

Access and Forward-looking Charges Significant Code Review: Consultation on Minded to Positions

Response from Regen and the Electricity Storage Network

August 2021

Regen supports the objectives of this Significant Code Review (SCR) in ensuring that network charging and the subsequent investment and management of the distribution networks support the transition to net zero.

We believe that the minded-to proposals, particularly around the connection boundary and access options, offer some significant positives in removing barriers to investment for both low-carbon generation and demand, and allowing all areas of the UK to benefit from green growth and the shift to net zero.

We also recognise that the changes are important in encouraging distribution network operators in thinking and investing more strategically in the network. Our members are clear that the cost and availability of distribution network for renewable energy projects has long been a key barrier to deployment, particularly for local and community schemes.

As the Committee on Climate Change (CCC) identifies, we need a fourfold increase in renewable generation deployment, and this will be needed at all scales, from transmission down to lower voltages. At present deployment is stalled across the UK; a key part of this is lack of network availability at a reasonable cost in areas with the best renewable generation resource and availability, such as mid-Wales.

In addition, the climate emergencies that have been declared across the UK, have led to local areas setting objectives on new renewable energy, to encourage local investment and green growth. Many of these schemes are facing constraints and high cost of network connections. We do not think that the aspirations of these areas should be stalled because the high cost of fundamental infrastructure improvements is levied up-front on new users and individual projects.

We wholeheartedly agree that "The current arrangements.... contribute to Distribution Network Operators (DNOs) taking an incremental and reactive approach to reinforcement as the means of facilitating new connections, rather than investing in light of anticipated wider network needs." (p.32)

Our view is that a shallower connection boundary will encourage networks to work strategically and invest in the network and flexibility, these should provide better value for money for all energy users and ensure our energy infrastructure is fit of purpose for future growth. The subsequent anticipated changes making Distribution Use of System (DUoS) charges more locational should then provide a fairer means to collect costs from all users rather than just new and future users.

About Regen and the Electricity Storage Network

Regen is a not-for-profit company representing 150 members across the energy sector and has a clear goal, to accelerate the transition to a decarbonised, decentralised and democratic energy system.

We also manage the Electricity Storage Network (ESN) established in 2008 as the UK industry group dedicated to electricity storage, representing a broad range of members to respond to and address issues affecting the development and utilisation of electricity storage within the GB electricity system.

Enabling DNOs to consider all users of the electricity system when planning infrastructure will reduce overall system costs relative to the existing incremental system, even though DUoS costs will increase. A lower overall network cost will reduce the costs to consumers of delivering significantly more renewable generation.

Our key concern is that the proposals are a fundamental change to how DNOs currently think and operate, particularly related to generation, where unlike demand, DNOs have had no previous requirement to consider strategic investment. We recommend, therefore, that the changes are accompanied by clear processes and operational boundaries for DNOs to avoid delays to new connections, for example as strategic upgrades are considered. It will therefore be important to have information about the timescales expected for connection and what sort of flexible connections might be offered ahead of a strategic network upgrade.

We recommend therefore that there needs to be a focus between now and 2023 on how Ofgem and DNOs deal with developing a business case for strategic investment to facilitate new connections, some of which could be at early stages of development. This includes how decisions will be made about an acceptable level of headroom or 'future proofing' that the investment or solution will provide. Note the 2019 Ofgem rejection of the subsea cable to the Western Isles due to too much 'headroom' despite a small marginal additional cost¹.

The decision as to the application of the High Cost Cap (HCC) will be critical and we would like to see a review of this blunt instrument to provide a more useful mechanism and signal. Currently, if a new generation connection entails very high network costs at levels above the point of connection, then this suggests that part of the network must be at, or very near, full capacity. If that geography is attractive for renewables (or identified by local government as a target area for renewable development), then that is exactly the sort of area where strategic investment and/or flexible connections should be developed.

