	189,247

* Half Hourly profile created

Table 4 - UMS customer segments

75. The residual charge could be set for all five segments as a whole or by individual tariff. The impact of this decision varies between the various options:
 - a. Ofgem's minded to position would result in a different fixed charge for each tariff. Residual revenue would be allocated to each tariff based on net volume and then to customers using each tariff based on the number of MPANs using that tariff.
 - b. Residual revenue could be allocated to the group of all five UMS tariffs as one segment, with a fixed charge for all tariffs calculated based on the total number of MPANs using all UMS tariffs.
 - c. If Ofgem's proposal of allocating to customer segments based on net volumes were maintained but recovered through a unit charge for UMS customers, the same result would be derived regardless of whether the charge is calculated for each tariff or for all five as a group.
76. We consider unit charge recovery (option c) to be the most appropriate, followed by a fixed charge calculated for the group (option b), with a fixed charge calculated for each tariff (option a) our least favoured option.
77. Figure 9 shows residual revenue from category B ('dusk to dawn') UMS customers in both the Northeast and Yorkshire, split into six bands by current residual contributions, with the average

residual contribution per customer in each band shown under the status quo, a unit charge option, a fixed charge by tariff option and a fixed charge by group option¹².

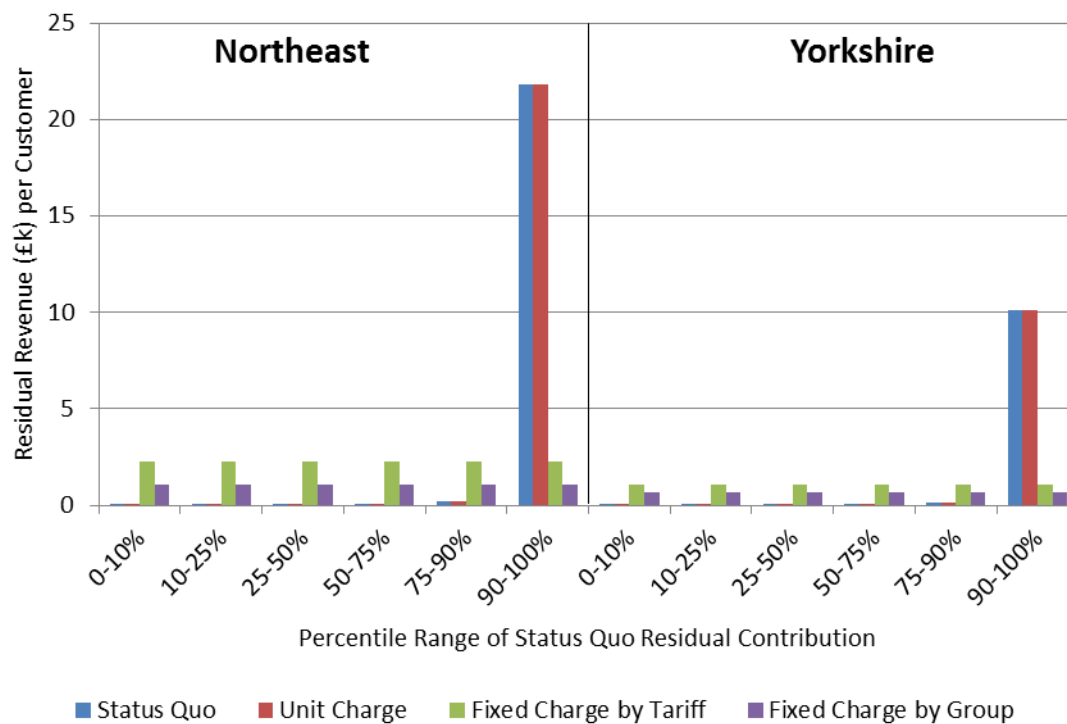


Figure 9 - Impact on Category B UMS customers of fixed and unit charge options

78. The move to a fixed charge option would result in a transfer from high users to low users of £0.8m (91% of the residual contribution from this segment) and £0.2m (89% of the residual contribution from this segment) in the Northeast and Yorkshire respectively. We do not think this level of redistribution is justifiable.

Arbitrary segmentation of domestic customers for the capacity charge option

79. The proposed segmentation of residential customers for the capacity charge option is difficult to justify. If this option is taken forward, we think this is an area which requires further work to ensure that the final position is based on sound analysis.

¹² Similar charts for categories A ('continuous'), C ('part night') and D ('dusk to dawn') are shown in Appendix 2.

Treatment of on-site generation (Q5)

Question 5: Do you agree that similar customers with and without on-site generation should pay the same residual charges? Should both types of users face the same residual charge for their Line Loss Factor Class (LLFC)?

80. A unit of demand reduction (without behind the meter generation) and a unit of demand offset by behind the meter generation have an equivalent impact on the network. In this context we agree that customers within a given segment both with and without on-site generation should make the same contribution to residual revenue.
81. Where demand is co-located with metered generation, the policy position which Ofgem has adopted of only seeking to apply residual charging to '*final demand*' makes the situation more complex. If Ofgem adopts a definition of '*final demand*' as described in paragraph 33 and continues to seek to only apply residual charging to '*final demand*', then it is necessary to determine whether the demand in question is '*final demand*' or '*interim demand*'. If the demand is deemed to be '*interim demand*' then Ofgem's policy suggests residual charges should reduce. As stated in paragraph 33, we disagree with this proposed treatment of '*interim demand*'.

Customer benefits (Q6)

Question 6: Do you know of any reasons why the expected consumer benefits from our leading options might not materialise?

82. We agree with Ofgem that the existing residual charging arrangements are likely to give customers a greater cost reduction for reducing net demand than the cost reduction created for the system. The cost reduction for those users whose behavioural changes are 'over-valued' is funded by remaining consumers. Such distortions are economically inefficient, and correcting them should deliver customer benefits.
83. However, the analysis of residual charges which Ofgem and Frontier have carried out does not reflect Ofgem's proposals. So the conclusions of system modelling carried out on the basis of changing residual charging to those levels is likely to be invalidated by different levels of residual charges which actually materialise.
84. It is not appropriate to consider changes to residual charges in isolation, given Ofgem has recently launched the Access SCR. That SCR has the potential to fundamentally change the signals to which demand and generation users are exposed when accessing the system. As a result, the Access SCR is also highly likely to change the level of residual charging to such an extent that it could render the analysis presented in support of the TCR proposals irrelevant. The Access SCR is likely to implement at least some revised arrangements and it is against that backdrop that any medium- and long-term benefits will be realised. So it is against that backdrop that any benefits must be assessed.

Practical considerations (Q7)

Question 7: Do you agree that our leading options will be more practical to implement than other options?

85. Yes, particularly with reference to smaller users and Ofgem's leading option of fixed charges.
86. The option for banded capacity charges for domestic customers would present significant practical issues. With the data currently available to us, we have no means of determining the level of consumption for individual domestic customers and so no means of allocating customers to capacity bands.
87. As noted in response to question one, there are further practical hurdles to be overcome if Ofgem continues to seek to enable 'interim demand' to be fully exempt from residual charging. But we have suggested an easy-to-implement alternative which will reduce (albeit not remove) the contribution to residual revenue made in respect of 'interim demand' (see paragraph 41).

Banding and customer segmentation (Q8-9)

Question 8: Do you agree with the approaches set out for banding (either LLFC or deeming for agreed capacity)? If not please provide evidence as why different approaches to banding would better facilitate the TCR principles.

