

Call for Input

Locational Charges and Regulatory Siting Levers under Reformed National Pricing

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This Call for Input explores potential options for how a locational charge could be designed to support the delivery of the Reformed National Pricing (RNP) programme, ranging from incremental to substantial changes to the current transmission network charging regime. It also sets out initial thinking on legacy and transitional arrangements for projects in advanced stages of development.

We are seeking feedback from industry and stakeholders to help shape the development of a reformed locational charging regime. We will continue to work closely with government as it progresses thinking on wider RNP policy issues to ensure regulatory alignment with other strategic policy goals.

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Executive summary

In July 2025, the government concluded the Review of Electricity Market Arrangements (REMA) and launched the Reformed National Pricing (RNP) programme.¹ RNP aims to:

- Deliver a more strategic and co-ordinated approach to the energy system;
- Provide stronger signals for the efficient siting of new assets; and
- Improve the overall operational efficiency of the system.

A central part of this programme is the reform of locational charges for new assets, designed to guide investment towards Strategic Spatial Energy Plan (SSEP)-aligned areas while maintaining investor confidence through stable, predictable and transparent charging.

This Call for Input (Cfi) sets out Ofgem’s early thinking on how transmission network charges could be reformed to incentivise new investment to align with the SSEP. The purpose of this Cfi is to engage stakeholders at an early stage, to understand potential risks, benefits, trade-offs and practical and technical considerations, and to identify areas requiring further analysis before any policy positions are developed further.

Government has set out its intention for reforms to network charging signals to be delivered as soon as possible within this Parliament, and by 2029 at the latest. This is why we are commencing industry engagement on potential options for charging reform now.

In addition, government will shortly publish its RNP Delivery Plan, which will set out the strategic approach and forward timetable for delivering reforms to support a more efficient, secure and cost-effective electricity system.

Scope and content

This Cfi explores how transmission-level locational charges and related regulatory levers could be reformed to better incentivise investment in locations more aligned with long-term system needs and planned network capacity. It considers options for improving and strengthening locational charging signals across, and within, SSEP zones. It looks at how improved locational charges could help address the potential misalignment between generation development and network readiness, alongside other potential regulatory levers like the use of some form of flexible connection offers under limited circumstances.

In addition, it provides some initial considerations for designing locational charges for demand and storage assets, recognising that their operational behaviour and responsiveness to signals may differ from those of generation assets.

¹ [Review of electricity market arrangements \(REMA\): Summer update 2025 – GOV.UK](#)

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Finally, the Cfl highlights the need to consider appropriate arrangements for legacy and transitional assets. Existing assets and those making investment decisions ahead of RNP implementation may benefit from tailored transitional arrangements in order to support predictability, fairness and value for consumers, and to maintain investor confidence when any new locational charging regime is introduced.

Overview of interzonal locational charge options

We present a broad set of potential options for the design of locational charges between SSEP zones (interzonal charges) for new assets. These range from incremental refinements to current arrangements through to more transformative approaches. The options also differ in the nature of the signals they provide. Some are designed to directly reflect underlying network costs, while others are structured to align more explicitly with the wider system impacts identified through the SSEP.

Different options strike different balances between supporting wider system value (SSEP alignment), efficiency (including overall benefits for consumers), maintaining predictable and transparent signals for investors, preserving effective competition, and delivering reforms that are practical and deliverable within expected timelines and budgets. The charging options explored are:

A. Targeted changes to the current charging regime

This option would retain the existing Transmission Network Use of System (TNUoS) framework for calculating charges but introduces focused changes to improve predictability and try to support alignment with the SSEP. Changes could make charges less volatile and base them on the future, rather than current, network. While this could be simpler to implement, it limits how far charging can align with a strategic plan, accurately reflect spare network capacity and address limitations of the current transport model.

B. Network utilisation impact charge

This option retains the broad economic principles underpinning the current TNUoS charging approach (reflecting long-run network costs) but would use an alternative model reflecting spare network capacity. The model could also be based on forward-looking assessments of reinforcement needs and planned network investment to encourage better alignment with the SSEP. Further work is needed, as this option may require enhanced long-term modelling and clear governance around underlying inputs and assumptions.

C. System and constraints impact charge

Under this option, charges would reflect long-term modelling linked to wider system planning outputs, incorporating expected network constraint patterns and future

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network upgrades.² This could strengthen spatial alignment with the SSEP while offering a more transparent link to planned system and network development. Further work is required to understand the extent to which it could build on the existing modelling framework used in the development of the SSEP.

D. Metric-based charge

Metric-based designs would set charges using simplified proxies based on SSEP alignment or constraints impact. These may be simpler to implement, but translating a simplified metric to a charge could introduce some subjectivity, and further work is needed to understand how this could be managed in practice.

E. Plan-based auction pricing

Under this option, charges could be set in each SSEP zone by auctioning off SSEP-aligned capacities of connections. This could provide transparent market-based valuations of connection and could be linked to connection or Use of System charges. However, it would need to be integrated carefully with the connections and government auctions processes, and would raise considerations around timing, investor certainty and liquidity of auctions.

Intrazonal charges

We also consider whether charges should provide an intrazonal signal at the transmission level, guiding investment siting within the 19 SSEP land zones, and whether such a signal should come through connection charges or Use of System charges.

² As set out by NESO in the SSEP and Centralised Strategic Network Plan (CSNP).

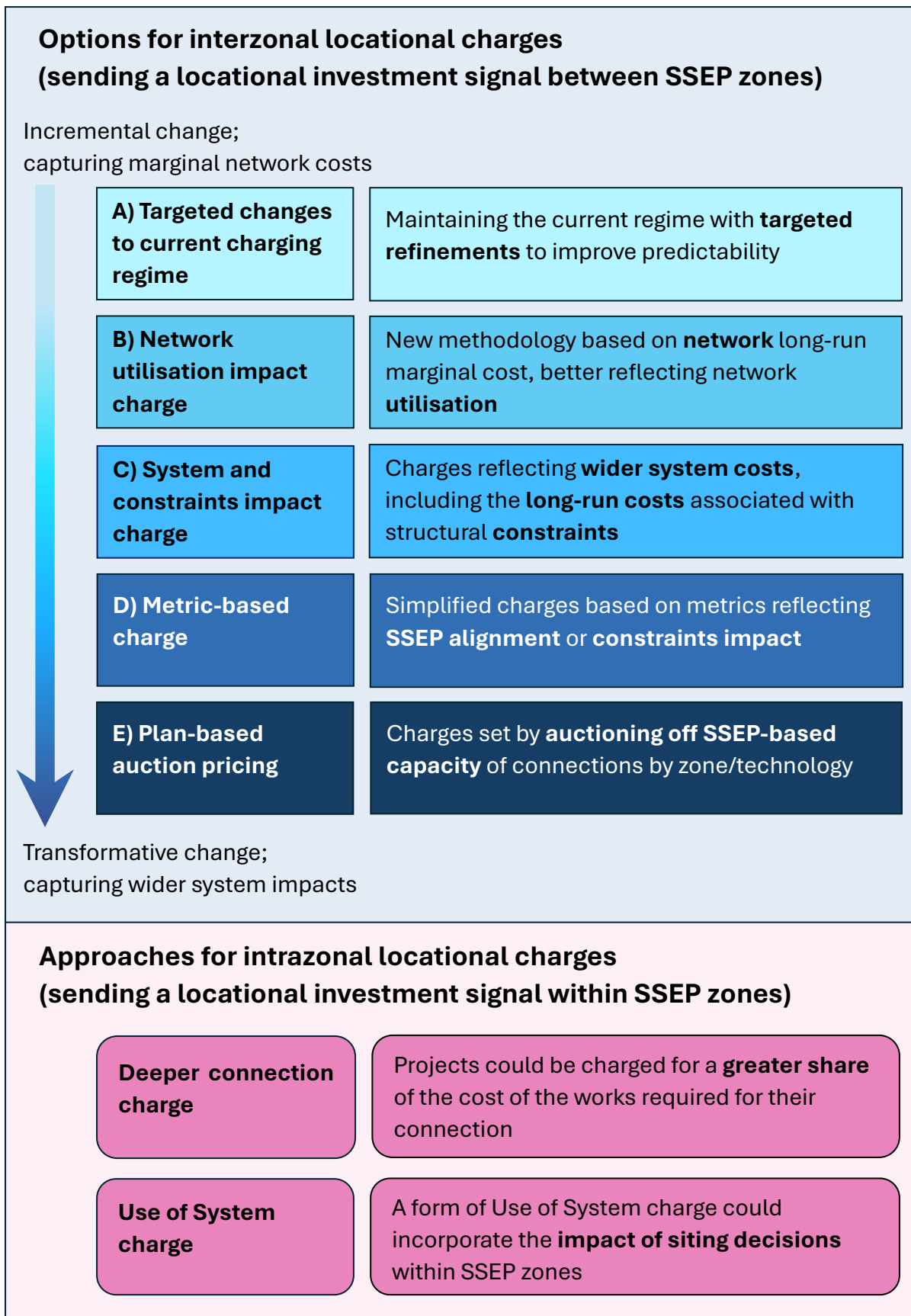


Figure 1. Overview of locational charging options

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Key design considerations

Across all options, we explore cross-cutting design considerations that influence both investor decisions and efficiency, and economic benefits for consumers.