We recommend that the High Cost Cap should be repurposed and act instead as a trigger for DSO type optimisation and strategic investment rather than a cliff-edge for development. A more strategic mechanism to replace the HCC could establish certain thresholds for example to work collaboratively or accept a flexibility-type connection or an Active Network Management-type (ANM) scheme. This mechanism could vary by region both in terms of its threshold and its implications, e.g. within an area that is actively planning for renewables (The Tan 8 areas in Wales for example).

Finally, we recognise that the SCR has only partially concluded with this minded-to decision and that more work is being done on the changes to DUoS, the levels of Transmission Use of System (TNUoS), forward looking charges, and the relationship to flexibility, which is of considerable interest to our Electricity Storage Network members. We are keen to see the review concluding and confirming where flexibility can either delay or replace investment in the network.

Though we support this staged approach given the importance of swiftly removing barriers to renewable energy deployment and new technologies, the remaining uncertainty over the level of both DUoS and TNUoS charges is hitting investment in renewables across the board. We are therefore keen to see a swift conclusion to the second part of the review on locational charges.

In summary:

¹ <https://renewablesnow.com/news/ofgem-to-nod-to-shetland-subsea-link-but-reject-western-isles-proposal-647161/>

Question 5g: Are there any specific issues you think we need to consider, as part of our work on the future role of network charges? Why are these important to consider?

As outlined in our introduction and responses there are several areas where we think work needs to be taken forward.

- Develop new processes with both Ofgem and DNOs for how the shallow and shallower regime will support strategic investment including timescales for new connections.
- Provide examples of how non-firm connections can be used ahead of strategic reinforcement and the practicalities of that.
- Develop a replacement for the High Cost Cap that supports this process and initiates a better strategic approach to investment in growth or key areas for renewable generation.
- More information on Embedded Export Tariff (EET) for generation under 1 MW and the removal of the cap. Including how EET might be calculated outside of TRIAD.

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Regen response to specific questions

3. Connection boundary

Question 3a: Do you agree with our proposals to remove the contribution to reinforcement for demand connections and reduce it for generation? Do you think there are any arguments for going further for generation under the current DUoS arrangements? Please explain why.

We agree with the proposals to remove the reinforcement for demand connections and to reduce the contribution for generation connections.

Retaining a level of reinforcement at the connection voltage at this stage of the review for generation will lead to inefficient project-specific reinforcement at a voltage level where work could be done that benefits a number of projects. We think this could be particularly important in areas where there is significant renewable resource and local authorities, or devolved governments have designated renewable generation areas.

We can see the logic of retaining a level of locational signal by reinforcement at the voltage level of connection until DUoS arrangements are reviewed for generation. After this point, we believe these should also be removed to make treatment of generation consistent at all voltage levels.

Question 3b: What evidence do you have on the effectiveness of the current connection charging arrangements in being able to send a signal to users and what do you think will be the effect of our proposed changes? How does this vary between demand and generation connections?

We have extensive experience from our membership and events on this topic that the reinforcement rules for both demand and generation are creating a big barrier to development of renewable generation and electrification of demand such as EV charging and electrification of new developments.

The high cost of reinforcement in constrained areas is serving to put off new projects in areas with aspiration and good resource. This is a theoretically strong signal, but one that means areas are under-developed because of an accident of historic network development.

Under the proposed changes, this upfront barrier will be reduced, unlocking projects in good areas. It should be noted that in some areas, projects are still likely to face significant costs for sole use assets and reinforcement at their voltage level, so there will still be a locational signal and direct costs.

For renewable generation, there are many challenges to achieving a business case, most significantly the market price of power. As a result, we don't believe there will be a flood of new applications following this voltage rule change. Instead, we believe it will only be able to unlock the most economic projects in the areas of best resource. In a recent workshop hosted by Regen on this topic, only 13% of developers attending the event said they would revisit a project as a result, but 43% felt that it would be significant in the longer term.

Question 3c: What are your views on the effectiveness of the current arrangements in facilitating the efficient development and investment in distribution networks? How might this change under our proposals where network companies are required to fund more of this work?