88. We have commented on the appropriateness of the use of LLFCs and banding approaches in response to questions four and nine; in summary:
- a. customer segmentation by applicable tariff would be more appropriate than by LLFC (see response to question nine);
 - b. aggregation of several tariffs could be considered (see response to question nine);
 - c. the use of LLFCs or applicable distribution tariffs for segmentation of transmission residuals may be overly complex (see response to question nine);
 - d. we do not think banding by LLFC is sufficient for customer segments for larger users as it does not recognise the large variance between customers within those segments (see response to question four, paragraph 53 onwards); and
 - e. there does not appear to be any justification for the selection of the capacity bands under the agreed capacity option (see response to question four, paragraph 79).

Question 9: Do you agree that LLFCs are a sensible way to segment residual charges? If not, are there other existing classifications that should be considered in more detail?

89. We comment on four distinct areas in turn, namely:
- a. alternatives to segmenting by LLFC which may be more appropriate in the CDCM and EDCM respectively;

- b. mechanisms by which residual revenue can be allocated to segments once the segments have been identified; and
- c. the use of distribution LLFCs for segmentation of transmission residual charges.

Segmentation by LLFC in the CDCM

90. For our customers, segmentation by LLFC achieves the same end result as segmenting by applicable CDCM tariff. This is because we have a one-to-one mapping between LLFC and CDCM tariff. For other DNOs, segmentation by LLFC would not achieve this result, and would give an arbitrary sub-segmentation within CDCM tariff groups based on legacy arrangements which dictated the appropriate LLFC prior to the introduction of the CDCM. It may also create the ability for customers to change their LLFC (to a different LLFC with the same applicable tariff) in order to reduce their exposure to residual charges.
91. So our preference for CDCM customers is not to segment by LLFC, but rather to segment by applicable tariff. That is, when determining the total residual revenue to be recovered from (for example) domestic unrestricted customers, all customers to which the domestic unrestricted tariff has been assigned should be considered in aggregate. This aligns to the modelling work Frontier has carried out, which has determined a residual contribution for each CDCM tariff rather than each LLFC.
92. The 'related MPAN' tariffs in the CDCM are part of a two rate tariff structure. Typically, MPANs to which the related MPAN tariffs have been assigned are paired with a second MPAN, to which the 'domestic unrestricted' tariff has been assigned. Consumption is allocated to one or other of the MPANs depending on time of use (e.g. the related MPAN will be used in the 'off-peak' period of an economy 7 structure) and so attracts the appropriate rate for usage at that time.
93. The related MPAN tariffs are paired with an MPAN which already attracts a fixed charge, so it would be inappropriate for such customers to pay a second fixed charge associated with the related MPAN. Hence the fixed charge for the related MPAN tariff should continue to be set to zero, and consumption associated with the related MPAN tariff aggregated with that associated with the unrestricted tariff when allocating residual revenue to customer segments. Such aggregations are already carried out in the CDCM so this suggestion will not cause practical issues.
94. We also think Ofgem should consider aggregating domestic customers and small non-domestic customers more widely (i.e. those to whom the relevant 'unrestricted', 'two-rate', 'off-peak (related MPAN)' and 'LV network' tariffs have been assigned). Segmentation by applicable CDCM tariffs results in these customers being separated into individual different segments. This creates a risk that each faces different residual charges. This risks residual charges creating distortions driven by the ability of a user to change their residual contribution by moving between segments. For example, residual charges could incentivise non-half-hourly settlement on the 'domestic unrestricted' tariff over half-hourly settlement on the 'LV network domestic' tariff, or use of the 'unrestricted' tariff in favour of the 'two-rate' equivalent. Creating a larger customer segment which includes all four of these tariffs for domestic customers and a similar customer segment which

includes all of these tariffs for small non-domestic customers would remove any such distortions and ensure that all domestic customers contribute equally to residual charges. DCP 268 '*DUoS Charging Using HH Settlement Data*' (which is currently with Ofgem for decision) would achieve this segmentation by applying the same three-rate tariff to all domestic customers and the same three-rate tariff to all small non-domestic customers.

95. We have noted in response to question four that segmentation by tariff may not be appropriate for UMS customers (paragraph 71 onwards).

Segmentation by LLFC in the EDCM

96. Our interpretation of Ofgem's minded to position for EDCM customers is not to segment customers by LLFC. EDCM customers typically have a unique LLFC for that customer alone because site-specific loss factors and site-specific tariffs are calculated for each customer. Hence segmentation by LLFC would result in effectively no segmentation at all. As stated in paragraph 63, it is not clear whether Ofgem intends to treat EDCM customers as a single segment or to segment by voltage of connection. We favour segmenting by POCC (as noted in paragraph 70).

Allocation of residual revenue to segments

97. Once the segmentation has been applied, we think there are alternative approaches for allocating residual revenue to customer segments which will better meet the 'fairness' principle, particularly in respect of the justifiability of the charges calculated. This should aim to determine the proportion of the network which exists to serve by each customer segment, in order to allocate residual revenues according to those proportions.
98. The mechanism selected by Ofgem determines the proportion of the network which exists to serve each customer segment based on the net volumes on the network for each customer segment. Customer segments which have 'peaky' load profiles and so low net volume when considered in proportion to peak volume benefit from this approach at the expense of others.
99. A more accurate means of determining the proportion of the network which exists to serve each customer segment would be use each customer segment's contribution to peaks on the system. This information is readily available for CDCM customers (using the 'load profile' and 'volume forecast' inputs to the CDCM), albeit based on the average of activity in the single half hour of peak in the most recent three years. Ofgem may wish to consider expanding this period beyond a single half hour to reduce the potential for volatility and any loss of cost-reflectivity which could be caused by anomalous activity in one period by considering multiple peaks or smoothing over a number of years.

The use of distribution tariffs for segmenting transmission residual charges

100. Segmenting customers by their applicable distribution tariff may create an unnecessarily complex transmission residual charging mechanism. The impact of customers connected to the lower

voltages of the distribution network on the transmission network does not depend on the voltage of connection, nor is it heavily dependent on the type of customer in question.

101. We would suggest a simple mechanism be deployed, which could instead segment into two groups of customers:
- a. larger customers for whom an explicit agreed capacity exists, with charges based on agreed capacity; and
 - b. smaller customers with no explicit capacity agreement, with charges based on a fixed charge.
102. As with distribution residual charging, it is important that residual revenue is allocated to each of these segments on a consistent basis even if the recovery method within each segment is different.

5. Responses to questions on quantifying the benefits of reform

Distributional and wider system impacts (Q10)

Question 10: Do you agree with the conclusions we have drawn from our assessment of the distributional modelling, the distributional impacts of the options, our wider system modelling and how we have interpreted the wider system modelling.

103. We cannot comment at this stage as we think Ofgem has not accurately modelled the proposals. We have commented further in response to question two and in response to question four (paragraph 53 onwards).

6. Responses to questions on remaining embedded benefits

Reform of embedded benefits (Q11-13)

Question 11: Do you agree with our proposed approach to the reform of the remaining non-locational Embedded Benefits?

104. The inclusion of embedded benefits in the TCR is unfortunate. It has led to a less 'targeted' review and risks changes to residual charges being disrupted by contentious changes to embedded benefits.
105. We disagree with the clear distinction which Ofgem makes between residual and forward looking charges (see paragraph 11 of this response) for DUoS and TNUoS charges. But this distinction is even less clear for BSUoS charges. The ESO-led BSUoS task force should be allowed to conduct a thorough investigation of the options for reform of BSUoS based on a stable status quo, which may lead to reform in due course.

Question 12: Do you agree with our proposal not to address any other remaining Embedded Benefits at this stage? Which of the embedded benefits do you think should be removed as outlined in xx? Please state your reasoning and provide evidence to support your answer.

106. As stated in response to question 11, the TCR should focus on reforming TNUoS and DUoS residual charging. Hence we agree with the proposal to not further complicate this with a review of other remaining embedded benefits.