We consider the trade-off between accurate and cost-reflective signals via the charging regime and predictable and stable charges. More accurate charges could better reflect evolving system needs and should support more efficient siting decisions. However, they may at the same time introduce volatility, particularly if they change frequently or rely on assumptions that vary over time. Measures that enhance predictability such as reducing update frequency or fixing charges around Final Investment Decision (FID) could help support efficient investment by giving investors clearer and more stable locational signals. This is particularly the case if we consider that assets are limited in their ability to re-site once making investment decisions.

Locational signals also interact closely with the connections regime. DESNZ is considering the broader set of policy levers, as set out in the REMA summer update, which includes connections and how these levers interact to support delivery of the future electricity system. Further detail on this integrated approach and how this would support delivery of the SSEP will be set out in the government's forthcoming RNP Delivery Plan, which will be published shortly.

Ensuring coherence between locational charging, connections regime and anticipatory investment frameworks will also be important. We are considering whether it could be desirable to widen the existing use of flexible connections on a time-limited basis for a limited number of assets. This could be relevant if, depending on future government decisions on the delivery of the SSEP, some connection offers were to be issued in excess of the chosen SSEP pathway. It could also be applicable for connection offers within the SSEP pathway where, for example there are delays to planned network build.

In either scenario, flexible connection offers could complement other tools to mitigate the risk of higher constraint costs for consumers and could act as a backstop where locational charges or other siting levers are not sufficient to align investment decisions with strategic planning. This could support efficient outcomes, ensuring a balanced risk allocation between developers and consumers, and incentivising generators to play their part in helping to manage constraint costs on the network. Further work will be needed to assess this possibility, including to consider its consistency with wider government policy on the relative balance between different siting and investment levers as this evolves.

Legacy and transitional arrangements

The scale of charging reforms could lead to material changes to the level of network charges and create uncertainty and incentives that existing generation and storage assets may be less well placed to manage. Because of this, it may be in consumers' wider interests to consider bespoke arrangements to manage the transition from the current charging regime to a new RNP regime for existing assets and for those that will

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make investment decisions prior to the implementation of a new charging regime. This case is strengthened if reformed charging arrangements for new assets involve fixing charges for longer periods. For clarity, we define legacy and transitional (LAT) arrangements as measures that may be taken to affect the charging arrangements for eligible generators which are either existing assets already operating (legacy) or for which investment decisions are taken before fully implementing RNP (transitional).

We recognise that this is an important issue for many generators and investors. Therefore, Ofgem with the support of the government is committed to prioritising the consideration of LAT arrangements and the policy development of any potential approach. We are also in the process of establishing a Charging Transitional Arrangements Group (CTAG) with representatives from across the sector to accelerate our work in this area.

This Cfl therefore explores the scope of prospective legacy and transitional arrangements, including whether these should apply to all existing and transitional assets, or only to specific groups such as scheme-backed generators under the Contracts for Difference or Capacity Market, or fully commercial assets.

We set out three design choices for legacy and transitional arrangements, in which the core trade-off is the ease of implementation versus the degree of change to the current arrangements:

- Retaining a parallel charging regime based on the existing methodology which updates annually; or
- Phasing implementation from the existing methodology to RNP approach over a set period; or
- Creating a fixed charging regime based on the existing methodology only for assets within the scope of legacy and transitional arrangements, where charges would not be recalculated once set.

In assessing these options, we would need to consider the impact on charges levied on consumers, the ability of arrangements to improve investor certainty, and ease of implementation and administration.

Finally, we consider the methods by which charges could be fixed – either by fixing the charge at the TNUoS rates of the year prior to the implementation of a new regime, by setting charges for these assets based on a forecast or based on the year in which FID was made.

Next steps

The deadline for responses to this Cfl is **26 May 2026**. Stakeholder input will help identify where further analysis is best focused and whether further options warrant consideration before any minded-to positions are developed. We intend to publish a

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summary of the Cfl responses by late 2026. We will publish non-confidential responses on our website.

Alongside this Cfl, we have published an Expression of Interest (EoI) to invite stakeholders to participate in an upcoming working group on RNP charging reforms (Locational Charging Design Group - LCDG).³ The deadline for applications to this group is the **22 April 2026**. We have also established dedicated engagement on legacy and transitional arrangements (Charging Transitional Arrangements Group - CTAG).⁴ This group will inform our view of the case for legacy and transitional arrangements and how they might be designed.

Insights from our engagement groups will support the next phase of policy development. We anticipate that all materials used within meetings of the groups, as well as minutes of the meetings themselves, will be published online.

Any future proposals arising from this work will be subject to further detailed design, assessment, and engagement with industry and stakeholders before any implementation decisions are made. We will continue to work closely with the government as it progresses its thinking on wider RNP policy issues to ensure regulatory alignment with other strategic policy goals.

³ [Locational Charges and Regulatory Siting Levers under Reformed National Pricing – Ofgem](#)

⁴ [Establishing a Charging Transitional Arrangements Group under the Reformed National Pricing programme – Ofgem](#)

1. Introduction

This chapter sets out the context for the Reformed National Pricing programme and the Strategic Spatial Energy Plan, explains the purpose and scope of this Call for Input, and signposts related work, publications, timelines and next steps.

Reformed National Pricing

- 1.1 In July 2025, the government confirmed its decision to retain a single wholesale electricity market in its REMA summer update.⁵ With this, government launched the Reformed National Pricing (RNP) programme, aiming to, within a national pricing model, i) deliver a more strategic and co-ordinated approach to energy system planning and development, ii) provide stronger signals for the efficient siting of new assets, and iii) increase the overall operational efficiency of the system.
- 1.2 Central to this vision is strategic energy system planning, driven by the Strategic Spatial Energy Plan (SSEP). RNP will turn this vision into reality by providing clearer, more predictable market signals aligned with the SSEP. This increased certainty enables timely and cost-effective construction of new generation, reducing consumer costs, and supporting a more efficient, secure, and decarbonised electricity system.
- 1.3 Delivering the SSEP will require aligning investment signals across multiple siting levers such as planning, seabed leasing, the connections regime, locational network charging, generation and storage investment support schemes, and network build, as set out in the REMA summer update.
- 1.4 Coordinating these siting and investment levers should reduce the need for capital investment in new generation and network infrastructure, lower constraint and balancing costs, and reduce uncertainty for investors.
- 1.5 In government's upcoming RNP Delivery Plan, government will set out its vision and policy options on a range of siting and investment levers and how they could interact and work together to deliver an appropriate balance between greater strategic planning and the role of markets.

Open letter on reforms to network charging

- 1.6 One of the key siting and investment levers is the reform of locational network charges for new investment. In July 2025, Ofgem released an open letter with our initial thinking on how network charging signals could be reformed to improve

⁵ [Review of electricity market arrangements \(REMA\): Summer update 2025 – GOV.UK](#)

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their alignment to the strategic planning of generation and network via the SSEP and Centralised Strategic Network Plan (CSNP).⁶

- 1.7 We briefly considered how charging methodologies could evolve to better reflect the future network and energy system, given the evolving energy policy landscape. We highlighted that reforms could, for example, base charges on planned network spare capacity, make network charges more predictable and seek to send more efficient locational signals to transmission-connected demand and storage.
- 1.8 We also noted the need to carefully consider how existing assets should be treated in the transition to a reformed charging regime.