The current system, although giving strong signals to users, does not successfully present a signal to DNOs to develop and invest in their network, except on an incremental, inefficient project-by-project basis. The reinforcement rules essentially provide such a big barrier in constrained areas, that it removes the responsibility from DNOs to plan for future needs.

We think the proposed changes will be a very important step in the move towards net zero and ensuring the DNOs are enabling the net zero transition at least cost.

The changes will be more significant for demand, as the reinforcement costs will be most reduced. This will enable houses to be fitted with the newest electrified technology and for businesses to expand and electrify to achieve net zero. We think, however, that there may need to be a reasonable use clause, or some limits set for example on the size of EV chargers in a domestic setting.

We think that the requirement to fund reinforcement via network companies will be transformative for DNOs. To deliver the best results they will need to find a new way to operate, including working with local and devolved governments to provide the infrastructure to support their growth and net zero objectives.

Question 3d: Do you agree whether the need to provide connection customers with certainty of price reduces the potential for capacity to be provided through other means such as flexibility procurement? How might this change under our proposals?

Yes, with the requirement to recharge costs to a connecting project, the DNO will look at a worst case scenario and require the project to pay for investment to ensure the network can remain within operating limits should this occur. For example, this includes modelling that a battery will export at times of high solar output (which may not happen regularly due to low wholesale prices).

Under a new system where the cost would be covered by the network through DUoS, DNOs may instead not upgrade to cover the more unlikely scenarios and choose instead to procure flexibility to cover the eventuality that this may occur.

It will be important with the proposals that DNOs develop new processes and decision-making on whether to reinforce or to choose flexibility solutions. It will also be important to evolve the approach over time - so this may involve procuring flexibility for a period and then upgrade later if and when the cost of flexibility becomes higher than the cost of the upgrade.

In these proposals it is important that DNOs start to operate in a way that recognises that the energy system is increasingly dynamic. The shallower the connections, the more responsibility falls on the network to manage connections optimally and the greater scope there is to develop innovative ways to service customers.

Question 3e: What are your views on whether we should retain the High Cost Cap? Is there a case for reviewing its interaction with the voltage rule if customers no longer contribute to reinforcement at the voltage level above the point of connection?

Our view on the consultation question is that we should reduce the HCC to the voltage level of connections for generation. Although retaining some form of HCC seems sensible to prevent developers choosing non-sensical locations, we believe that the HCC (or threat of it) is actually preventing strategic

investment and whole system thinking by DNOs - retaining it at the voltage level above will perpetuate this inefficient and incremental system.

In addition, if strategic efficient investment is a key output of these changes, almost by definition an investment at a higher voltage should be serving the needs of many projects and users, demand and generation. Therefore, if the outcomes of this review are achieved and investment is strategic, identifying that one project should pay the HCC at the voltage level above should be challenging/not possible.

However, we do think that for DSOs to play their role to optimise capacity utilisation, there needs to be some lever to encourage generators and other projects to collaborate and partake in flexibility or ANM-type arrangements. The alternative is that every project rationally chooses a firm connection whatever the cost.

Currently, if a new generation connection entails very high network costs at levels above the point of connection, then this suggests that part of the network must be at, or very near, full capacity. If that geography is attractive for renewables (or identified by local government as a target area for development), then that is exactly the sort of area where strategic investment and/or flexible connections should be developed.

As a result, we believe that the HCC should be repurposed and part of a trigger for DSO type optimisation and strategic investment rather than a cliff-edge for development. A more strategic mechanism to replace the HCC, could establish certain thresholds for example to work collaboratively or accept a flexibility type connection or an ANM-type scheme. This mechanism could vary by region both in terms of its threshold and its implications e.g. within an area that is actively planning for renewables (the Tan 8 areas in Wales for example).

Question3f: What are your views on the recovery of the costs associated with transmission that are triggered by a distribution connection? Does this need to be considered alongside wider charging reforms or could a change be made independently?

