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Open letter on strategic transmission charging reform: a summary of responses

On 11 September 2023, we published an open letter setting out our initial thinking on the future role and design of Great Britain's electricity transmission network charging and why reform may be required.¹

Our letter welcomed stakeholder engagement on our thinking, specifically whether reform would benefit the transmission charging regime, how signal efficiency might be improved through changes in transmission charging design, and the potential interactions with non-charging reform programmes.

We received responses from 40 stakeholders from across the transmission network, including generators, suppliers, trade associations, consumer bodies, transmission owners, storage, developers, government and local authorities, and the Electricity System Operator (ESO). We would like to thank all those who took the time to provide feedback; we greatly appreciate your insights.

This document provides a high-level summary of the views that were expressed and our intended next steps.

Insights from stakeholder responses made it clear that:

- there is widespread recognition of the need for well-informed transmission charging reform.
- there is a common understanding or preference that transmission charging:
 - is not the best mechanism to send operational signals.
 - will best enable transmission investment if it is predictable.
 - should align with future network planning, and include fixed multi-year charges and longer resets aligned with those of other network plans.
- investment signals for generation remain polarising.
- a distinct investment signal for storage will need to consider the distinct characteristics of storage assets to be effective.
- many prefer locational signals targeting those capable of responding.
- large demand users want effective and fair locational signals.
- significant increases to residual charges should lead to a well-considered redesign.

¹ [Open letter on strategic transmission charging reform](#), published 11 September 2023.

- there is concern around transmission charges being used to encourage smaller users to invest in low carbon technologies.
- there is support for a move away from voltage, and toward greater alignment between transmission and distribution charging obligations.
- there is opposition to transmission charges signalling network constraint costs.
- wider reforms are expected to impact the efficiency of transmission charge signals, and there is support for transmission charges to be strategically framed with wider market signals to best enable investment certainty.

We are continuing our analysis and will use these responses to inform and support the development of future transmission network policy, and consider whether long-term network charging reform is required and how it may best be implemented to benefit transmission network efficiency and consumers.

We received responses from 40 stakeholders

We are grateful to all stakeholders for their submissions and value the different perspectives provided on the potential future for strategic transmission charging.

The feedback received was comprehensive, involving a total of 40 responses from a diverse set of stakeholders. This feedback included responses from generators (13), suppliers (4), developers (5), trade associations (3), consumer bodies (2), consultancies (2), renewable energy companies (2), local authorities (2), combined supplier and generator (1), and storage provider (1) amongst others. Additionally, we received valuable insights from Scottish and Southern Electricity Network (Transmission Owner) and the ESO. The diverse array of feedback highlights the comprehensive interest and potential impact of the proposed reforms on different facets of the energy market.

Our engagement sought insights from 21 targeted questions that touched upon various aspects of the strategic transmission charging system and potential reforms. These questions were crafted to elicit detailed responses, providing stakeholders with the opportunity to share their views, evidence, and reasoning in support of their positions.

Below, we have included a high-level summary of the common response themes that emerged under the five sets of questions provided.

1) Background for reform

The transmission network is expected to change as we enable net zero

Our letter explained that Transmission Network Use of System (TNUoS) charges recover the costs incurred in providing, maintaining, and developing the transmission network. These charges are also expected to send an investment signal to electricity network

users to guide their development of assets in locations that will improve network efficiency.

We acknowledged that the future energy system will look very different to the one our current transmission charging framework was designed to serve. As the system decarbonises to meet the UK's net zero commitments, we will need substantial investment in renewable generation capacity and storage assets that will be technologically and geographically diverse. There will also be changes to how and where we use electricity, with different constraints, and energy increasingly flowing from parts of the distribution network to the transmission network.

Respondents see a need for well-informed transmission charging reform

Most respondents believed a review of the role and design of transmission charges would be timely and appropriate considering the expected system changes and developing policy reforms.

Of those discussed in the letter, respondents identified the Review of the Electricity Market Arrangements (REMA) (particularly the wider market considerations), Centralised Strategic Network Plan (CSNP), Strategic Spatial Energy Plan (SSEP), and the Permitted Range as the policy areas with the most material bearing on the future role and design of the transmission network charging methodology. Some respondents also noted the importance of a transmission charging methodology that is informed by and complements the wider schemes it will interact with, including the Contracts for Difference (CfD) auctions, Balancing Mechanism reform, network development, and government targets for seabed leasing.