Purpose and scope of this Call for Input

- 1.9 Since our July 2025 open letter, we have built upon published ideas and now present a combination of early design thinking and open-ended questions. This Call for Input (Cfi) is seeking views on how to reform network charging, alongside other regulatory levers in the energy system, consistent with any potential wider reforms as part of the RNP programme.
- 1.10 We present several options, ranging from incremental to more significant reform of the current transmission network charging regime. Some options would involve the design of an altogether new locational charge and bring in a role for other regulatory levers. Within our analysis, we consider key trade-offs which we will explore further throughout the design process.
- 1.11 Irrespective of broader government decisions about the role of different siting and investment levers in delivering the SSEP and the RNP programme, and in line with the case for change set out in the next chapter, it will remain essential to reform the network charging regime to ensure it is aligned with strategic planning. It will also be necessary to review arrangements for existing and transitional assets to avoid any unintended consequences. That said, the preferred option for reforming locational network charging may depend on wider government policy decisions regarding the future role of network charging signals and how these relate to other siting and investment levers, including government-led auctions.
- 1.12 We invite stakeholders to share insights on how well the options for charging reform proposed in this Cfi could meet our assessment criteria, and to raise any additional options we may not have considered. We welcome responses from a broad range of industry stakeholders, as these stakeholders will play a direct role in implementing the SSEP.
- 1.13 We will use the feedback received through this Cfi to inform a minded-to position on the detailed design options for the future charging regime. We will continue to

⁶ [Reforming network charging signals to align with the future design of Great Britain's electricity system – Ofgem](#)

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work closely with government as it progresses its thinking on wider RNP policy issues to ensure regulatory alignment with other strategic policy goals.

Links to other workstreams

- 1.14 This Cfl focuses on transmission-level locational charging. We expect to review arrangements for distribution-level charging as reforms for transmission progress, to ensure that distribution-level arrangements remain coherent, appropriate, and consistent with the overall policy framework.
- 1.15 We also remain closely aligned with the ongoing Ofgem Cost Allocation and Recovery Review (CARR), which is considering network charges as part of a wider assessment of whether there are more efficient and fairer ways to allocate and recover energy system costs from consumers.
- 1.16 Any decisions on the role of locational charging for demand will also need to consider interactions with Ofgem and DESNZ work on demand connections and prioritisation of the demand queue.
- 1.17 Although this Cfl touches on interactions between locational charges and the connections process, the details of the connections methodology in the context of the SSEP and the RNP programme are outside the scope of this Cfl. Interactions between different levers will be considered in the RNP Delivery Plan, to be published shortly. If required, we may look into reviewing and updating the connections methodologies to integrate strategic alignment with the SSEP and RNP.⁷

Timeline for locational charging reforms

- **Late 2026:** Ofgem update on Cfl feedback and next steps
- **2026 onwards:** Ofgem work on the design of locational charging options and development of code and licence amendments⁸
- **2026-27:** Ofgem work on the design and development of legacy and transitional arrangements
- **By 2029:** Deliver reforms to charging arrangements, following required assessment and consultation on detailed locational charge proposals

⁷ NESO, as noted within its licence, is required to review the connections methodologies at least once annually and update if required. The Authority can also instruct for these connections methodologies to be updated.

⁸ Timing pending any introduction of new legislative powers, which is itself subject to Parliamentary time.

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Related publications

- **Expression of Interest – Locational Charging Design Group, March 2026** [Locational Charges and Regulatory Siting Levers under Reformed National Pricing](#)
- **Expression of Interest – Charging Transitional Arrangements Group, March 2026** [Establishing a Charging Transitional Arrangements Group under the Reformed National Pricing programme](#)
- **Open Letter: Reforming Network Charging Signals, July 2025** [Open Letter: Reforming network charging signals to align with the Government’s decision on the future design of Great Britain’s electricity system](#)
- **Reformed National Pricing decision, July 2025** [Review of electricity market arrangements \(REMA\): Summer update 2025](#)
- **Strategic Spatial Energy Plan: Commission to NESO, October 2024** [Strategic Spatial Energy Plan: commission to NESO](#)
- **Energy System Cost Allocation and Recovery Review, July 2025** [Call for Input: Cost Allocation and Recovery Review](#)
- **Demand Connections Reform Call for Input, February 2026** [Call for Input: Demand connections reform](#)

Call for Input stages

Stage 1 Call for Input opens: 26 March 2026

Stage 2 Deadline for responses: 26 May 2026

Stage 3 Responses reviewed and published: late 2026

How to respond

We want to hear from anyone interested in this Call for Input. Please send your response to the person or team named on the front page of this document before the response deadline.

We have asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.

We will publish non-confidential responses on our website.

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Your response, data, and confidentiality

You can ask us to keep your response, or parts of your response, confidential. We will respect this, subject to obligations to disclose information. For example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations, or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you do wish to be kept confidential and those that you do not wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we will contact you to discuss which parts of the information in your response should be kept confidential and which can be published. We might ask for reasons why.

If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the United Kingdom's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 4.

If you wish to respond confidentially, we will keep your response confidential, but we will publish the number, but not the names, of confidential responses we receive. We will not link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

How to track the progress of a Call for Input

1. Find the web page for the Call for Input you would like to receive updates on.
2. Click 'Get emails about this page', enter your email address and click 'Submit'.
3. You will receive an email to notify you when it has changed status.

A Call for Input has two stages: 'Open' and 'Closed'.

2. The case for change for regulatory siting levers

This chapter outlines the current arrangements for network charging and connections as regulatory siting levers. It then sets out the case for reforming network charges, which includes the need to aid delivery of the SSEP and improve investor certainty while supporting better siting decisions.

We also set out and seek views on assessment criteria that could be used in the process of designing new charges. Those include balancing between wider system value, efficiency, competition, investability, and deliverability.

The current regulatory siting levers

- 2.1 Ofgem currently administers several regulatory levers that influence the locations of assets within the energy system. Those levers ultimately determine a) where and when parties can connect (the connections regime); and b) how much those parties will need to pay upon connecting and during their lifetime with respect to the network they use (the charging regime).
- 2.2 The **connections regime**: Ofgem oversees the regulatory framework for grid connections in GB. This includes regulating the National Energy System Operator (NESO), Transmission Owners (TOs) and Distribution Network Operators (DNOs), approving relevant code modifications, and resolving disputes. Historically, connections have been granted at firm, full capacity on a first-come, first-served basis. Between 2023 and 2025, significant reforms were introduced to both the connections process for new connections, and the existing queue, centred on prioritising mature, ready-to-connect projects that align with zonal connection capacities per technology as laid out in strategic plans. A queue milestone framework was also introduced to ensure efficient and timely connection.⁹
- 2.3 In parallel, there has been a growing voluntary uptake of flexible connection arrangements in recent years to enable faster connection of projects. These non-firm agreements allow capacity to be curtailed when local network conditions require it, in exchange for removing the requirement for non-critical enabling works¹⁰ to be complete before assets connect to the system.
- 2.4 The **transmission network charging regime**: Transmission network charges in the context of investment levers currently fall into two broad categories: connection charges recover the costs associated with the provision and maintenance of connectees' sole-use connection assets;¹¹ and Use of System charges recover the ongoing costs of maintaining, expanding and reinforcing the

⁹ [Queue Management Guidance 2025 – NESO](#)

¹⁰ The minimum transmission reinforcement works local to the point of connection which need to be completed before an asset can be connected to and given firm access to the transmission network.

¹¹ These include both upfront costs and ongoing liabilities.

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transmission system. Transmission Network Use of System Charges (TNUoS)¹² are set to i) send a cost-reflective signal intended to drive efficient siting decisions¹³; and ii) ensure each TO receives the allowed revenue to which it is entitled under the terms of its price control. Broadly speaking, if a generator is located a long way from demand centres, their charges will tend to be higher than those levied on a generator located closer to demand. This reflects that, on average, the greater the distance between generation and demand, the greater the eventual need for network expansion.¹⁴

- 2.5 As shown in the table below, the majority of TNUoS revenue is recovered from demand, predominantly via non-locational demand residual charges. This Cfl focuses primarily on reform of the locational forward-looking element, which primarily affects generation and storage.

Table 1. Forecast TNUoS revenue recovery from demand and generation (including storage) in 2026/27¹⁵

TNUoS revenues	Demand (£bn)	Generation (£bn)
Locational (forward-looking)	0.1	1.5
Non-locational	6.3	(0.3) ¹⁶
Total	6.4	1.2

- 2.6 Connection charges are inherently site-specific, and TNUoS charges vary by location. We refer in this document to both “TNUoS” and “connection charges” where relevant, and use “network charging” as a collective term for both concepts

¹² TNUoS charges contain both a locational (or forward-looking) element and a residual element. Forward-looking charges reflect how users contribute to future network costs through their use of the network at a particular time and in a particular location. Residual charges are applied as a non-locational top-up to recover the remaining allowed revenue once forward-looking charges have been set.

¹³ The current methodology relies on an Incremental Cost Related Pricing, Direct Current Load Flow model (the DCLF ICRP, commonly referred to as “the transport model”). The transport model creates charges by modelling the incremental power flows that would arise from an additional 1MW of generation at any given ‘node’ on the transmission network. These incremental flows are then translated into a locational charge (or credit) reflecting the long-run reinforcement cost that those flows would incur in a least cost network expansion, based on the historical costs of such expansion. The resultant charge broadly reflects the relative impact of additional load on the transmission system.