We believe that the cost of transmission reinforcement costs triggered by a distribution connection should not be recovered from that connection, for the same reason that shallower connections facilitate strategic investment and that the HCC at the voltage level above should also no longer apply.

As well as arbitrarily stopping growth and investment in areas of the UK that for historic reasons do not have strong networks, it disincentivises National Grid to strategically invest in the network to support distribution growth and stopping local areas from benefitting from the net zero transition.

We understand that the decision to remove this has not been made because TNUoS is not yet applied to small distributed generation (SDG), but we think it would be consistent for Ofgem to signal that this transmission attributable works charge will be removed from distributed generation (DG) as soon as it is confirmed that TNUoS will be levied on SDG.

Question 3g: What are your views on the likelihood of inefficient investment under our proposals (e.g., an increase in project cancellations after some investment has been made)? Are there good arguments for further considering introducing liabilities and securities to mitigate this risk?

We agree that the complexities related to liabilities and securities would be too complex to implement.

This links strongly to the requirement for DNOs to develop new processes and potentially flexible access connections ahead of investment (and upgrade to firm) to minimise risks of inefficient investment.

As with the HCC application, if strategic and efficient investment is a key output of these changes, almost by definition an investment at a higher voltage should be serving the needs of many projects and users, demand and generation. Therefore, the cancellation of one project should not impact this strategic upgrade.

To achieve net zero the CCC have shown that both demand and distribution generation for electricity will be increasing significantly in all areas across the UK and, therefore, the risk of excess network capacity not being utilised in the future is very low.

For renewable generation in particular, the natural resource (e.g. solar irradiance, land area or wind speed) is critical to any project. These areas with strong renewable energy resources are highly likely to see developments coming forward as we transition to a net zero power system by 2035.

For demand to be fully shallow, we think there might need to be a 'reasonable use' clause to avoid very high capacity chargers, for example, being put in domestic properties or similar.

Question 3h: What are your views on whether the interactions between our connection reforms and the ECCR must be resolved before we are able to implement our proposed reforms? How do you factor in the effects of the ECCR (if at all) into decision making, given the levels of uncertainty around subsequent connectee(s)? What suggestions do you have to make our policy and the ECCR work together most efficiently?

We do not think this need to be resolved before the proposed reforms are implemented.

We understand that these have been triggered very infrequently and if they apply it would be done on a case by case basis as needed.

The second-comer rules would still be relevant for sole use assets and for generation if the HCC continues to be applied and to transmission attributable works.

4. Access rights

Question 4a: Do you agree with our proposal to introduce better defined non-firm access choices at distribution? Do you have comments on their proposed design?

Yes, better defined constraints and a ceiling on constraints would be very important to allow some renewable generation projects to get financing and to ensure that more projects could be built.

We note however there is a clear interaction with connection boundary. We think that these more defined choices could have a key role in facilitating the new shallower connections and getting connected ahead of reinforcement. We would like to see more work and detail on these and under what conditions demand and generation customers would be able take these up short term with clarity on when they could switch to a firm connection

Question 4b: Do you agree with our proposal to introduce new time-profiled access choices at distribution? Do you have any comments on their proposed design?

Yes, we agree that there could be value in new time-profiled access choices. However, we note that the definitions of peak and off-peak are becoming more dynamic and that a more dynamic system might need to be developed. For example, renewable generators may find it difficult to participate or benefit as they are reliant on weather conditions. Batteries also rely on different revenue streams including national flexibility and balancing, as a result may be unable to take these options up in large numbers.

This could be more valuable for some demand such as EV chargers, but again we think there might be difficulties in implementing.

We think in the future there may be more value in more dynamic or weather-linked access, so when the level of renewable generation reaches a certain proportion. This could be of value for example for hydrogen electrolysis plants, but we recognise this would only work in a more dynamic system which has yet to be developed.

Question 4c: Can you identify any benefits to shared access rights, which would indicate we have underestimated the likely take-up?

