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Dear Judith

Targeted Charging Review

Thank you for the opportunity to respond to the above consultation. We are pleased to contribute to Ofgem's consideration of a Significant Code Review to look at network charging. This response is on behalf of UK Power Networks' three licence holding companies: Eastern Power Networks plc, London Power Networks plc, and South Eastern Power Networks plc.

Summary

In our review of network charging issues, we have identified the following matters related to network charging that require some form of ongoing consideration:

- The potential for undue avoidance of transmission 'Triad' charges
- The potential for charging distortions between the transmission and distribution boundary
- The allocation of network costs to generation and storage
- Promoting flexibility and efficient use of the networks and reducing long-term costs

In order that a manageable and targeted Significant Code Review can be completed, that delivers improvements within a reasonable time frame, we recommend there is a focus on issues that can be evidenced today, including:

- The impacts of the transmission charging approach especially on distribution customers
- The treatment of network investment costs for generation at distribution, if not directly incurred by the connectees
- The fair recovery of network costs from storage, given that no generation residual charge is levied at distribution

There is less evidence of an impact of fixed cost avoidance on distribution charging methodologies where generation output is not 'netted off' against consumption in the same way, as is the case at transmission for supplier volumes. There are also a number of initiatives in hand that will reduce the potential for consumer activity to inappropriately reward demand reduction, including:

- The increased use of multi-rate unit charges to accompany half hourly metering
- An expected mandating of half hourly settlement for all customers as part of the Smart Metering roll-out

While there is the potential for ‘fixed cost avoidance’ from the penetration of solar generation on consumers’ premises, there needs to be a debate on the wider policy issues concerning the use of fixed and variable charges to promote flexibility in delivering an efficient, smart energy system.

We support a policy review, as part of a work programme led by the proposed Charging Coordination Group, to look at how tariff structures can support the development of flexibility and the efficient development of the future energy system. This could consider the relationship between fixed and variable charges and direct payments for services and the distributional effects implicit in either approach. However, as there is limited data available with which to propose fundamental changes to distribution codes at this time, this might be best explored separately from any code review aimed at addressing the issues seen today.

Drivers for change

The network companies are facing significant change as we move towards a low carbon energy future. In recent years we have experienced a sea change in low carbon generation; we are now starting to see increasing use of smart technology and a future that will see the electrification of transport and increasing use of electric heating.

Technology will enable more elastic demand, and this is expected to facilitate flexible, efficient use of the networks, as demand can be shifted to avoid peaks or used to absorb excesses of generation. Figure 1 below illustrates the many areas of change affecting network usage that underpin the overall objective of reducing carbon emissions in an affordable manner.