¹⁴ TNUoS charges are also set to recover costs for offshore transmission.

¹⁵ [2026-27 Final TNUoS Tariffs Report – NESO](#)

¹⁶ The Limiting Regulation (part of retained EU law) requires that overall average TNUoS charges for generation are within the range €0-2.50/MWh. A negative adjustment tariff is applied to charges for generation to stop them from exceeding this range.

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where the context requires. We expect Distribution Use of System (DUoS) charges to be reformed following any reform to TNUoS and transmission connection charges.

Case for change

Network charges were not designed to align with strategic plans

- 2.7 Use of system network charges have been designed to reflect the incremental cost of using the network on an annual basis. Generation and storage asset developers then internalise these costs as part of their investment decisions. The underlying assumption is that market-based decisions on where generation and storage locate lead to efficient siting outcomes, which then inform subsequent network investment decisions.
- 2.8 The SSEP, combined with the CSNP, will take a long-term view that optimises investment across generation, storage, and network assets, to ensure a plan-reflective, coordinated approach. This means that the purpose of network charges may be broadened beyond reflecting network costs to achieving an outcome aligned with the plans.
- 2.9 Current network charges neither reflect existing or planned spare capacity in specific areas, nor the SSEP's consideration of structural constraints and wider system cost drivers. Instead, those charges rely on reflecting the additional network costs arising from transmitting electricity over longer distances. However, if the network, based on a plan, is built in anticipation of generation locating further away from demand, a generation charge based on distance from demand centres may drive against the plan, encouraging misalignment. It may be useful in the future for charges to reflect where on the network there is spare capacity, meaning where network components are structurally underutilised and additional load could be accommodated without requiring network reinforcement.
- 2.10 The sequencing of investment remains important under a strategic plan. Even when assets are built according to a plan, there will still be a need to ensure that assets are incentivised to locate first in areas that minimise overall consumer costs. The absence of a clear system signal could mean investment moves toward the SSEP zone that appears financially most attractive to individual projects, rather than the zone that initially best supports the plan. This affects both which SSEP zone a project selects and the timing of a project commissioning relative to network readiness. This could lead to constraint costs rising above structurally efficient levels or increase the risk of underutilised or stranded network capacity during transitional periods.

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2.11 The combination of various regulatory levers such as network charges and connection offers¹⁷ would be important in terms of efficient sequencing. This includes ensuring that assets are not commissioning until sufficient network is in place, or in excess of planned network capacity. This could protect consumers from the risk of inefficiently high constraint costs.

Strategic Spatial Energy Plan (SSEP)

The SSEP¹⁸ will be a long-term, whole-system plan that sets out where and when major energy infrastructure should be built across a country or region. The plan will help to inform which zones in Great Britain are most appropriate for new generation and storage projects. In doing so, it will consider which zones are planned to have sufficient network capacity, where environmental risks are lowest, and where planning processes are likely to be more streamlined. It will also support anticipatory network investment decisions, which will be planned through the CSNP.

In the context of siting of assets, the SSEP will be crucial in ensuring coordinated investment across generation, storage, demand, and networks infrastructure. In the absence of a plan, network investment may lag generation and storage investment. Equally, assets may locate where there is insufficient network infrastructure, or generation and storage may not locate to areas where anticipatory investment is planned. Altogether, those could lead to higher than necessary network constraint costs, or stranded network investment.

The SSEP can inform some locational value but not all

2.12 The draft SSEP publication will use 19 spatial onshore zones (as well as 19 offshore zones).¹⁹ However, network constraints and spare capacity may still exist within these onshore zones, across both transmission and distribution voltage levels. As a result, there may remain a need for an additional mechanism to provide signals on the most efficient connection points within a zone (meaning intrazonal signals). Both interzonal and intrazonal signals could, in principle, be delivered through a locational charge applied within each of the 19 zones.

Investment decisions may be distorted if developers cannot react to an annually re-calculated charge

2.13 Investors and developers internalise charges as part of their investment decisions at the point of making those investments. A charge that cannot be accurately

¹⁷ Including elements such as flexible connection offers.

¹⁸ For further detail, please see: [Strategic Spatial Energy Plan – Commission to the National Energy System Operator 2024 – GOV.UK](#)

¹⁹ [SSEP Transparency Update – NESO](#)

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predicted at that point could lead to sub-optimal investment decisions from a system perspective, leading to higher costs to consumers.

- 2.14 If investors and developers perceive charges as difficult to predict, this could mean that they need to reflect a broader range of possible charges during their investment decisions. This in turn could result in risk premia being added to their bids in different markets. When those premia are based on factors that developers are not well placed to predict – and therefore cannot effectively respond to – they can be detrimental to consumers. In a strategically planned world, there might be greater scope for more stable charges that reflect the planned evolution of the system, rather than changing annually.

The need for locational signals in informing demand investment

- 2.15 Driving demand toward locations with an excess of generation capacity has the potential to save on investment and constraint costs. Strategic planning to date has primarily focused on generation and storage. However, rapid growth in certain forms of siting-sensitive demand, such as data centres, can materially influence reinforcement requirements and constraint costs, particularly in areas with limited network capacity. In the absence of effective locational levers for such demand, system costs may rise - costs that are ultimately largely borne by consumers.
- 2.16 Parallel work is underway to address the rapid increase in demand connections, particularly from data centres. Through our recent call for input on demand connection reform,²⁰ we outlined the challenges this growth creates and set out a programme of work - Curate, Plan, Connect - to address them. As part of this joint programme, government has set out proposals²¹ to designate relevant strategic plans and align data centre connections to regional infrastructure targets as a means of balancing infrastructure investment with accelerating network connections and managing costs.
- 2.17 Within that context, this Cfl seeks views on whether, and in what circumstances, demand-side locational investment charges or related signals could complement the plan-led framework. Any such approach would need to recognise that some types of demand have limited ability to respond to locational investment signals, while also ensuring timely connections.

²⁰ [Demand Connections Reform Call for Input – Ofgem](#)

²¹ [Accelerating electricity network connections for strategic demand – GOV.UK](#)

Assessment criteria for locational charging reforms

2.18 A set of assessment criteria is outlined below. These could be applied to assess the suitability of different locational charging options as the process moves toward discounting and shortlisting.

Table 2. Criteria for assessing locational charging reform options

Criteria	Description
Wider system value	Degree of alignment with SSEP outcomes by accounting for wider system value
Efficiency	Delivers overall benefits for consumers and fair allocation of costs and risks, while appropriately reflecting system costs ²² and/or network costs
Investability	Charges are predictable, transparent and allow assets to respond in a timely manner
Enabling competition	Enables sufficient competitive dynamics in the system, driving costs down for consumers
Deliverability	Not unduly complex and can be implemented within pre-set timelines and a reasonable budget

Q1. Do you agree with our assessment criteria for locational charging options?

²² Such as transmission network constraint costs.

3. Options for interzonal locational charges

This chapter sets out the options under consideration for the reform of transmission network charges to provide a locational signal between SSEP zones (interzonal). These range from a least-change option, retaining the current charging methodology with targeted improvements, to more transformative change, such as setting charges via auction. In general, we discuss:

- How the options could (directly or indirectly) incentivise the efficient use of network capacity, and facilitate SSEP alignment;
- Implementation – including complexity and timely delivery; and
- Future work needed to further understand the options and be able to properly assess them.

Potential options for interzonal locational charges

- 3.1 This chapter outlines high-level options for interzonal locational charges, which would send a locational investment signal differing between SSEP zones. In general, we anticipate that these would be implemented through TNUoS charges. These are early-stage ideas intended to stimulate discussion and gather industry feedback. They are non-exhaustive and do not indicate any preferred approach. We welcome all suggestions on other methodologies that could deliver benefits under RNP.
- 3.2 The options, set out from incremental to more transformative changes from the current arrangements, are:
 - A. Targeted changes to the current charging regime
 - B. Network utilisation impact charge
 - C. System and constraints impact charge
 - D. Metric-based charge
 - E. Plan-based auction pricing
- 3.3 These options vary in their basis. Under Options A and B, charges reflect long-run incremental network cost (as they do under the status quo). Other options could reflect wider system costs; for example, under Option C, charges would relate to an asset's effect on system constraints, reflecting projects' wider system impacts.
- 3.4 Any of these options could be applied in isolation. In principle, the core elements of these approaches could be combined in a hybrid approach, though doing so may introduce additional complexity and delivery risks.

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Q2. Do you have a preference for any of the five options? If so, why?

Q3. For each of the options presented, what do you see as the key costs, benefits, and system-wide implications given the case for change set out in Chapter 2?

Q4. How does each option perform against the assessment criteria set out in Chapter 2?