Yes, we think this would be a very positive step forward. The energy system is becoming increasingly decentralised, with both generation and disruptive new demand technologies such as electric vehicles and heat pumps operating on the low voltage networks.

However, the electricity markets and networks are still operating a centralised system which do not recognise or reward the benefits of local balancing and local markets, these include:

- Local balancing of heat, transport and power needs to reduce network investment and to provide local system flexibility
- Reduction of losses by matching generation and demand

Despite a high level of interest in smart local energy systems and appetite for building integrated solutions for electricity, transport, and heat, at present there is little or no incentive for individuals and businesses to take account of local or national conditions to determine what they use, for what, and when.

Across the UK, there is an increasing appetite for the markets and systems to catch up with decentralisation. This has corresponded with significant improvements in digitalisation of energy and smart systems, which can facilitate local energy and savings from balancing local energy.

Shared access products would provide a first step in the process of recognising the benefits of coordination of electricity generation and usage at a voltage level or in a geographical area.

We would be keen to see this opportunity piloted to explore this, for example in Manchester Local Energy Market: <https://gtr.ukri.org/projects?ref=133799>.

Question 4d: Do you have any comment on our proposed choice about how to reflect access rights in charges (i.e. connection and/or distribution use of system charges)?

Yes- we recognise that connection charges will apply to new users, but DUoS signals need to apply to all users and so they would be difficult to reflect.

However, there could be potential in representing these access rights in the fixed or capacity charges as part of DUoS, rather than any volumetric charges.

Question 4e: Do you agree with our proposal to not prioritise the introduction of new transmission access choices as part of this Significant Code Review?

Yes.

Question 4f: Do you have views on how access rights should be standardised across DNOs?

No, only that it is important to have standardisation, including within the processes, applications, and documentation, to reduce the burdens on developers.

Question 4g: Do you have any views on our proposed timescale of 1 April 2023 implementation?

Given the benefits for net zero, we think that the changes should be implemented as soon as possible, and the April 2023 timescale is realistic in that it corresponds to ED2.

We think the impact of these changes are likely to take a number of years to follow through into generation project applications and therefore DNOs would expect to see the impact of these changes in increased project numbers coming forward from 2024/5 onwards. Demand may see an uptick earlier.

Within this timescale we would hope there would be further certainty on DUoS and TNUoS changes.

5. TNUoS charges for SDG

Question 5a: Do you have any evidence that SDG does not contribute to flows in the same way as large generation and, therefore, should not be charged on a consistent basis?

We recognise that consistency is important but that, at present, the connection boundaries are not, and are not planned to be, consistent across transmission and distribution. In addition, the larger generators have more economies of scale and better resources to actively manage their exposure to network charges and costs.

We note that the current TNUoS charges mean there is a significant impact on distribution generation in Scotland. We would support a review of TNUoS and how it is calculated to avoid disincentivising generation in an area which has good resource and supportive planning policy, something which is not available in the rest of the UK at present, particularly for onshore wind.

Applying TNUoS as it is currently calculated to SDG, would therefore halt renewable energy development in Scotland, which would be directly counter to the recommendations of the Climate Change Committee.

As discussed in our answer to question 4c on shared access, there could be significant benefits for smaller generation and demand by balancing locally in terms of reducing losses and reducing network investment. This is not the case at transmission where the assets tend to be individual and isolated.

The application of TNUoS to SDG increases the impetus to provide a method for rewarding and recognising the local balancing and benefits of local energy markets (e.g. shared access or similar) to provide additional benefits to SDG coordinating locally.

Question 5b: Do you agree with our threshold for applying TNUoS generation charges of 1MW? If not, what would be a better threshold and why?

We think this would be a practical limit as this is often the size at which SDG registers are most accurate.

We note that EET will now apply uncapped to generation under 1 MW, However the wording in the document was not entirely clear on this.

This means there are some areas where even the small sites will face significant new charges should they generate at periods that EET are calculated, which are currently the highest winter peaks via TRIAD. The logic of the cap remains unless the calculation of the EET is reviewed. More detail is needed about this change.