Question 13: Are there any reasons we have not included that mean that the remaining Embedded Benefits should be maintained?

107. As noted in response to question 11, we think the ESO-led BSUoS task force should be allowed to investigate all aspects of BSUoS and propose changes rather than the TCR pre-empting its considerations.

7. Responses to questions on transitional arrangements

Implementation approach (Q14)

Question 14a: Do you agree with our proposed approach to transitional arrangements for reforms to transmission and distribution residual charges?

108. There are three main areas which should be considered, namely:
- a. the need to maintain the 15 months' notice period for a change to DUoS charges unless there is a very clear justification to not do so;
 - b. coordination with the Access SCR; and
 - c. the complexities of a phased implementation.

15 months' notice

109. We welcome the change in Ofgem's position to implement in April 2021 rather than April 2020. It is important that distributors give 15 months' notice of changes to charges, particularly for such a significant change.
110. However, incorporating the TCR reform into charges which will apply from April 2021 will remain challenging. Every aspect of the change process will need to be efficiently managed. Working back from implementation in April 2021, an Ofgem direction to raise industry changes will be required by the end of May 2019. This timetable will only be feasible if that direction is very clear on the change which should be raised, ideally with some work having been progressed on the detail of the change proposal itself in advance of this date, to enable a working group to quickly finalise the change. This is based on the periods set out in Table 5 which will only be possible if all parties are fully committed to the progression of the changes.

Date Period	Actions Needed
03/06/19 – 09/08/19 (10 weeks)	Working group formed (1 week); working group discussion of change, development of legal text and preparation of industry consultation (3 weeks); industry consultation (3 weeks); working group development of the solution following consultation responses and preparation of change report (3 weeks).
12/08/19 – 30/08/19 (3 weeks)	Change report issued for DCUSA Party voting.
02/09/19 – 27/09/19 (4 weeks)	Ofgem decision period, although we note Ofgem has taken many months to make decisions on recent DCUSA changes.
30/09/19 – 31/12/19 (3 months)	Period required under DCUSA between approval of a change and the date on which notice must be provided for charges which incorporate that change.
01/01/20 – 31/03/21 (15 months)	Period of notice required under DCUSA for a change to use of system charges.

Table 5 - Timetable for implementation of DCUSA changes

111. If this challenging timetable cannot be met, implementation should move back to April 2022. The benefits derived from continuing to implement in April 2021 would be more than offset by the damage done by undermining the 15 months' notice period for such a material change to charges.

Alignment with the Access SCR

112. These reforms should be aligned with the Access SCR in April 2023. This approach will:

- avoid a 'see-saw' effect where the TCR reform takes some users' tariffs in one direction, only to be reversed by the Access SCR; and
- give certainty to customers on the impacts of the TCR reforms, allowing time for users to adapt their usage behaviours in anticipation of the changes.

113. The delay to implementation of the TCR will result in a delay to the resolution of the distortions Ofgem has identified. But the benefits identified have not taken into account another step change in charges caused by the Access SCR reforms and so the reduction in benefits from delaying implementation has not been properly assessed.

Complexities of a phased implementation approach

114. The only appropriate phased implementation would be to implement for transmission sooner than distribution. This would resolve the bigger issue which relates to TNUoS charges promptly without undermining 15 months' notice of DUoS charges. Any other transitional approach would result in overly complex arrangements during the transition phase.

Question 14b: Do you agree with our proposed approach to transitional arrangements for reforms to non-locational Embedded Benefits?

115. As stated in response to question 11, we think the ESO-led BSUoS task force should be allowed to investigate all aspects of BSUoS and propose changes rather than the TCR pre-empting its considerations.

8. Responses to questions on Ofgem's minded to position

The minded to decision (Q15)

Question 15: Do you agree with our minded to decision set out? If not please state your reasoning and provide evidence to support your answer.

116. We support the recovery of residual revenue on a fixed charge basis. But there are a number of areas where we think further development is required to the proposed solution, most notably:
- a. fixed charges for larger customers which do not reflect the variability in size of customers within those segments (see response to question four); and
 - b. the proposed allocation of residual revenue to customer segments which is not sufficiently justifiable (see response to question two).
117. We have outlined our proposal for how residual charges should be calculated in the section starting at paragraph 12 which addresses these issues.
118. It is not clear from the consultation what the minded to decision is in some areas, most notably:
- a. charges for customers not using all voltage levels (see response to question three); and
 - b. the distinction between 'final demand' and other demand (see response to question one).
119. Ofgem needs to clarify its position on these points, and update its modelling to accurately reflect the proposed solution.

Practical considerations (Q16)

Question 16: For our preferred option do you think there are practical consideration or difficulties that we have not taken account of? Please provide evidence to support your answer.

120. Not in relation to the core elements of Ofgem's proposals or our alternatives.
121. Further work is required on the issue of 'final demand'. As noted in response to question one, 'final demand' has not been adequately defined and justification has not been provided for exempting it from residual charges. If a definition and justification can be provided, practical issues will remain with a policy which requires different demands behind the same meter to be disaggregated for charging purposes.
122. The application of fixed charges to smaller customers and capacity charges to larger customers does not change tariff structures for distribution charging so presents no practical issues. This is not the case for the ESO, so the costs of requiring the ESO to levy fixed or capacity charges should be included in the final impact assessment.

9. Appendix 1

Impacts of our preferred option on CDCM customer segments for all licensees

Residual Revenue Allocation Options (Domestic)	Status Quo	Our Interpretation of Ofgem's proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
ENW	42.3	46.7	4.5	10.6%	55.7	13.4	31.7%
NPg (NEEB)	51.6	57.0	5.4	10.5%	68.0	16.4	31.7%
NPg (YELG)	69.1	78.6	9.5	13.8%	87.9	18.8	27.2%
SP (MANW)	57.2	60.3	3.1	5.4%	69.0	11.8	20.7%
SP (SPOW)	75.0	80.7	5.7	7.7%	94.2	19.2	25.6%
SSE (SEPD)	53.5	56.8	3.3	6.2%	70.5	17.0	31.8%
SSE (SHEPD)	40.1	42.5	2.4	6.0%	45.8	5.7	14.3%
UKPN (EPN)	14.0	15.4	1.4	10.0%	18.4	4.3	30.8%
UKPN (LPN)	-19.9	-22.1	-2.2	11.1%	-28.4	-8.5	43.0%
UKPN (SPN)	31.9	33.7	1.8	5.6%	42.3	10.4	32.5%
WPD (EMEB)	79.7	93.3	13.7	17.2%	107.7	28.0	35.2%
WPD (MIDE)	86.5	108.5	22.0	25.5%	128.8	42.3	48.8%
WPD (SWAE)	46.1	50.9	4.8	10.4%	65.0	18.9	41.1%
WPD (SWEB)	74.6	83.5	8.8	11.8%	97.8	23.2	31.1%
Total	701.8	786.0	84.2	12.0%	922.7	220.9	31.5%

Table 6 - Impact of residual allocation options on domestic customers in all licensees