Q5. Are there options not considered here which we should be exploring? If so, please provide detail.

Option-specific questions can be found at the end of each subchapter.

Option A: Targeted changes to the current charging regime

3.5 TNUoS is currently based on an Investment Cost Related Pricing (ICRP) methodology. As set out above, this methodology uses the transport model to determine which specific network components are used by the electricity generated/consumed by network users on its route from generation to final demand, and charges network users accordingly. The model assumes that the network is already fully utilised and therefore that any additional flows resulting from generation would require reinforcement.

3.6 One potential approach could be to retain much of the current TNUoS charging methodology as it stands today, while introducing targeted changes to improve predictability and attempt to better facilitate the SSEP.

3.7 This could, among other features, possibly involve:

- Replacing the current 27 generation zones with the 19 planned terrestrial SSEP regions.²³
- Introducing a “bolt-on” reduction in charges for under-utilised circuits, to capture the impact of spare capacity.²⁴

²³ We acknowledge the methodology underpinning the 27 generation zones was being revisited via code modification CMP419, prior to the government’s decision on REMA, and that there are elements under today’s arrangements that may no longer provide an adequate basis framework for the objectives of the SSEP.

²⁴ A reduction of this kind, where a 25% discount was applied to under-utilised lines, was applied in the original TNUoS model in England and Wales but removed as part of BETTA charging reforms on the grounds that the discount was not cost-reflective.

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- Modelling the future, planned network rather than the existing one (discussed further under Option B, and in Chapter 6).

Rationale and further considerations

- 3.8 Modifying the existing transport model could be comparatively straightforward to implement, as it would involve the least change and may require minimal adaptation from market participants. However, the suitability of this option, particularly for providing an interzonal locational signal, would depend on how well changes enabled it to send an appropriate signal reflecting the utilisation of network capacity. Any attempt to account for spare network capacity, such as a flat discount for underutilised circuits, would likely be supplementary, rather than inherently incorporated into the methodology, and might be relatively crude. This may limit its ability to deliver efficient and/or accurate locational signals aligned with system needs.
- 3.9 Additionally, this approach may not address some of the issues with the current charging arrangements identified earlier in this Cfl.
- 3.10 More fundamental changes may be needed for charges to complement the SSEP effectively.

Q6. What are your views on the possible changes outlined in Option A? What other alterations could be made to the current methodology to support the SSEP and deliver benefits?

Please include views on:

- How far a modified transport model could be well aligned with the SSEP.
- To what extent a modified transport model could be used to reflect spare capacity and how it could be done effectively.

Option B: Network utilisation impact charge

- 3.11 Another approach could be to develop a new charging methodology, a network utilisation impact charge (NUIC). This type of charge would remain based on the principle of charging assets according to the network long-run marginal cost (LRMC) incurred by a siting decision but would move beyond the limitations of the current model. LRMC-based charges, including the current TNUoS regime, are designed to reflect the costs of expanding the network infrastructure (the investment in additional network capacity required to accommodate further increments of generation or demand utilising the transmission network). As such, NUIC would not take account of the wider costs associated with managing

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constraints on the existing network but would seek to improve the representation of network utilisation in a network LRMC-based charge.

- 3.12 NUIC would be a middle ground between incremental changes and a full redesign: it retains cost-reflective charging principles while adapting them to a strategic planning paradigm. We can consider examples from other jurisdictions that use different LRMC approaches to network charging. In Sweden, reforms proposed for implementation in 2027 include a forward-looking LRMC approach based on load flow modelling.²⁵ While it also assesses the incremental impact of new supply and demand at specific connection points, the model differs from the GB transport model. It simulates projected generation, demand and network conditions over a defined period of time to determine whether additional supply and demand would overload the grid.²⁶ This contrasts with the current GB transport model, which assumes all lines are fully utilised and models power flows to derive a distance-based measure between supply and demand, from which charges are determined.
- 3.13 Under this proposed approach, where an incremental addition does not lead to grid overload, the LRMC component of the charge is set to zero, which indicates that the model can reflect spare capacity on the network. A model of this type - able to represent spare capacity and generate charges that better reflect the impact of projected network utilisation - could encourage assets to locate in less constrained areas, whether relative to the SSEP or based on the actual profile of network build-out.²⁷ This may be a useful feature to support the connection of SSEP-aligned assets or those that minimise constraints, particularly where the SSEP and CSNP drive substantial anticipatory network investment.
- 3.14 Another LRMC-type approach could involve linking charges to an asset's potential impact on the timing of future network reinforcement. Approaches of this nature include methodologies such as Long-Run Incremental Cost (LRIC) and Forward Cost Pricing (FCP), both currently applied for distribution charging at the EHV level in GB.^{28,29}

²⁵ [Review of the transmission network tariff and proposal for changes to the transmission network tariff model – Svenska kraftnät](#)

²⁶ The Swedish proposal would project the energy system for only the following year, but in theory it would be possible to model energy systems across different time horizons to better align with the SSEP.

²⁷ See Chapter 6, *Technical design choices*, for further information.

²⁸ EHV means Extra High Voltage, typically referring to the level of the distribution network with a voltage of 33kV or above.

²⁹ The first LRIC and FCP approaches to network charging were published in around 2007 by Bath University and G3 (Scottish Power, Energy Networks and SSE Power Distribution and Central Networks), respectively. They were subsequently adopted as the two common distribution use of network charging methodologies. Currently, 8 of 14 Distribution Network Operators use an LRIC methodology, while the remaining 6 use a FCP methodology.

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- 3.15 LRIC and FCP approaches typically use demand projections and information about underutilised network capacity to calculate the time before needing to reinforce the network. Charges are then informed by how an increment of new generation or demand might affect this timing, often assessed through changes in the net present value of future investment costs.
- 3.16 In principle, a variation of these approaches can create a locational network charge that reflects both network utilisation and the relative position of supply and demand, with assets potentially being rewarded where they defer reinforcement and charged where they bring it forward. Approaches of this type, reflecting spare capacity on the network, could help support connections in areas where significant reinforcement has taken place.

Rationale and further considerations

- 3.17 The introduction of NUIC would continue to send investment signals based on the long-run network cost that a prospective asset would impose on the system. This is consistent with the principles that have underpinned charging in Great Britain since privatisation and would represent a less significant shift than some of the other options set out below. It would, however, require adapting an existing model for a more strategically planned GB context.
- 3.18 Reflecting spare capacity could improve cost-reflectivity and alignment with the SSEP. Depending on the methodology adopted, it could provide a more accurate reflection of the costs associated with asset siting decisions than the current transport model. It could do so by representing and encouraging connections in areas where spare network capacity exists or is planned.
- 3.19 NUIC may offer more refined locational signals, but questions remain about how well they might align with the SSEP more broadly. This would depend on the set of inputs and assumptions used to model the future energy system. Using outputs from the SSEP or CSNP as a proxy for the future energy system, and as inputs to the load flow power system model used for charging, could improve plan-alignment of the signals produced.
- 3.20 Similarly, for methods such as LRIC, the concept of time to reinforcement may need adapting to align with strategic plans. Existing cost allocation methods like LRIC were designed for a world in which network expansion responds incrementally to load and generation growth, rather than one in which investment is determined through long-term planning. 'Time to reinforcement' is usually based on assumed long-term demand growth, so such methods would need reworking to align with a planned network.
- 3.21 Depending on design, alternative LRMC methods may still produce relatively volatile and/or unpredictable charges. LRIC at EHV has produced volatile charges, which would need to be addressed if an LRIC-type method is considered further. This type of approach fundamentally requires looking forward over time - using

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assumptions about demand growth and the future network. There may therefore be a wider set of subjective inputs compared with the current ICRP model, which could result in charges that are more difficult to predict. However, as discussed above, inputs could be linked to published assumptions, such as the SSEP or CSNP, which could improve predictability, particularly if larger proportions of charges are fixed in advance.

- Q7. What long-run costs should NUIC reflect, particularly in the context of the growing share of network investment made anticipatorily through the CSNP rather than responding directly to the connection of new assets?
- Q8. Should the costs of network build determined by strategic planning be recovered on the same basis as the network build required by assets locating outside of the SSEP (and therefore requiring network beyond the SSEP's optimisation)?
- Q9. If an LRIC-type methodology were developed for transmission network charging, how could the concepts of (a) time-to-reinforcement and (b) baseline demand projections be adapted in the context of strategic planning and anticipatory network reinforcement?
- Q10. Could any other LRMC approaches be used to send a locational signal to support the SSEP or deliver wider system benefits? Please clearly indicate any relevant methodologies, including those applied in other international contexts.