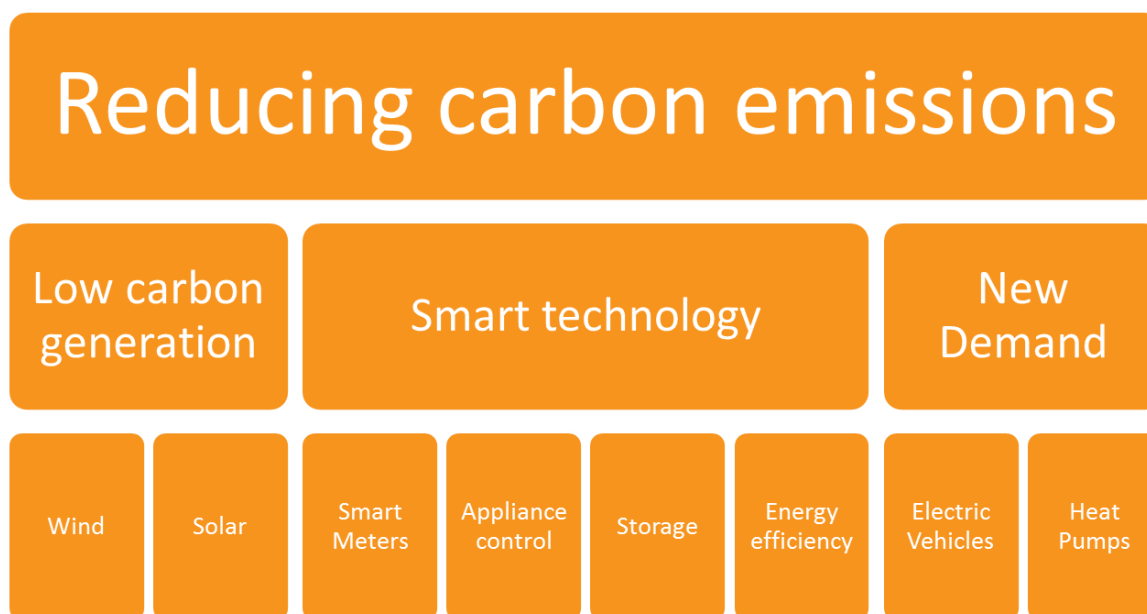


Figure 1 – factors driving change

Charging principles

Future pricing structures will need to balance the recovery of sunk costs with the need to incentivise the efficient use of those assets, and to minimise the costs of forward investment. We would agree that the principles of network charging policy should be to:

- Recover costs in a cost reflective manner from users of the system
- Minimise any distortions and facilitate competition
- Incentivise efficient use of the system

Network charges, allowed revenues, fixed costs and forward-looking costs

Networks are built to serve the maximum demand that, collectively, customers require. To reflect this, charges form a proxy to represent the notional cost of capacity a customer utilises at key times.

The costs of providing the network, and therefore the amount of revenue that network operators are required to recover, are set through the business planning and price control processes. The allowed revenue is generated from the return and depreciation of the DNO's Regulated Asset Base/Value (RAB/RAV), in year fast money allowances and pass through costs. The RAV represents the cost the DNO has already expended and so the majority of allowed revenue represents sunk costs. These sunk costs reflect investment at different voltage levels on the distribution network and consideration needs to be given as to how these costs are allocated only to those users who use the different voltage levels that represent the network.

In the consultation, when explaining network charges, Ofgem describes forward-looking charges as those that are set to incentivise efficient use of the network and 'residual' charges as those that provide the top-up to ensure that the total allowed revenue is recovered after any other charges have been made.

The charging methodologies for both transmission and distribution charging use hypothetical models to 'size' the forward-looking cost and these hypothetical models create a disjoint between real network operator costs and the costs allocated by the charging models, as illustrated in Figure 2 below:

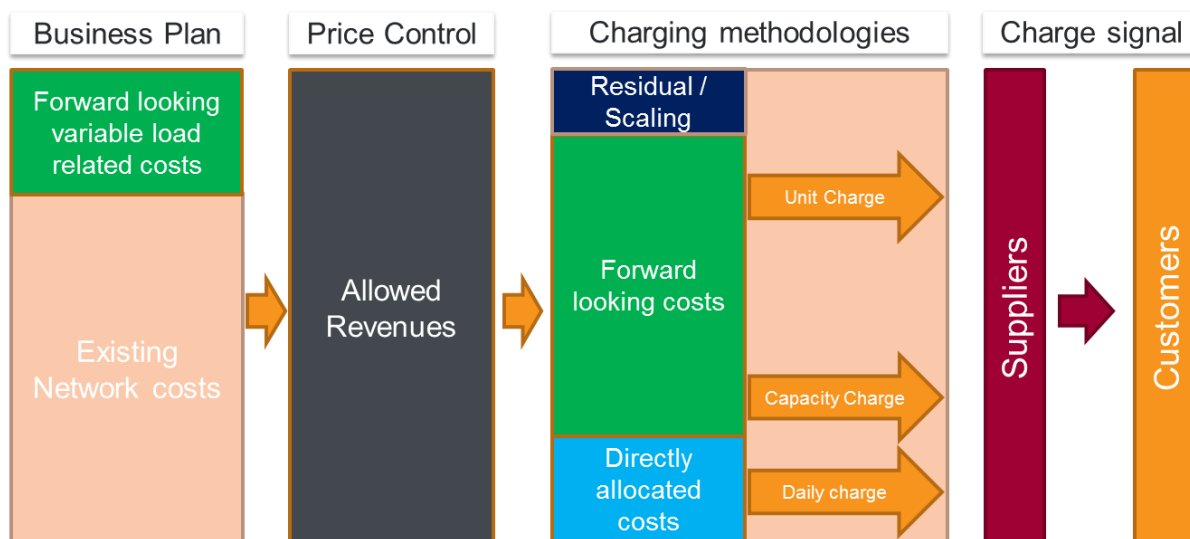


Figure 2 – DUoS charges allocate allowed revenue using hypothetical models that differ from real network costs.