Residual Revenue Allocation Options (Small non-Domestic)	Status Quo	Our Interpretation of Ofgem's proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
ENW	13.9	15.4	1.5	10.6%	14.5	0.6	4.2%
NPg (NEEB)	17.4	19.2	1.8	10.5%	19.9	2.5	14.5%
NPg (YELG)	23.0	26.1	3.2	13.8%	30.3	7.4	32.2%
SP (MANW)	21.2	22.4	1.1	5.4%	22.9	1.7	7.8%
SP (SPOW)	27.5	29.6	2.1	7.7%	30.6	3.1	11.4%
SSE (SEPD)	18.2	19.3	1.1	6.2%	17.8	-0.4	-2.3%
SSE (SHEPD)	15.0	15.9	0.9	5.9%	16.8	1.9	12.4%
UKPN (EPN)	4.8	5.3	0.5	10.0%	4.8	-0.0	-0.4%
UKPN (LPN)	-10.5	-11.7	-1.2	11.1%	-10.5	0.0	-0.1%
UKPN (SPN)	10.7	11.3	0.6	5.6%	9.2	-1.5	-13.9%
WPD (EMEB)	28.5	33.4	4.9	17.1%	34.6	6.1	21.2%
WPD (MIDE)	30.3	38.0	7.7	25.3%	34.8	4.5	14.8%
WPD (SWAE)	16.9	18.7	1.8	10.4%	14.3	-2.6	-15.4%
WPD (SWEB)	29.7	33.2	3.4	11.6%	31.0	1.3	4.4%
Total	246.6	276.0	29.4	11.9%	271.1	24.5	9.9%

Table 7 - Impact of residual allocation options on small non-domestic customers in all licensees

Residual Revenue Allocation Options (LV HH Metered)	Status Quo	Our Interpretation of Ofgem's proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
ENW	13.8	15.2	1.5	10.6%	13.6	-0.1	-1.0%
NPg (NEEB)	24.5	27.1	2.6	10.5%	22.1	-2.4	-9.8%
NPg (YELG)	29.6	33.6	4.1	13.8%	30.5	0.9	3.2%
SP (MANW)	12.0	12.6	0.6	5.4%	11.7	-0.2	-1.7%
SP (SPOW)	34.8	37.5	2.7	7.7%	33.3	-1.5	-4.3%
SSE (SEPD)	28.8	30.6	1.8	6.2%	24.4	-4.4	-15.4%
SSE (SHEPD)	20.6	21.9	1.2	6.0%	19.5	-1.1	-5.5%
UKPN (EPN)	4.9	5.4	0.5	10.0%	4.5	-0.4	-9.1%
UKPN (LPN)	-17.6	-19.5	-1.9	11.1%	-17.2	0.3	-1.9%
UKPN (SPN)	13.8	14.6	0.8	5.6%	10.5	-3.3	-23.8%
WPD (EMEB)	30.5	35.8	5.2	17.2%	31.5	1.0	3.2%
WPD (MIDE)	26.6	33.3	6.8	25.5%	27.2	0.6	2.4%
WPD (SWAE)	19.9	22.0	2.1	10.4%	17.2	-2.7	-13.6%
WPD (SWEB)	17.0	19.0	2.0	11.8%	15.2	-1.7	-10.3%
Total	259.2	289.0	29.8	11.5%	244.1	-15.1	-5.8%

Table 8 - Impact of residual allocation options on LV HH Metered customers in all licensees

Residual Revenue Allocation Options (LV Sub HH Metered)	Status Quo	Our Interpretation of Ofgem's proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
ENW	6.9	6.6	-0.3	-4.0%	5.3	-1.5	-22.5%
NPg (NEEB)	5.0	4.0	-0.9	-18.8%	2.8	-2.1	-42.6%
NPg (YELG)	2.7	2.2	-0.5	-18.2%	1.7	-1.0	-37.2%
SP (MANW)	16.3	15.6	-0.7	-4.6%	12.7	-3.7	-22.5%
SP (SPOW)	2.4	2.1	-0.3	-12.3%	1.6	-0.8	-32.9%
SSE (SEPD)	1.5	1.3	-0.2	-14.7%	1.1	-0.4	-28.9%
SSE (SHEPD)	1.6	1.3	-0.4	-22.6%	1.0	-0.6	-37.3%
UKPN (EPN)	0.9	0.7	-0.2	-20.7%	0.5	-0.4	-45.3%
UKPN (LPN)	-0.9	-0.8	0.1	-14.5%	-0.6	0.3	-31.6%
UKPN (SPN)	0.2	0.2	-0.0	-17.6%	0.1	-0.1	-54.6%
WPD (EMEB)	1.9	1.6	-0.4	-18.5%	1.4	-0.6	-29.1%
WPD (MIDE)	1.5	1.1	-0.4	-26.0%	1.1	-0.5	-30.1%
WPD (SWAE)	0.8	0.7	-0.2	-20.4%	0.5	-0.3	-40.0%
WPD (SWEB)	9.8	7.6	-2.3	-23.0%	5.6	-4.2	-42.6%
Total	50.7	44.1	-6.6	-13.0%	34.8	-15.9	-31.4%

Table 9 - Impact of residual allocation options on LV Sub HH Metered customers in all licensees

Residual Revenue Allocation Options (HV HH Metered)	Status Quo	Our Interpretation of Ofgem's proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
ENW	26.0	18.8	-7.3	-27.9%	13.3	-12.8	-49.1%
NPg (NEEB)	28.0	19.0	-9.0	-32.3%	13.0	-15.1	-53.7%
NPg (YELG)	52.4	35.9	-16.5	-31.6%	25.8	-26.7	-50.9%
SP (MANW)	23.1	18.8	-4.3	-18.5%	13.4	-9.8	-42.2%
SP (SPOW)	43.7	33.3	-10.5	-24.0%	23.6	-20.1	-46.0%
SSE (SEPD)	22.7	16.6	-6.0	-26.7%	10.7	-12.0	-52.9%
SSE (SHEPD)	12.2	8.0	-4.2	-34.6%	6.0	-6.2	-50.8%
UKPN (EPN)	6.3	4.1	-2.2	-35.1%	2.7	-3.6	-56.8%
UKPN (LPN)	-17.8	-12.6	5.2	-29.4%	-9.6	8.2	-45.9%
UKPN (SPN)	9.9	6.8	-3.1	-31.7%	4.2	-5.7	-57.4%
WPD (EMEB)	65.3	41.4	-23.9	-36.6%	29.8	-35.5	-54.4%
WPD (MIDE)	75.8	38.9	-36.9	-48.6%	27.6	-48.2	-63.6%
WPD (SWAE)	25.5	16.8	-8.7	-34.0%	11.4	-14.0	-55.1%
WPD (SWEB)	33.3	21.0	-12.2	-36.8%	14.1	-19.2	-57.7%
Total	406.5	266.9	-139.6	-34.4%	185.8	-220.7	-54.3%

Table 10 - Impact of residual allocation options on HV HH Metered customers in all licensees

Residual Revenue Allocation Options (Unmetered)	Status Quo	Our Interpretation of Ofgem's proposals			Loss Adjusted Contribution to System Peak		
		Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)	Allocation (£m)	Variance to Status Quo (£m)	Variance to Status Quo (%)
ENW	1.4	1.5	0.1	10.6%	1.9	0.5	35.7%
NPg (NEEB)	1.7	1.9	0.2	10.5%	2.4	0.7	39.6%
NPg (YELG)	2.3	2.7	0.3	13.8%	2.9	0.6	25.3%
SP (MANW)	2.3	2.4	0.1	5.4%	2.4	0.1	5.7%
SP (SPOW)	3.3	3.6	0.3	7.7%	3.4	0.1	3.0%
SSE (SEPD)	1.3	1.3	0.1	6.2%	1.6	0.3	23.3%
SSE (SHEPD)	1.5	1.6	0.1	6.0%	1.9	0.4	23.3%
UKPN (EPN)	0.3	0.4	0.0	10.0%	0.5	0.1	41.8%
UKPN (LPN)	-0.6	-0.7	-0.1	11.1%	-0.9	-0.3	41.8%
UKPN (SPN)	0.8	0.8	0.0	5.6%	1.0	0.2	27.7%
WPD (EMEB)	2.5	3.0	0.4	17.2%	3.5	1.0	38.0%
WPD (MIDE)	3.2	4.0	0.8	25.5%	4.5	1.3	41.2%
WPD (SWAE)	1.7	1.9	0.2	10.4%	2.5	0.8	43.4%
WPD (SWEB)	1.7	1.9	0.2	11.8%	2.4	0.6	36.1%
Total	23.6	26.4	2.8	12.0%	30.0	6.4	27.2%

Table 11 - Impact of residual allocation options on unmetered customers in all licensees

123. Figure 10 is a graphical representation of the allocation of residual revenue to customer segments under each of the three options for all licensees.