Option C: System and constraints impact charge

- 3.22 Under this option, a locational charge reflects wider system costs including the long-run costs of structural constraints. It does so by reflecting the locational value of energy in a similar way to a zonal wholesale market but modelling it over a long period rather than having it calculated in every settlement period. Charges could be calculated for each technology type as the difference between revenues under national pricing and zonal pricing. This difference could act as a proxy for locational value over the modelled period, internalising structural and planned constraints.
- 3.23 In theory, a purely operational approach would attempt to reflect the impact a new asset has on the system based on current network build and the locational siting of generation, demand and storage. Using real-time operational values directly could lead to significant charge volatility and make it difficult for investors to form reliable expectations. To address this, the operational costs could instead be modelled over several years and averaged out over that period, producing a more stable charge while still reflecting underutilised network capacity. Under

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this approach, market participants would not be exposed to the half hourly operational signals of the wholesale market as they would in a locationally priced wholesale market, making it a less volatile signal for investors.

- 3.24 If this approach were modelled using the same network and siting assumptions as the SSEP and CSNP, it could provide a consistent charge reflecting wider system value and supporting informed siting decisions. One way to produce such a charge could be to compare an asset's modelled operational wholesale revenues in two scenarios: a national market where curtailment is compensated, and a zonal market with different zonal prices and no curtailment compensation.³⁰ NESO could potentially model these scenarios over a multi-year period using the same planned network assumptions and model used for the SSEP.
- 3.25 This type of approach could reflect the wider system impacts of asset siting decisions. For example, generators in export-constrained areas, where modelled zonal revenues would be lower than national revenues, could face higher charges in comparison to those in import-constrained areas. Unlike the current ICRP model, it would not directly send signals related to triggering network build, but it could indirectly reflect wider system impacts. Using CSNP planned build in the modelling, and aligning the modelled zones with the SSEP zones, could help ensure this charging approach is consistent with strategic planning.

Rationale and further considerations

- 3.26 Aligning network charges with the SSEP and CSNP could help support wider system optimisation. In principle, charges could incentivise generation to locate in priority areas and make better use of planned network capacity, particularly where the SSEP identifies future need and anticipatory investment is underway. A charge that reflects strategic planning could balance cost-reflectivity with predictability, giving investors greater confidence while potentially improving the accuracy of the locational signal relative to ICRP. Linking the charging model to the published SSEP and CSNP may also enhance transparency and provide clearer, forward-looking signals.
- 3.27 Even in a strategically planned context where transmission-level investment is set in advance by the CSNP, charges could still convey an investment signal that reflects how siting decisions interact with constraints, without needing to reflect each project's incremental impact on future network build.
- 3.28 However, there are risks that need to be managed. If network charges and SSEP signals diverge, for example due to delays in network build-out, this could lead to persistent constraint costs, inefficient investment, and confusing signals for

³⁰ This idea is similar to the proposal put forward by Scottish Power in CMP433 as OpTIC (Optimised Transmission Investment Cost), which would replace the current transport model.

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developers, particularly if generators locate based on this signal before network upgrades are complete.

- 3.29 Implementing this design would rely on system modelling with a range of important assumptions. As it no longer models an estimate of the long-run marginal network cost, it is a more significant change to underlying prices than maintaining ICRP or adopting an alternative LRMC model as shown above. Additional changes would also be required, such as an alternative approach to local circuit charges,³¹ which are currently set based on ICRP methodology. Given the scale of change and the modelling required, there might be risks to consider ahead of implementing such an option.

Q11. What additional measures might be required to deliver effective locational signals using the approach in Option C?

Q12. Are there any alternative approaches integrating SSEP outcomes to send a signal reflecting assets' wider system impact, including constraints?

Option D: Metric-based charge

- 3.30 One way to simplify charges while potentially aligning them with the SSEP might be to base them on metrics that reflect how network conditions are expected to develop, including how spare network capacity evolves over time by SSEP zone.
- 3.31 For example, charges might be linked to the SSEP using a metric such as the ratio of actual generation capacity of a given technology in a zone to the SSEP's planned generation capacity, with charges rising as the capacity in a zone approaches the planned capacity. This would lead to lower charges in zones where generation is lagging behind the plan, incentivising additional build where it is most needed.
- 3.32 Alternatively, a metric-based charge could provide a signal linked to the impact of generation on constraint costs using a simple metric such as the local balance of generation and demand. Under this approach, generators in areas where generation exceeds demand would face higher charges, while those in demand-led areas would pay less. This provides a simplified and transparent proxy for whether a generator is located in a part of the network more likely to be constrained, and therefore whether a generator is likely to exacerbate constraint costs. A similar approach is in use in Denmark, where generators in "production-dominated areas" pay higher network charges than those in "consumption-

³¹ This tariff applies to generators that are not directly connected to the Main Interconnected Transmission System (MITS) and is currently calculated using the transport model.

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dominated areas”.³² However, constraints are also dependent on the network capacity between areas, which this metric would not capture without refinements.

- 3.33 A metric-based charge could potentially serve as a ‘top up’ or ‘fine tuning’ element of a network charge, adding a SSEP-reflective component, rather than being a standalone methodology. However, further work would be needed to understand whether such an approach is feasible, appropriate, and capable of reflecting the SSEP in a robust way.

Rationale and further considerations

- 3.34 The current charging regime has attracted criticism for its complexity. A metric-based approach might enable charging to be simplified and (subject to design) potentially more predictable, while being easier to design and implement than a more sophisticated approach.
- 3.35 However, this simplification comes with trade-offs. A metric-based charge is likely to be less accurate than Options A, B, and C which are underpinned by power flow models. It may also be difficult to establish a robust, well-informed way to set charges using a metric-based approach.
- 3.36 Implementing this approach would require a model for translating the metric into a financial value used to set charges, which could introduce subjectivity. Within this approach, charges could be set at a level to be sufficient to influence siting decisions, which could help in aligning investment decisions with the SSEP.

Q13. To what extent could a metric-based charge act as a complementary ‘top-up’ signal alongside a broader charging methodology, rather than operating as a standalone approach? What challenges would this present?

Q14. What other metric-based approaches might be a suitable basis for setting charges?

Option E: Plan-based auction pricing

- 3.37 Charges could be set in each zone by auctioning off SSEP-aligned capacities of connections. Under this approach, a SSEP-aligned capacity of connections would be made available in each zone for each technology, and a series of auctions would allocate that capacity over time. Auction outcomes could be used to set connection or TNUoS charges (or a defined share of either) for the lifetime of the

³² [Getting the signals right: Electricity network tariff methodologies in Europe – ACER](#)

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asset (or for a defined multi-year period).³³ Various designs are possible, but in general, projects would compete for connection up to a SSEP-based limit for their zone/technology on the level of charge they are willing to pay. Projects submitting higher bids would clear the auction and connect to the system.

- 3.38 The auction price would reflect developers' willingness to pay for connection, enabling market-based price discovery. Projects unsuccessful at auction would generally have to wait until the next auction, although one design choice could be to make flexible (non-firm) connection offers available to suitable projects outwith the auctions process to allow them to connect sooner without compromising grid operation or incurring excess constraint costs.
- 3.39 This approach may offer a high degree of control over the total volume of connections while still enabling competition between generators and prioritising the connection of assets which expect to have higher output or lower costs. It could also help link connection outcomes to developers' willingness to pay for connection charges.

Rationale and further considerations

- 3.40 Auctions could potentially offer a way of improving co-ordination between the SSEP and developer siting decisions while still preserving competition between projects. In principle, they could also provide some flexibility to respond to real-world variations from the plan, such as potential lagging generation build in a given zone, if the capacity offered were adjusted to reflect such developments. Further work would be required to understand whether such responsiveness could be delivered in practice.
- 3.41 More broadly, auction liquidity could be uncertain and could depend on factors such as the number of ready-to-proceed projects in each zone, technology-specific constraints, timelines for connection, and investor confidence in the auction design. Low participation could weaken price discovery, reduce the ability of auctions to prioritise cost-efficient projects, and increase risks of market power. Pooling adjacent zones or similar technologies into shared auctions might mitigate insufficient liquidity but could undermine SSEP alignment.
- 3.42 Introducing connection-linked auctions may raise a number of questions about how they would interact with existing government support mechanisms, such as CfDs and the Capacity Market (CM). Projects might need to bid for connection capacity before knowing whether they will secure a CfD or the level of any eventual strike price, which could introduce additional uncertainty. This

³³ If auctions were used to set connection charges, a generator's "standard" connection charge for attributable and enabling works might serve as a floor for their bid to prevent under-recovery of these costs.

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uncertainty may influence bidding behaviour and could have implications for the liquidity and competitiveness of the connection auctions.