The main DUoS charging model (CDCM) aims to generate a proxy for forward-looking marginal costs – including fixed/sunk costs – based on the hypothetical cost of providing an additional 500MW of capacity. The scaling applied in the CDCM then represents the costs that have to be added to make model outputs match the allowed revenue.

This disjoint has been created by design – to establish charge signals that encourage efficient network utilisation. This design was also on the basis that a bulk of ‘essential’ demand was relatively inelastic and therefore revenue would be recovered without causing additional unexpected distortions. Clearly, as demand elasticity changes, this will need to be monitored to ensure that any unexpected distortions are addressed in a timely manner.

As the residual (or scaling allocation of charges) adjusts charges to recover allowed revenues rather than specific costs, we do not believe that it is possible to have a targeted review of residual allocation without fundamentally reviewing the objectives of the charging methodologies and the policy choices over the fixed and variable elements.

It is also important to understand that DUoS charges are price signals to suppliers rather than directly to end use customers. Suppliers dilute our signals with other cost signals, such as the energy cost and other charges, and are under no obligation to reflect DUoS charges in their charges to customers. This dilution should not prevent our charges from being as cost reflective as possible and distribution charging structures should support innovation in smart demand side solutions. However, a holistic view needs to be taken if the full benefits from such distribution charges are to be achieved.

Residual charges

We are now experiencing a situation where demand users are able to benefit significantly from savings in transmission charging, by utilising embedded generation to offset their demand requirement due to the nature of transmission charging arrangements.

Transmission charge avoidance is particularly enhanced by the nature of the Triad approach for the recovery of charges to half hourly metered customers, where avoidance over three half-hour periods (aided by net metered volumes for suppliers) can result in no transmission charges.

This problem is not such an issue with distribution charges, where half hourly customers are billed for all half hours (or are fixed) and charges are therefore set to encourage the switching of non-essential demand away from all peak periods (to reduce costs of long-term capacity investment) and not a complete avoidance of charges.

The single unit rate structure used with non-half hourly metering for LV customers does provide potential for inappropriate benefits where technology is installed, such as solar generation, as it values reduced consumption away from times of peak demand at the same value as reduced consumption at peak demand; however, the move to half hourly metering, tariffs and settlement enabled by the roll-out of smart meters will address these distortions. The treatment of domestic storage should be considered in light of the wider requirements to drive flexible demand response to create capacity to accommodate the growth of low carbon technologies, such as electric vehicles.

In distribution, we believe that the charging structures should promote the desired effect, in that reduced demand will help avoid the costs of unnecessary reinforcement. Any code review should therefore focus mainly on the transmission distortions, and have less focus on distribution charges until the impact of smart metering, half hourly settlement and the need to promote demand side flexibility through charging can be properly assessed.

Generation charging

Distribution charges for generation comprise:

- One-off shallowish connection charges including, if required, a contribution to reinforcement of network one voltage level above the point of connection
- Ongoing payments (negative charges) commensurate with reducing the need for hypothetical reinforcement
- A small contribution to distribution network asset costs at EHV

Generation makes no contribution to distribution network asset costs at HV and LV.

However, flexibility and active network management are reducing the instances where generation contributes to reinforcement at the time of connection, instead electing to constrain output as a more efficient solution for individual generators.

There is a need to develop new arrangements to ensure cost reflective locational charges to generators are maintained, to support investment to reduce constraints where this is in the interest of reducing whole system costs. Smart solutions such as storage have the ability to contract with generators through Power Purchase Agreements, and could be included in new market based mechanisms to manage flexible access. However, a system for charging generation for distribution network investment may also be required, and may also be a suitable area for a code review.