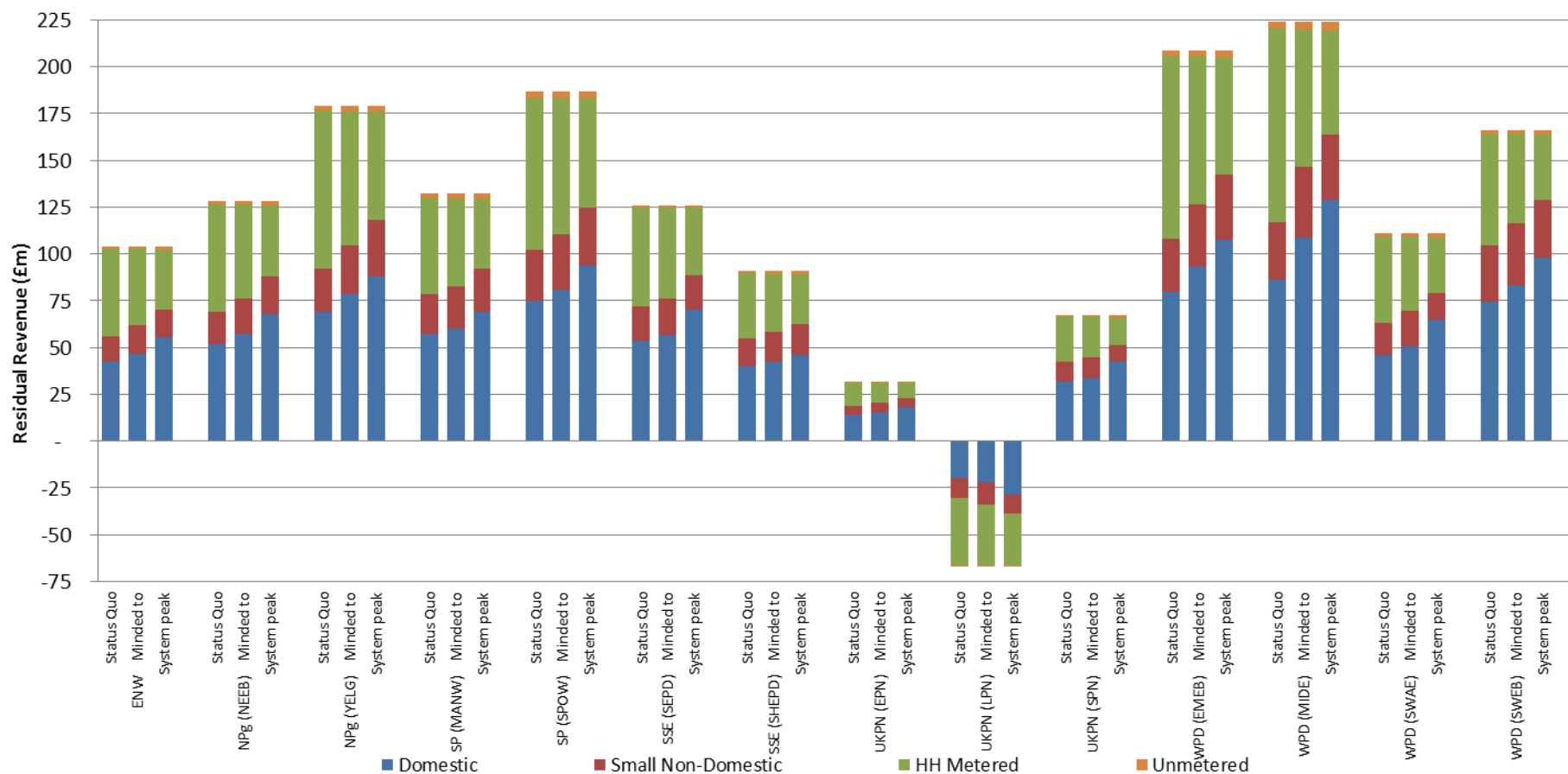


Figure 10 - Residual allocation to customer segments under three options

10. Appendix 2

Question four charts – impacts on CDCM customer segments for larger users

124. Figure 11, Figure 12 and Figure 13 show the distribution of annual residual charges for HV HH metered customers in the Northeast, LV HH metered customers in Yorkshire and HV HH metered customers in Yorkshire respectively.