- 3.43 Following this CfI, further work would be required to assess the feasibility of such auctions, their interactions with CfDs, the CM and the wider connections regime, and alignment with government’s proposals through RNP to support the delivery of the SSEP, which will be set out in government’s upcoming RNP Delivery Plan. This would include considering how liquidity could be maintained in zones with fewer projects, and what safeguards or design features may be needed to mitigate unintended consequences.

Q15. What interactions do you foresee between plan-based auctions for generation, government support mechanism auctions and the connection regime? What potential implementation risks and mitigations should be considered?

Q16. What design features could help ensure that auctions remain workable across zones with very different levels of project interest?

Q17. Could alternative mechanisms achieve similar outcomes with fewer risks or dependencies?

4. Provisional design considerations for locational charges for demand and storage

This chapter considers how, and to what extent, final demand and storage should face locational transmission charges.

Some demand segments may be limited in their ability to locate based on a locational charge, which raises questions about the role of locational charges for these users. Considerations on the demand side also interact with Ofgem's Cost Allocation and Recovery Review and work on demand connections.

Storage has unique characteristics, including the ability to operate as both generation and demand, which is not reflected in the current TNUoS methodology. These attributes affect the locations where storage could theoretically provide greatest value to the system, where the SSEP will locate assets, and storage's impacts on network costs. We invite views on the potential basis of a new network charge for storage, and the most pertinent storage-specific factors to consider during its design.

Across both storage and demand subchapters, we consider the case for change for locational investment charges, how the five previously discussed options may be relevant, and further work that may be required.

Provisional considerations for final demand

Context

- 4.1 The majority of TNUoS charges are levied on demand.³⁴ These charges serve to recover the bulk of transmission network costs and are paid for by final demand users through licensed suppliers. They include both locational charges and a non-locational residual.
- 4.2 Demand users are classed as half hourly (typically larger commercial and industrial consumers) or non-half hourly, which covers domestic and smaller non-domestic users. Half-hourly users pay a capacity-based charge (£/kW) whereas non-half hourly charges are based on annual consumption between 4 and 7 pm (p/kWh).³⁵ Final demand also pays a non-locational residual charge set at a fixed

³⁴The Generation/Demand split is determined by the Limiting Regulation, which (as noted above) limits the average transmission charges paid by generators at no more than €2.50/MWh. Generators receive adjustment credits to keep the average within this cap; the cost of these credits must be recovered from demand via the Transmission Demand Residual (TDR).

³⁵ Half hourly locational charges are set with the same methodology as locational charges for demand, using the transport model, whereas non-half hourly tariffs for each TNUoS zone are set to recover all remaining revenues needed in that zone after half-hourly revenues have been calculated.

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rate (£/site/day), which is intended solely to recover remaining costs and does not provide a locational signal.³⁶

- 4.3 Locational variation in demand charges arises from the transport model for half-hourly demand and from zonal revenue requirements for non-half-hourly demand. However, the locational element of demand charges is dwarfed by the residual; in 2026/27, the demand residual was £6.3bn whereas the locational element was just £134m.³⁷ Existing locational variation in network charges paid by demand is primarily due to variations in DUoS.

Case for change

- 4.4 The initial iteration of the SSEP will focus primarily on optimising generation and storage assets. On the demand side, it will only optimise a small volume of data centres.³⁸ The options set out in Chapter 3 have therefore been discussed in terms of how they could create appropriate incentives for generation assets.
- 4.5 However, future iterations of the SSEP may optimise a wider range of demand types. This raises a question about how, and whether, transmission charging could provide effective locational signals to SSEP-optimised demand users.³⁹
- 4.6 More broadly, there is a wider question about the future role of locational transmission charging for demand. In principle, an efficient locational investment signal could incentivise demand to locate closer to generation and/or behind transmission constraints, reducing system costs and overall consumer bills.
- 4.7 Many types of demand are likely to have limited ability to respond to these signals by relocating – for example, households are unlikely to move to another TNUoS zone for a modest reduction to electricity bills. However, some forms of new non-domestic demand may consider network charges as a factor in siting decisions, particularly where electricity costs are a major driver. Examples include data centres and electrolysers, both of which have high electricity consumption and are in sectors expected to grow over coming years. Their locational flexibility is, however, constrained: some data centres require low latency and must locate near customers, while electrolysers depend on suitable

³⁶ Prior to Ofgem's Targeted Charging Review, residual charges for large non-domestic users were set based on their consumption during the three annual half-hours of highest electricity demand (known as triad periods) separated by 10 days or more. However, this created an incentive for some users to reduce their consumption during triad periods and hence minimise their exposure to residual costs (without reducing system costs accordingly), requiring other users to bear a greater share of the costs of the network. Ofgem therefore decided to stop using triads to allocate residual charges, instead levying a fixed residual charge on all users. Triads are still used to set the locational element for non-half hourly demand.

³⁷ [Final TNUoS Tariffs for 2026/27 – NESO](#)

³⁸ [Spatial Strategic Energy Plan Methodology – NESO](#)

³⁹ There could be other designated strategic plans to which the connections regime will need to have regard, such as those around data centres or industrial strategy.

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infrastructure and offtakers. Government industrial strategy may also direct investment into clusters, reducing flexibility.

- 4.8 Additionally, locational signals provided by network charges could be blunted for many large industrial users covered by the government's Network Charge Compensation scheme. Under this scheme, industrial users classed as Energy-Intensive Industries receive compensation for 90% of their network charges, and so would not experience a significant locational signal from network charges.
- 4.9 Given these considerations, we welcome views on the potential role of a locational transmission charge for demand in future, and on which types of demand, if any, should be exposed to such charges.

Relevance of the charging options discussed in Chapter 3

- 4.10 If evidence suggests there is value in exposing some types of demand to a locational investment transmission charge in future, further work would be needed to consider what form that signal should take, including whether it should differ from or resemble the locational signal applied to generation.
- 4.11 The charging reform options set out in the previous chapter vary in how applicable they could be for demand charges. For example, if the current charging approach is maintained with targeted changes, as in Option A, then the same methodology might potentially continue to be used for both generation and demand.
- 4.12 Other options present more distinct challenges. For example, if generation charges were set with a metric linked to SSEP capacity, as in Option D, a separate approach could potentially be required for demand, most of which will not be optimised in the first iteration of the SSEP. Operating multiple different methodologies in parallel could increase complexity and administrative burdens.

Interactions with other areas

Cost Allocation and Recovery Review

- 4.13 Ofgem's Cost Allocation and Recovery Review (CARR) is exploring a range of questions regarding energy system cost allocation and recovery and is exploring whether there are more efficient and fairer ways to do this. This includes but is not limited to how network costs could be allocated and recovered from consumers. Future decisions on the reform of demand transmission charges will be made in collaboration with CARR work.

Demand connections

- 4.14 Ofgem is also reforming demand connections following a surge in demand connection applications and recently published a call for input on this work.⁴⁰ This

⁴⁰ [Demand connections reform – Ofgem](#)

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work will seek to ensure the demand queue is made up only of viable projects able to progress to connection in a timely manner while allowing strategically important demand projects to be prioritised for connection if necessary.

4.15 Government has also recently published a consultation on proposals to address speculation in the demand connections queue and prioritise strategic demand.

4.16 Any decisions on the role of locational charging for demand will need to consider interactions with this area of work, particularly around prioritisation of the demand queue.⁴¹

Distribution Use of System Charges

4.17 As with generation, any changes to the transmission charges payable by demand users should be consistent with changes made to distribution charges; decisions on future distribution charging will follow a decision on the direction of travel for transmission charges.

Q18. What role should locational charges for demand play in future?

Please include views on:

- What types of demand users are likely to be able to respond effectively to a locational investment signal, and why.
- Relevant international examples of demand siting decisions made in response to locational pricing signals.
- What the charging basis for the signal should be if sending locational investment signals is deemed as effective for some types of demand.
- How suitable the options for a locational charge set out above could be for demand, and whether there are other alternative charging approaches that could be applied for demand.
- Whether different charging methodologies should be used for demand and generation, and any practical considerations in doing so.

Provisional considerations for storage

Context

4.18 Electricity storage capacity has grown rapidly in recent years, increasing from 3.7 to 9.6 GW of operational grid-scale capacity since 2020.⁴² Of this, around 5 GW

⁴¹ [Accelerating electricity network connections for strategic demand – GOV.UK](#)

⁴² Summing transmission- and distribution- connected storage.

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are transmission-connected and currently pay TNUoS.⁴³ Looking ahead, Clean Power 2030 targets indicate total energy storage capacity could reach between 27 and 33 GW by 2030, including both battery storage and long duration energy storage.⁴⁴ Recent connections reform has seen just over 39 GW of Battery Energy Storage Systems (BESS) and Long Duration Energy Storage (LDES) projects with Gate 2, Phase 1 offers (projects connecting by 2030).⁴⁵ This growth has increased focus on how network charges apply to transmission-connected storage.