Storage

Ofgem has indicated that it believes storage should be treated as generation. While this may have merit in transmission, it may not accurately reflect the situation in distribution for the reasons stated below:

- Generation makes no contribution to distribution network asset costs at HV and LV and a small contribution at EHV (unlike in transmission)
- Storage does, or can use network capacity that is then not available for demand customers. It would create a distortion if other network users had to pay for this (e.g. non generation DSR capable of providing frequency services)
- The extent to which storage uses distribution capacity depends on imports at peak times. For example, storage could provide frequency services without importing energy at peak times (as generators do) or, alternatively, contract for services that require it to import at peak network times
 - It should be noted that half hourly energy metering may not accurately reflect the demands placed on the network by storage providing frequency response. For example, if a device imports its full 10MW capacity for 10 minutes to provide frequency response, the network must be able to support this, although aggregate metering of kWh over a half-hour period would only reflect one third of this requirement

We believe that a Significant Code Review should consider fully what charges storage should pay and how tariffs should be constructed to ensure these are recovered in a fair manner.

Recommended approach

In order that a manageable and targeted Significant Code Review can be completed within a reasonable time frame, we recommend there is a focus on the issues that can be evidenced today. These are:

- The impacts of the transmission charging approach on distribution customers
- The treatment of network investment for generation at distribution, if not directly incurred by the connectees
- The fair recovery of network costs from storage, given that no generation residual charge is made at distribution

While there is the potential for 'fixed cost avoidance' from the penetration of solar generation on consumers' premises, there needs to be a debate on the wider policy issues concerning the use of fixed and variable charges to promote flexibility in delivering an efficient, smart energy system. We support this being developed as part of a work programme led by the proposed Charging Coordination Group, leading to well-signposted, well-evidenced changes to codes over time.

In the appendix to this letter we have included answers to your specific questions. If you have any questions on the above points, please do not hesitate to contact me in the first instance.

Yours sincerely



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Appendix

Why we propose to review residual network charges.

Question 1: Do you agree that the potential for residual charges to fall increasingly on groups of consumers who are less able to take action than others who are connected to the system, is something we should address?

There is potential for residual charges to fall on consumers who are less likely to take action to avoid the times that those charges would apply. The problem that has been identified is due to the total transmission charge being recovered or avoided from consumption recorded during three half-hour periods. Expanding the charge recovery over all half-hour periods – as applied in distribution – would go towards minimising the potential for this problem.

Smart grids will need incentives to move energy away from peak periods. Within a fixed revenue price control, this will require consideration of how those costs are transferred between customer groups, whether through network charges or rewards.

Recently introduced domestic multi-rate half hourly tariffs will reduce the risk that residual charges could be unfairly avoided. This would apply by replacing single unit rate tariffs. These single unit rate tariffs result in too much demand charge being avoided due to lower overall consumption due to solar generation. With a multi-rate tariff the consumption across the peak period would be set to recover the appropriate charge.

Question 2: If so, why do you think, or do not think, action is needed?

Action would be needed if the charges applied were not seen to be cost reflective. With the increase of generation and storage in particular, parties who can make relevant changes to their consumption will do so and consequently the charges avoided should only be for those costs which are avoided by the action taken. Any change in fixed cost recovery should also consider the impact that the increase in fixed charges might have on the fuel poor.

The current level of fixed and variable charges within domestic distribution charges was set so that low consumption customers were not subject to a high charge per unit consumed, as a result of concerns over the impact on the fuel poor.

Question 3: We are proposing to look at residual charges in a Significant Code Review. Are there any elements of residual charges that you think should be addressed more urgently? Please say why.

We are not aware of any specific areas at this time that necessitate a more urgent review of residual charges. That said, we do feel there is an assumption in the consultation that the residual element is a proxy for all of the network operator's fixed costs. It should be recognised that the marginal costs applied also allocate significant fixed costs, and we would prefer that any review undertaken considers all the issues (not just a subset), so that the impact of a specific change is fully understood.

Experience in other Countries

Question 4: Are there elements of the approaches in other countries that you think could be appropriate for GB residual charges?

We believe that there would be considerable benefit in undertaking further analysis of the approaches taken in other countries to solve the issue of residual charges. Additional work could be measuring the approaches against Ofgem's proposed principles for assessing options.

We also believe that there would be benefit in understanding the situation – positive or negative – where countries have not yet considered a change to charges with the advent of low carbon technology and the impact this has on customers; this could be used to determine the need for change.

Question 5: Are there other approaches that you know about from other jurisdictions, that you think offer relevant lessons for GB?

We have no additional information.