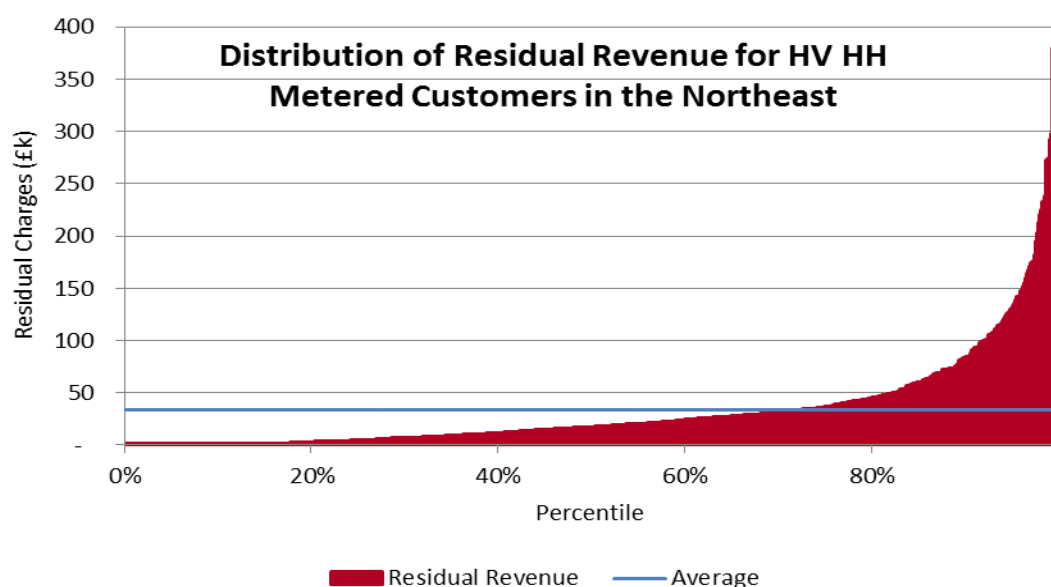


Figure 11 - Annual residual charges for HV HH metered customers in the Northeast

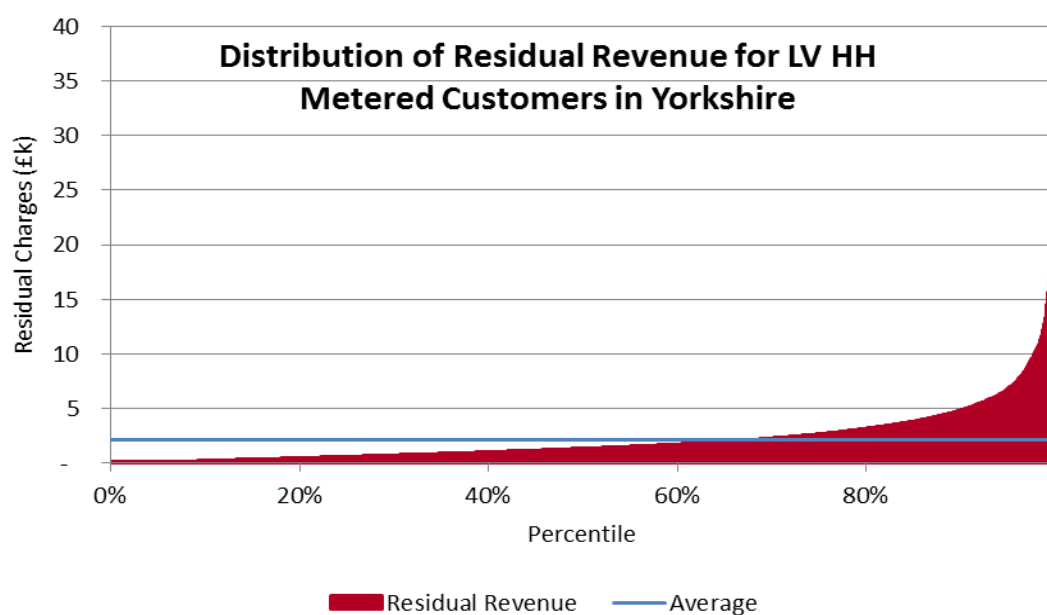


Figure 12 - Annual residual charges for LV HH metered customers in Yorkshire

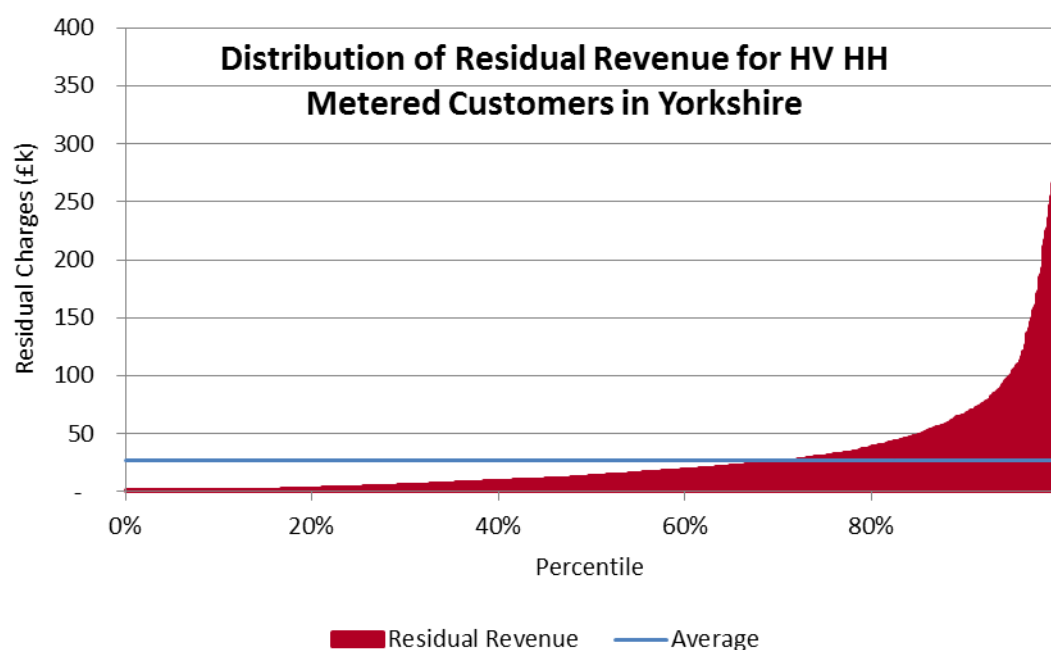


Figure 13 - Annual residual charges for HV HH metered customers in Yorkshire

125. Figure 14, Figure 15 and Figure 16 show the average capacity usage of HV HH Metered customers in the Northeast, LV HH Metered customers in Yorkshire and HV HH Metered customers in Yorkshire respectively.