Respondents provided further areas and policy programmes they believed should also inform any transmission charging reforms. This included consideration of: any differences between the TNUoS and Distribution Use of System (DUoS) charging frameworks that may create competition distortion or inefficient investment decisions in connection voltage; potential grid connection queue reform, as connection wait times can influence siting decisions; government support mechanisms that are otherwise out of scope for REMA, like Carbon Capture, Utilisation and Storage (CCUS) and hydrogen; and transmission losses (including the Transmission Loss Multiplier (TLM)), which may present similar characteristics and uncertainty. Some respondents also stated that we should take into consideration the outcomes of any potential CfD reform to ensure the resulting investment signals are complementary and cost reflective. The need to consider the Offshore Transmission Network Review (OTNR), Offshore Transmission Owner (OFTO), Holistic Network Design (HND), Holistic Network Design Follow-Up (HNDFUE), and the future CSNP was also raised.

2) Objectives of transmission charging

Transmission charges are not the best mechanism to send operational signals

Ofgem has an established principle that transmission charges should not send dynamic operational signals for generation or demand. Respondents largely agreed that transmission charges are not the most effective or appropriate mechanism to send dynamic operational signals. Although some respondents were reluctant to rule out its potential value from future designs. Primarily, respondents were concerned that the introduction of operational signals would undermine existing investment signals and further reduce predictability in transmission charging, and that REMA was investigating more effective options to deliver an operational signal. Others noted a preference for temporal charges, particularly for storage and demand flexibility.

Predictable charges will best enable transmission investment

When asked what further characteristics of the transmission charging framework would effectively signal the investment needed to meet net zero targets, some respondents emphasised the need for investment certainty, the potential for deeper connection charges, and the need to consider strategic network planning and the potential impact of charges on the CfD strike price.

3) Framework for transmission charge design

Predictability and alignment with future network planning should be prioritised for investment signals

Our letter provided a high-level design framework presenting the three key choices being considered to provide cost-reflective charges for the transmission network. We explained what costs we considered for inclusion, the potential granularity of the charges, and how and when those charges would be distributed across the network and allocated to users.

We asked stakeholders if there were further factors that should be considered in the transmission charging framework and their importance, and which of these approaches would most effectively contribute to the required energy transition.

There was broad agreement from respondents that the key choices to identify cost-reflective charges were deserving of further investigation and could effectively contribute to the required energy transition. Again, respondents wanted to see predictable investment signals that are appropriate for users' investment timelines and their ability to respond. This also included the potential for fixed charges that are predictable over longer periods and aligned with the future network. However, there was minor

disagreement as to whether full-cost reflectivity or the socialisation of these costs would be more effective in achieving the energy transition.

Respondents emphasised the need for co-ordinated consideration of future network planning (i.e., SSEP and CSNP) which may offer more effective options of investment signals. Respondents also highlighted the need for a co-ordinated and complementary approach with REMA's reforms and the UK's net zero targets.

There was some support from respondents for the prioritisation of deeper connection charges over ongoing system tariffs for transmission charging allocation, as well as for greater consideration of temporal granularity (particularly seasonal), and an expansion cost driver. There was only limited support for a real-time capacity-based charging metric, as it was believed to replicate the short-run marginal costs of existing signals, and it was suggested that a losses-based cost driver should be ruled out completely.

Those who responded also identified potential benefits from changes to a capacity-based model, access rights, and connection boundaries, and managing the inflationary impacts of TNUoS on the CfD strike price and subsequent consumer costs.

Users want transmission network charges that are forward looking

Most respondents generally agreed that TNUoS charges should reflect planned future network conditions rather than actual network conditions, and that basing charges on CSNP or similar would reduce the volatility of charges to the benefit of investment. Most respondents favoured long-run network cost (expansion based) charges and the potential offered to improve the schemes resilience against delays and under investment.

However, some respondents held concerns that if TNUoS reflects the planned future network conditions, it may lead to unfair charges if the prescribed network does not materialise, or if parties are paying for future infrastructure beyond their likely operational date. There were further concerns that such charges may undermine the intentions of SSEP.