Our proposed principles for assessing options

Question 6: Do you agree that our proposed principles for assessing options for residual charges are the right ones? Please suggest any specific changes, or new principles that you think should apply.

We think that the proposed principles are appropriate when applied with consideration to Ofgem's suggested practical considerations. We believe that consumers are more likely to respond favourably to change if it brings benefits of simplicity and reduced volatility.

Some options for setting residual network charges

Question 7: In future, which of these parties should pay the transmission residual charges: generators (transmission- or distribution-connected), storage (transmission- or distribution-connected), and demand, and why? What proportion of these charges should be recovered from each type of user?

Any residual element of the charge should be recovered fairly from all customers based on their network requirements, e.g. only allocating voltage level costs if they use that voltage level. To ensure that a level playing field is created and no one pays twice, it should be applied to the demand charge and then to generators where investment for their needs has been made.

Question 8: In future, which of these parties should pay the distribution residual charges: generators (transmission- or distribution-connected.), storage (transmission- or distribution-connected), and demand, and why? What proportion of these charges should be recovered from each type of user?

We feel that it would be appropriate to recover the residual charge from customers based on their network requirements, ensuring that all parties are subject to an element of this charge. Currently the distribution residual charge is recovered from demand customers, but if investment was made in future to accommodate generation (other than that which could be recovered through connection charges), it might be appropriate for generation to pay some form of locational charge, particularly if shallow flexible connections became the norm.

Question 9: Do you support any of the five options we have set out for residual charges below, and why?

We are comfortable with all of the options set out. As stated previously, consideration should be given to what elements of the revenue being recovered actually represent the fixed costs of the network operator.

Distribution charges currently comprise a fixed per day charge, a capacity charge for some customers, and a variable unit charge applied at peak time, and other times, for half hourly customers. Half hourly peak charging addresses many of the issues of single unit rate metering for domestic customers and consideration should be given to the relative importance of changes to charges or the implementation of half hourly settlement for all customers. Clearly, whatever structure of charges distributors use with suppliers, the suppliers will decide on the structure of charges to customers. Given that the CMA advised that the market should be allowed to develop customer propositions and tariffs, including new smart flexible offerings, consideration may also need to be given to the tariff options that should be available. Fixed costs are simpler to administer but may need to be supplemented by complex services to procure flexibility, whereas more complex tariffs may drive more inherent flexibility. This feeds into longer term issues that Ofgem may wish to consider further in its longer term strategy before launching a Significant Code Review.

Question 10: Are there other options for residual charges that you think we should consider, and why?

In looking at options for changing the application of residual charges, thought should be given to whether the amount of residual charge applied should also be sized to cater for the amount of network used by the connectee. This may have different outcomes depending on whether a transmission residual charge or a distribution residual charge is applied.

Question 11: Are there any options that you think we should rule out now? Please say why.

Basing residual charges on gross demand seems to be impractical to administer. It is likely to require a considerable amount of policing as it would encourage network users to not declare their behind-the-meter generation in order to minimise their recorded consumption.

Benefits for smaller embedded generation, relative to other generation

Question 12: Do you think we should do further work to analyse the potential effects of the charging arrangements for smaller EG (called 'embedded benefits')?

In relation to further work, we think that charges should continue to be reviewed periodically to ensure there are no charging anomalies that need to be corrected. While there are known distortions in the current arrangements, the more recent generation connections tend to be sized to the availability of the location. This is especially so with solar generation sites and also appears to be the case with storage.

Question 13: Do you think changes are needed to the current charging arrangements for smaller EG, and when should any such changes be implemented?

Ideally, generation should be located as near to the demand as is economic. Smaller embedded generation is achieving this goal and should not be seen negatively if the charges applied are cost reflective. However, in the current CDCM, generation is paid a credit hypothetically depending on whether it is needed, not based on where it connects.

At the transmission level, there is perhaps too much cost allocated to generation. Any other charge that is applied should be considered in terms of whether it is truly cost reflective. As any charge applied will ultimately be collected from demand consumers, there is no point in applying a charge to generation unless it can be truly determined that the generation is causal to the cost.

Question 14: Of the embedded benefits listed in our table, do you think that any should be a higher or lower priority?