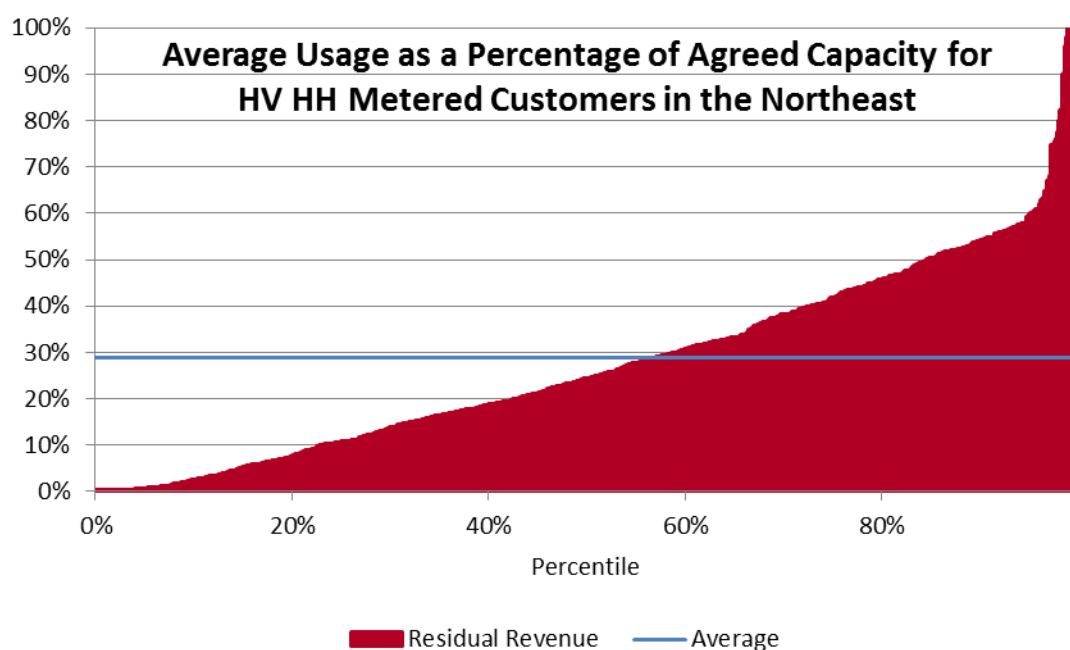


Figure 14 - Capacity usage by HV HH Metered customers in the Northeast

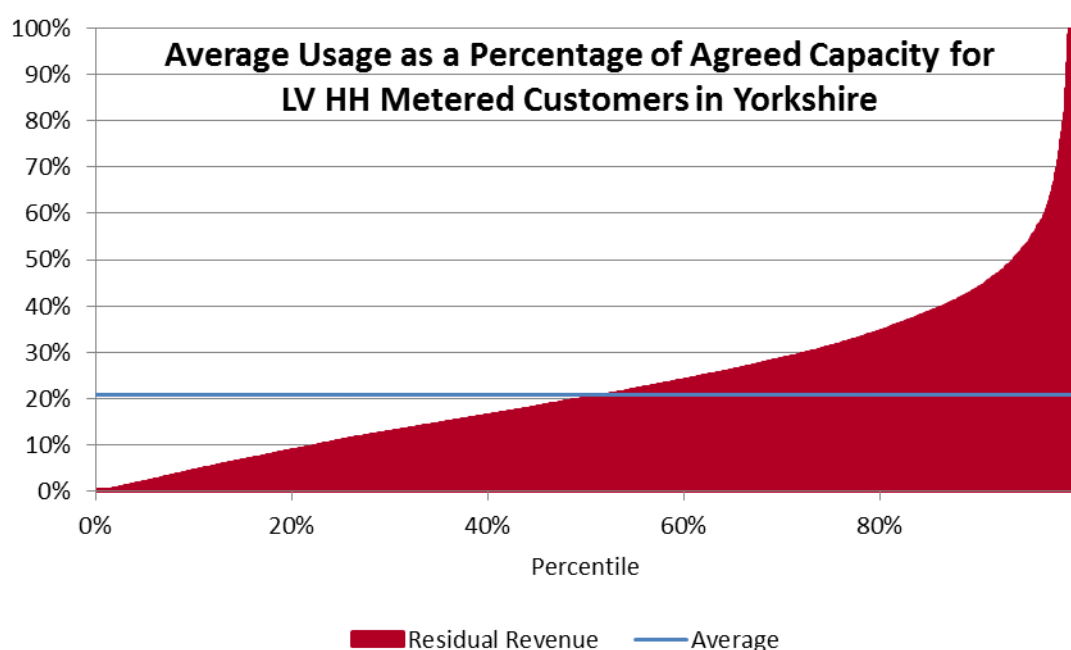


Figure 15 - Capacity usage by LV HH Metered customers in Yorkshire

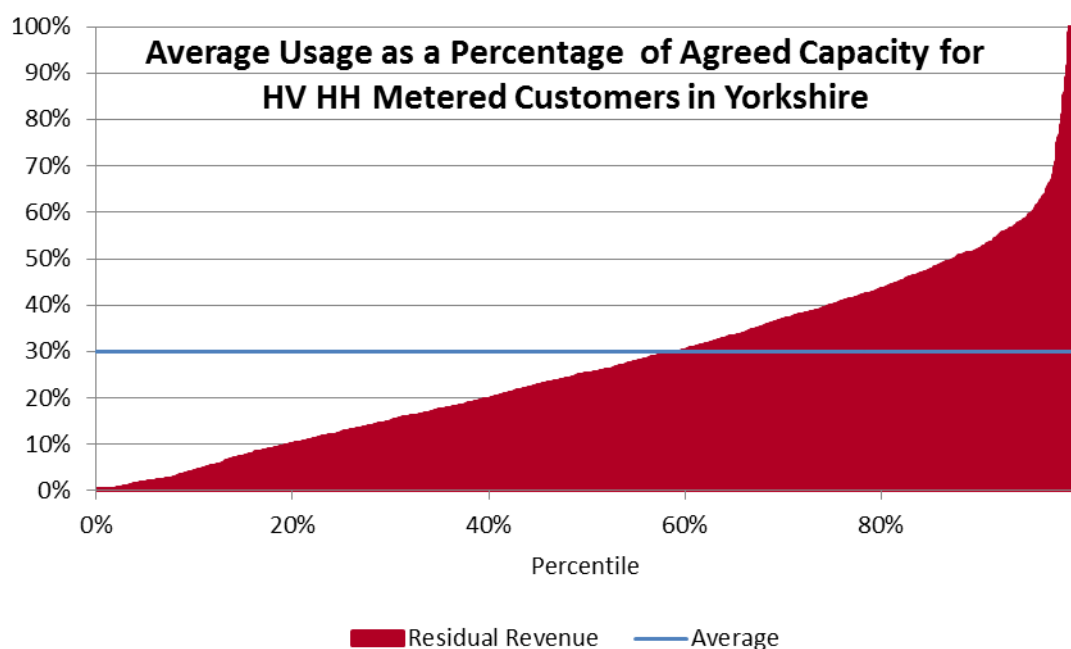


Figure 16 - Capacity usage by HV HH Metered customers in Yorkshire

126. Figure 17 shows the impact on HV HH Metered customers in both the Northeast and Yorkshire, split into six bands by current residual contributions, with the average residual charge per customer in each band shown under the status quo, a fixed charge option and a capacity charge option.

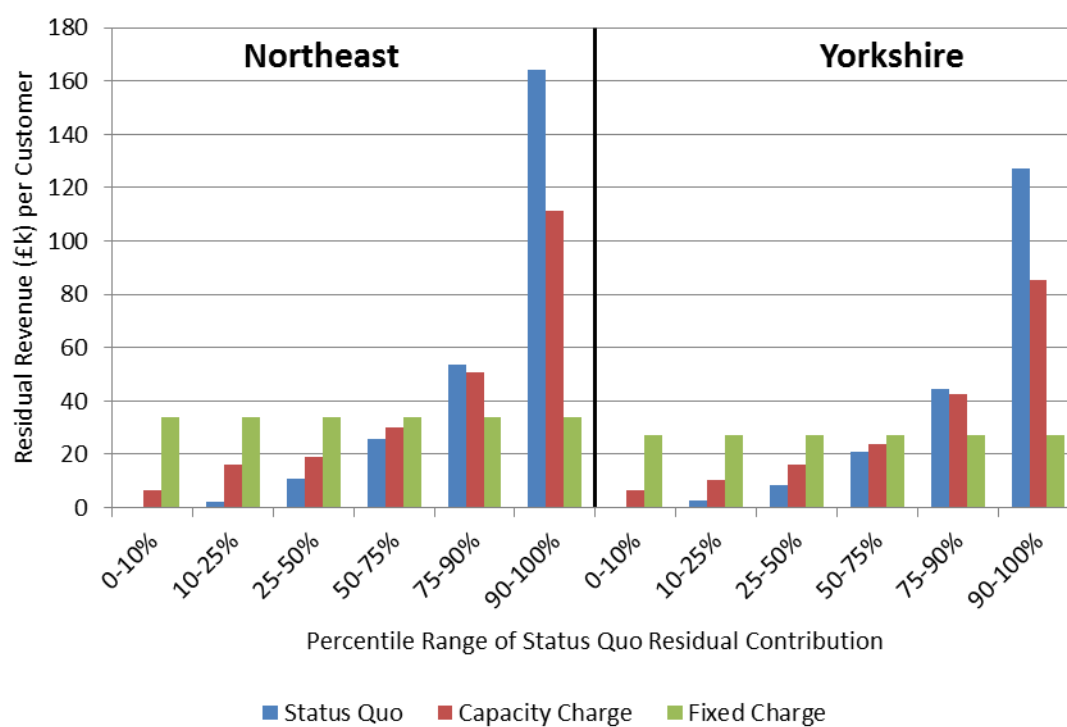


Figure 17 - Impact on HV HH Metered customers of fixed and capacity charge options