Fixed multi-year charges, longer resets aligned with network planning

There was near universal agreement from respondents that frequency reset for TNUoS charges should be longer than 'real time' to avoid sending operational signals, and most respondents agreed on prioritising predictability over cost-reflectivity in the shaping the frequency of resets for transmission charges. Respondents emphasised the benefits of fixed charges over multi-year timescales, longer reset periods for the fixing of charges, and that resets could be aligned with the reset of network plans (i.e., CSNP).

However, it was suggested that care was required to ensure the balance of risk is not disproportionately shifted to demand users.

4) Key questions for transmission charge design

We outlined some of the key implications from the expected system changes and wider policy context. This included questions concerning the treatment of different network user types in the context of their changing characteristics and impacts on the network, and the alignment of investment signals at different voltages as well as the potential use of transmission charges to signal constraints.

Investment signals for generation remain polarising

There was no clear agreement from respondents regarding the merit for generators continuing to receive credits in their transmission charges relative to their siting location. While the scheme's rationale under European Union regulations and the existing methodology was widely recognised, opinions diverged on its desirability and necessity. Concerns were raised about the assumptions underlying the scheme, especially regarding the equitable treatment of generation across different zones and the implications for high carbon generators. Potential alternatives included revising the locational signal through mechanisms like the CMP423 modification or shifting the focus towards connection charges, aiming for a system that more accurately reflects the contemporary energy sector's needs.

A distinct investment signal for storage will need to consider the distinct characteristics of storage assets to be effective

There was broad agreement on the need for an updated methodology that reflects storage's dual role as demand and generation and its operational variability. Respondents advocated for further analysis to fine-tune the charging regime, proposing several approaches that may ensure the distinct characteristics of storage assets are captured and incentivised appropriately. These included enhanced co-location arrangements, strengthened locational signals (potentially through reforms like Locational Marginal Pricing), introducing new TNUoS classifications for storage, and considering bespoke classifications that recognise storage's unique contribution to network reinforcement and constraint management. The key characteristics of storage assets that respondents thought should shape the delivery of the investment signal included the storage asset's duration, location, capacity, ramp rate, and its ability to respond to temporal variations in demand and supply.

Large demand users want effective and fair locational signals

We sought to understand stakeholder perspectives on the role of locational signals in influencing the siting decisions of both large and small demand users and the appropriate level of locational variation in charges for these groups.

For large demand users, there is a recognised importance of locational signals in guiding siting and investment decisions that align with network efficiency and constraint management. Despite this, respondents raised concerns about ensuring efficacy, fairness and equity within the transmission charging framework and avoiding unintended outcomes. Stakeholders called for a thorough assessment of locational signals to ensure an efficient signal, and suggested location-specific credits to mitigate potential disproportionate impacts.

Locational signals should target those capable of responding

Conversely, there was a more cautious stance from respondents for smaller demand users, which are not generally expected to change siting decisions based on these signals. Nearly half of respondents abstained from commenting. Among those that did respond, there was some support for extending locational signals to all users, including small demand users. However, most agreed that locational signals should be carefully applied and primarily target those users capable of an effective response. Respondents emphasised the need for fairness in network charging, advocating against penalising users unable to adapt to locational signals. Respondents also questioned the effectiveness of granular locational charges in influencing the behaviour of small users, pointing towards a preference for a simplified approach for these consumers.

Significant increases to residual charges should lead to a well-considered redesign

Among those that responded, there was broad consensus that alternative charge designs should be considered if there are significant increases in residual charges. Respondents suggested any redesign should be evidence-based, informed by and complementary to the outcomes of recent modifications and net zero targets, and that charges should be cost-reflective, and shared across the network equitably.

Some concern around TNUoS being used to encourage smaller users to invest in low carbon technologies

Of those that responded, half were against utilising transmission network charges to incentivise low carbon technology investments among households and small businesses. Most believed there to be more suitable mechanisms than TNUoS for sending this type of signal to users, and that it would result in inequitable outcomes as only those already able to afford the investment would benefit at the expense of the rest. Those in favour

saw benefits if the incentive was applied through long-term investment signals that are transparent, easy to understand, and align with net zero objectives, without further penalising those unable to invest in new technologies.

Respondents support a move away from voltage, and greater alignment between transmission and distribution charging obligations

Our letter explained the significant differences in charging methodologies at different voltages, and that adjustments may be required to appropriately reflect the changes occurring to network flows and smaller assets' roles and market participation.