We feel that the generation residual charge should be removed (high priority) and other generation charges removed if generation is not causal to the cost. With regard to the net benefit through offsetting demand charges, this should be seen as a positive effect if the charges applied to demand are cost reflective and time banded. This is because the benefit is having the right effect in encouraging local generation to output at a time when demand would be at its greatest.

Question 15: Do you think there are other aspects of transmission or distribution network charging which put smaller EG, or any other forms of generation or demand, at a material disadvantage?

Similar to our response to question 12, we feel that charges should always be reviewed periodically to minimise the possibility of anomalies.

Our views on residual and BSUoS charging for storage

Question 16: Do you agree with our view that storage should not pay the current demand residual charge, at either transmission or distribution level?

No, we do not agree with this view. We believe that all demand customers should pay demand charges, including any residual element, as they are all equivalent users of the network and to do otherwise could be construed as discrimination. Removing the current demand residual charge could equally disadvantage other DSR solutions compared to storage.

We do not charge storage twice for fixed charges; the fixed charges applied to storage are allocated based on cost allocation rules. At HV the fixed charge is based on additional control equipment, LV has no fixed charge for export and at EHV the fixed charge is proportioned based on the relative capacity requirements. So at EHV, if the total fixed charge is £1,000 and the import and export charges are both 5MVA, then the import will get charged £500 and so will the export.

Question 17: Do you agree with our view that storage should not pay BSUoS on both demand and generation?

No – we would support BSUoS being paid by both demand and generation for storage if it is reflective of the costs caused by the separate element. We would not support double recovery of the same costs.

Question 18: Which of the BSUoS approaches describe is more likely to achieve a level playing field for storage?

The first requirement is to fully question why BSUoS is split 50:50 between demand and generation. We understand that this is just an arbitrary split and fails to reflect that the reason balancing is undertaken is for the benefit of supply to demand users. As the costs of BSUoS will ultimately be met by demand, we would question why it is appropriate to continue to allocate some costs to generation. If BSUoS was recovered only from demand users then an additional approach would be whether BSUoS is not paid by demand users for the periods that they would be providing BSUoS services.

If the current 50:50 split is maintained then the gross charging approach appears to be the better solution – but this comes at the cost of being discriminatory to other demand and generation connectees.

Question 19: Do you think the changes in this chapter should be made ahead of any wider changes to residual charging that may happen in future? Do you agree with our view that these changes should be implemented by industry through the standard code change process?

We support a review of the charging approach for storage within the existing arrangements to ensure clarity exists on what charges it is appropriate for storage to pay. This would support any significant code review looking at the allocation of residuals but should run in parallel. If there is overlap with any significant code review then the proposed Charging Coordination Group (CCG) should decide whether to undertake separate code changes or combine changes into a single modification.

Our approach to taking these changes forward

Question 20: We would welcome your thoughts on the potential make-up of a CCG. Please refer to the potential role, structure, prioritisation criteria and assessment criteria.

We support the creation of a CCG. The composition should include expert representation from the charging working groups under the ENA TSO-DSO project and the respective industry Code bodies, together with other expert stakeholders. The group needs to remain nimble and able to provide policy guidance to the expert Code bodies, Ofgem and government. To avoid a possible misunderstanding of terms or a lengthy learning process, we would recommend that the secretariat is provided by an existing industry participant such as Gemserv, DCUSA or Elexon.

Question 21: Do you agree with our proposed delivery model, including its scope?

While we agree that a higher level of coordination would be beneficial, we feel that the most useful driver to implement change is clear objectives, so that all parties know what the required result should look like. We believe that this is key, especially in driving change in tight timescales. The proposed delivery model appears to be reliant on too many working groups and interconnected development. It may be more appropriate to establish the CCG and for the Ofgem Future Focussed Strategy to be front-ended so that key objectives from this work can be fed out to the appropriate implementation groups.

Question 22: Do you agree that our proposed SCR process is most appropriate for taking forward the residual charging and other arrangements for smaller EG discussed in this document?

The Significant Code Review is the most appropriate method of taking forward the transmission-related charging issues raised in this document. It should be noted that, from a DCUSA perspective, changes made through this approach would be unlikely to take effect until April 2020 at the earliest.

We would support the proposed CCG taking forward any work on the future structure of charges to support the development of a flexible energy system.