Question four charts – impacts on EDCM customers

127. Figure 18 shows the distribution of residual charges for EDCM customers in the Northeast.

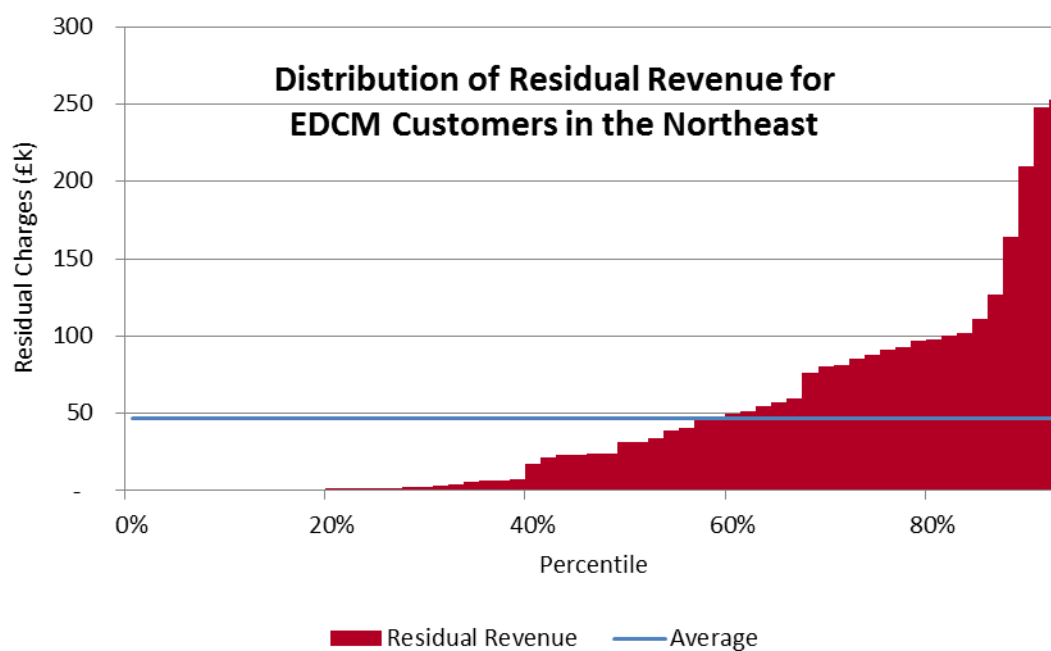


Figure 18 - Distribution of residual charges for EDCM customers in the Northeast

Question four charts – impacts on UMS customers

128. Figure 19, Figure 20 and Figure 21 show the impacts on UMS customers in categories A ('continuous'), C ('part night') and D ('dusk to dawn') respectively.

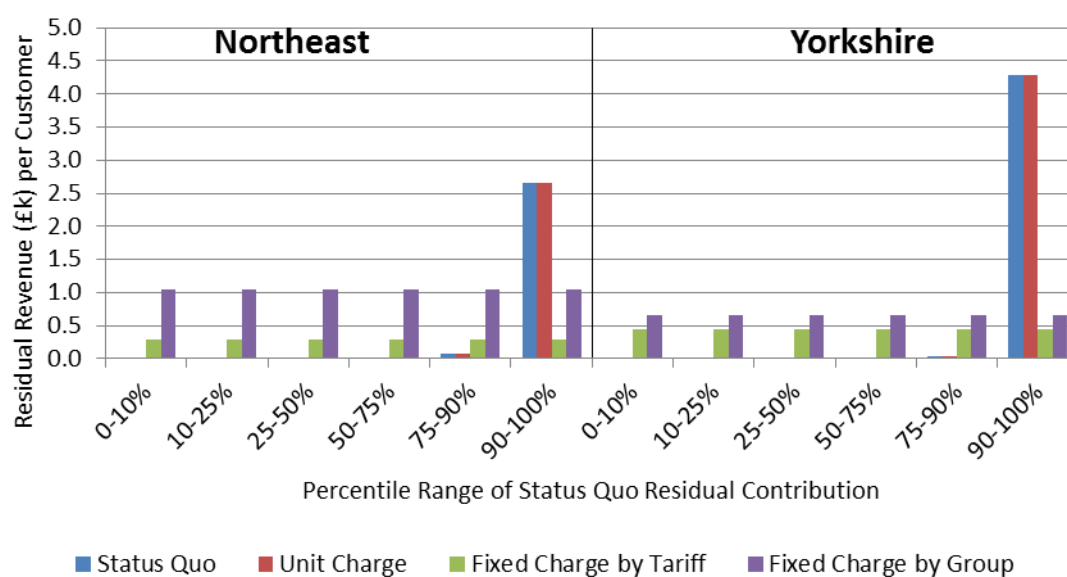


Figure 19 - Impact on Category A UMS customers of fixed and unit charge options

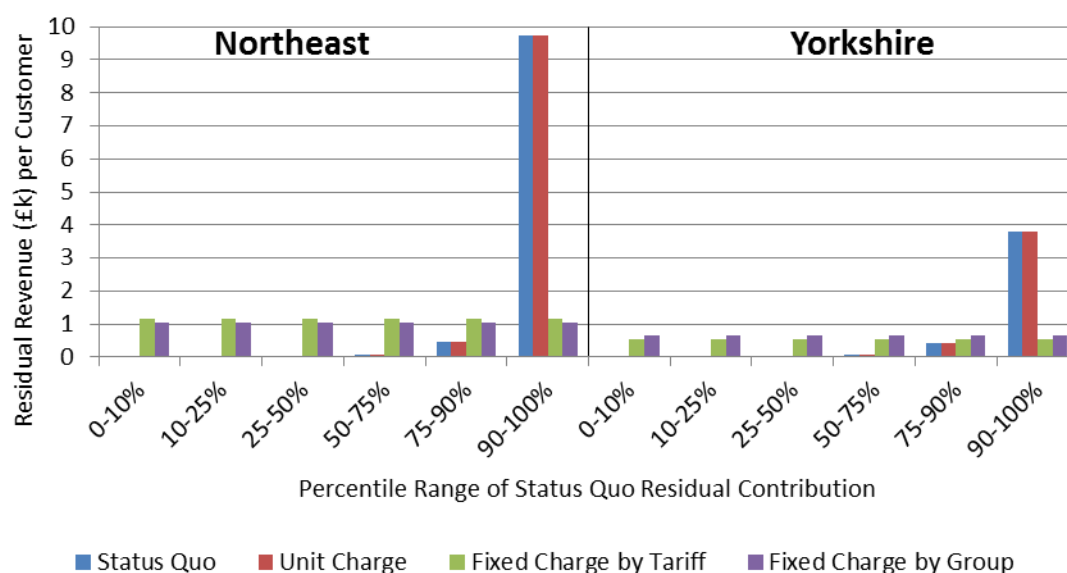


Figure 20 - Impact on Category C UMS customers of fixed and unit charge options

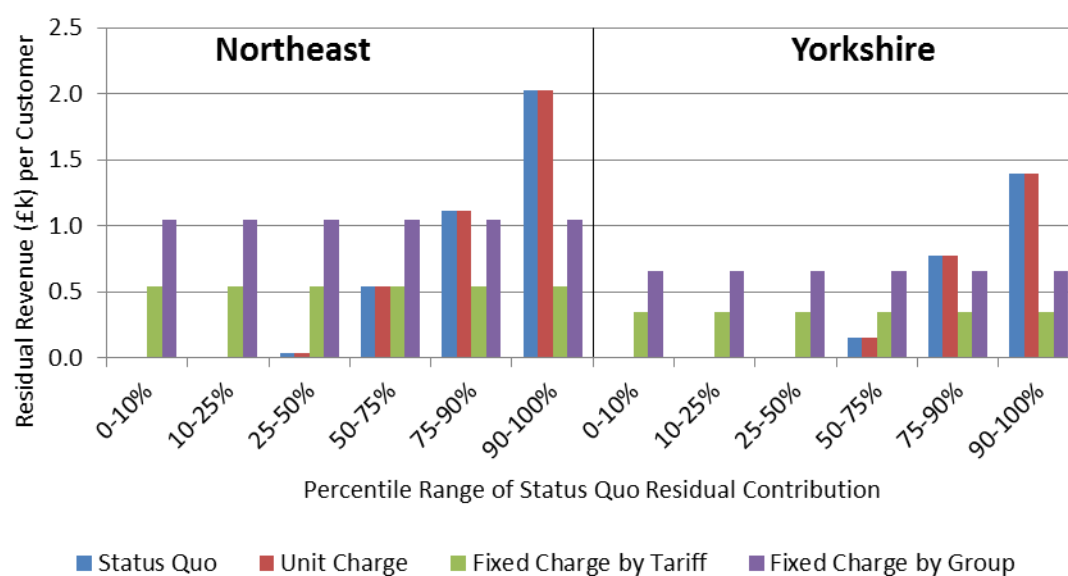


Figure 21 - Impact on Category D UMS customers of fixed and unit charge options