Respondents universally recognised the traditional reliance on voltage levels as a primary determinant for network charges is becoming outdated as distributed generation and system complexity increases. Respondents were particularly concerned about regional disparities, specifically the differential in charges for 132kV connected generation between England and Scotland, and the potential adverse impacts on wind development in Scotland under the current charging methodologies.

There was a broad consensus the charging framework should move beyond a voltage-centric approach, to better reflect the current and future state of energy distribution and consumption. Greater alignment and integration between transmission and distribution charging arrangements was seen as critical for reducing regional disparities, and generally enhancing the equity, efficiency, and fairness of the charging regime by better enabling equitability, cost-reflectivity, and support for the UK's net zero commitments. However, supporters of alignment emphasised the need to avoid a one-size-fits-all strategy that may penalise existing assets.

Respondents were strongly opposed to using TNUoS to signal network constraint costs

Our letter explained that we expect significant network constraint costs to continue in the net zero power system, and that this may justify consideration of a targeted investment signal for TNUoS.

Many respondents remained adamant there was no justification to use a TNUoS charge to signal the relative costs of network constraint in different areas, as they expected it would reduce the predictability and increase the cost and regional disparities of TNUoS.

Respondents expressed concern that adding a constraint signal would reduce the predictability of TNUoS as constraints would remain difficult to forecast, inhibiting investment certainty for generators. Further, combining Short-Run Marginal Cost (SRMC) such as constraints into the Long-Run Marginal Cost (LRMC) of TNUoS could lead to inefficiencies and distortions in the market signals. Respondents also feared that it could lead to further increases to all users in areas where constraints are caused by delays to

transmission network asset upgrades, at no fault of the other transmission network users.

As a constraint cost signal would be an operational signal, there was a strong preference from respondents that they be addressed through mechanisms specifically designed for real-time or near real-time market operations.

5) Implications of different market and policy reforms for transmission charging

The outcomes of wider reforms will impact the efficiency of transmission charge signals

To highlight how different reform outcomes could influence the development and assessment of various transmission charging options, our letter discussed wholesale market reform, other government policies for supporting net zero investments and the evolving planning framework.

Transmission charges should be strategically framed with wider market signals

When canvased, stakeholders emphasised the necessity for transmission charges, to evolve alongside market reforms like REMA. The aim is to ensure a cohesive progress across the sector, preventing misaligned or conflicting signals. There was a consensus on the need for TNUoS charges to reflect broader market signals (such as Locational Marginal Pricing and access rights), ensuring they remain relevant and supportive of the overall regulatory landscape.

Strategic alignment with wider reforms will better enable investment certainty

The predictability of charges and their alignment with policy goals are deemed paramount. A stable charging framework is viewed as essential for facilitating long-term investment and adherence to national energy policies. Respondents advocate for a comprehensive approach to transmission charging that considers the full range of system costs beyond mere network expansion, suggesting a move towards a more detailed charging framework. A minority viewpoint highlighted the potential benefits of decentralising network planning, suggesting it could enhance the system's adaptability and overall stability.

These insights collectively point towards a shared vision for a transmission charging framework that is adaptive, integrated with market reforms, and strategically aligned with the UK's policy objectives. The feedback underscores the importance of a balanced,

forward-looking approach that ensures transmission charges contribute effectively to the UK's energy transition.

Next steps

We will utilise the feedback gathered here to inform and support future policy development. We will:

- Work closely with the Department for Energy Security and Net Zero (DESNZ) and ESO as part of REMA to consider the future role of transmission charging and the interactions with possible wider reforms to market design, including changes to access rights, dispatch arrangements, renewable support mechanism and locational wholesale pricing.
- Continue to engage with industry through regular updates on Strategic Transmission Charging work through the Charging Futures Forum.

This will aid us to conclude whether long-term network charging reform is required and support a robust assessment of the potential options and associated regulatory questions, to determine whether there are solutions that could help the efficiency of the GB energy system, bringing benefits to consumers.

If you would like to discuss any aspect of this publication, please email WMSReform@ofgem.gov.uk addressed to Harriet Harmon. We look forward to continuing an open and constructive discussion with our stakeholders on strategic transmission charging reform.

Yours faithfully,

Harriet Harmon

Head of Electricity Transmission Charging