- 4.19 Although storage exhibits the characteristics of both generation and demand, for the purposes of TNUoS, it is treated as generation and is charged for its network usage accordingly. Like generation, storage currently pays TNUoS based on transmission entry capacity (TEC), which reflects the maximum export capacity assets require from the network, which is deemed to drive network reinforcement needs.
- 4.20 Current TNUoS charges send signals to minimise the network investment required to facilitate new connections. The locational element aims to reflect the additional transmission costs associated with connecting in different parts of the country. Charges currently incentivise generation and storage to locate closer to major demand centres in southern Britain, where less new network build is required, and charges are highest in northern Scotland, where distance from demand increases system costs.
- 4.21 Storage is sometimes subject to an additional locational signal from demand TNUoS – if it imports over the triad periods and is located in southern Britain, where triad charges apply.⁴⁶

Case for change

- 4.22 The system is moving towards a more strategically planned approach. The SSEP will identify where storage can theoretically deliver the greatest wider system value, assessing constraints, reinforcement needs and wider non-network factors. Optimal locations could include areas close to *and* far from demand centres and are potentially unlikely to consistently align with signals sent by the current charging regime.
- 4.23 Storage's operational characteristics add complexity. Storage can both import and export and may either relieve or exacerbate constraints, depending on timing. If operation were to align with system requirements, storage *could* potentially help to reduce reinforcement needs. But current operational incentives are

⁴³ [DUKES 2025 Energy Storage Overview \(DUKES 5.16\) – GOV.UK](#)

⁴⁴ [Clean Power 2030 Action Plan: A new era of clean electricity – GOV.UK](#)

⁴⁵ [Connections Reform: Detailed Results Data 2026 – NESO](#)

⁴⁶ Triads are the three settlement periods between November and February with the highest demand and at least a 10-day gap between them.

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mostly sent by markets at a national level rather than reflecting local network conditions, and existing TNUoS does not account for operational profiles.

- 4.24 If charging is expected to act as a meaningful siting lever for storage within a strategic planning framework, alternative or adapted approaches may need to be explored.

Relevance of the charging options in Chapter 3

- 4.25 If changes were to be explored, then, as with generation, a central design question is whether locational charges for storage should continue to reflect network cost impacts, or whether they should instead align more closely with SSEP outcomes and/or wider system objectives. This decision determines whether storage continues to site based on prevailing market signals or whether its location becomes more closely linked to the strategic plan.

- 4.26 The charging options discussed previously vary in their applicability for storage, especially considering the range of factors which can differentiate storage from traditional generation:

- Storage could provide value in different places, including near generation, near demand, or where it supports constraint management or system balancing.
- Operational behaviour is variable and assets within the same zone can either help to mitigate or exacerbate constraints and the associated costs, depending on the timing of national market signals and network conditions. There are currently many instances where the position of storage in the national wholesale market needs to be reversed after gate closure through the Balancing Mechanism or other ancillary services markets.⁴⁷
- Storage sited in accordance with the SSEP may be best able to lower overall system costs, and therefore consumer bills, if it responds to operational signals which differ by location. DESNZ, NESO and Ofgem are looking into options aimed at maximising the benefits of storage technologies while reducing system costs.
- Storage co-located with generation is subject to similar challenges, potentially reducing flows at some times while increasing them at others, particularly during periods of high wholesale prices in which both assets may seek to export.
- Different technologies vary in size, duration, potential for future augmentation and siting flexibility, impacting the services storage can

⁴⁷ As noted in NESO's recent [RNP Call for Input](#), repetitive re-trading by storage may both present an operability challenge to the system operator and increase consumer costs.

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provide and how responsive assets are to locational signals. The value of sending strong locational signals may therefore differ by storage type.

- Some assets, such as pumped hydro, are relatively constrained in their siting decisions, limiting the effectiveness of sending a strong locational signal. Furthermore, for storage supported by specific schemes, such as the LDES cap and floor, the value of locations for assets is reflected within the project assessment process.⁴⁸
- Other storage assets, such as batteries, are more flexible in their siting decisions and could be far more responsive to strong locational signals.
- Applying different charging regimes to various storage types could potentially risk distorting competition in markets such as the CM.

4.27 This is not an exhaustive list. Stakeholders are invited to provide views on priority factors to consider when evaluating the treatment of storage in transmission network charging as we move towards strategic planning. We are interested in views on (a) whether storage should or should not continue to be treated similarly to other forms of generation if transmission network charging were reformed, and (b) which of the charging options could send the most appropriate signals for storage and why.

Interactions with other areas

4.28 Work is already underway within the ongoing NESO storage TNUoS subgroup, which focuses on the treatment of storage under the current charging regime. The group is examining actual and projected operational profiles for different types of storage assets, with the aim of understanding how these behaviours may relieve or exacerbate network constraints and, in turn, influence network reinforcement needs. This work is informing considerations for possible improvements to TNUoS signals for storage and longer-term charging arrangements.

⁴⁸ As set out in Ofgem's [Multi-criteria assessment framework used to select long duration energy storage projects for the cap and floor scheme](#), siting in specific locations may increase likelihood of being selected for the LDES cap and floor scheme.

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Q19. What should be considered when designing a network charge for storage?

Please include views on:

- Whether or not the TNUoS fees paid by storage should have a locational element, guiding where assets are encouraged to site, in a strategically planned system.
- Whether storage should continue to face the same charge as some forms of generation, or whether a more tailored approach should be considered.
- If a more tailored approach to storage charging were considered, whether or not differences in storage asset class and characteristics should be reflected. If differences should be reflected, please indicate which, with rationale.
- The extent to which the charging Options (A to E) described above might be appropriate and provide useful locational signals for storage.
- Whether network charges for storage should reflect the extent and characteristics of network constraints.
- Any possible roles for any types of flexible connections for storage assets.

5. Approaches for intrazonal locational charges

While Chapter 3 discussed designs for charges providing a locational signal between SSEP zones, there could also be a role for locational charges in incentivising efficient siting decisions within SSEP zones (intrazonal). This chapter discusses this possibility and sets out two avenues for an intrazonal charge: deeper connection charges; and Use of Service charges.

Deeper connection charges could signal the wider reinforcement costs within a SSEP zone, offering clearer cost-reflective signals and more stable lifetime charges for generation. Intrazonal Use of System charges could also reflect within-zone impacts on the transmission network, although to be feasible they may require the use of a common methodology across both intra- and interzonal charging to minimise complexity.

Context

- 5.1 As outlined in Chapter 3, there may be a role for locational charges to support efficient siting within SSEP zones. This relates specifically to decisions about where projects locate *inside* a SSEP zone; ideally projects would site where less transmission network reinforcement is required to accommodate them. This is in addition to the question of what role locational charges should play in providing an interzonal signal to influence which SSEP zone assets site in.
- 5.2 The borders of each of the 19 SSEP zones are configured through geospatial modelling along critical transmission network boundaries. Given their size, it is possible that some areas within a zone may face transmission constraints, while other areas may have under-utilised network capacity. Without an intrazonal signal, assets may not naturally be incentivised to locate in the parts of a SSEP zone that make best use of existing transmission infrastructure.
- 5.3 This may become more relevant over time. The SSEP will cover a long planning period, and although zone boundaries have been designed with the existing network in mind, the pattern of constraints could change as the system evolves.
- 5.4 At the same time, introducing an intrazonal locational charge could add administrative complexity, depending on the design. Further work would be needed to weigh up the relative potential costs and benefits of an intrazonal charge, and in particular whether the benefit of a charge that incentivises more efficient siting within zones justifies the added complexity.
- 5.5 An intrazonal charge could potentially be delivered through either deeper connection charges or via a Use of Service (UoS) charge. These are high-level possible approaches, rather than specific reform options. These approaches are outlined below.

Q20. What role, if any, should there be for an intrazonal locational charge?

Please include views on:

- How effective an intrazonal locational charge might be in directing siting within SSEP zones.
- The relative costs, benefits and complexity of such a charge.

Approaches

Deeper transmission connection charges

- 5.6 An intrazonal locational signal might be provided through connection charges. Under current arrangements, transmission connected generators face shallow connection charges: they pay for the assets directly required to connect them to the network, while wider reinforcement costs associated with their connection are socialised across other network users via TNUoS. This means that they do not currently send a strong locational siting signal.
- 5.7 In a future reformed charging framework, there may be a case for exploring the potential role of deeper connection charges - where generators contribute to a greater share of wider network reinforcement costs associated with their connection to the grid. In principle, a deeper connection charge would make developers pay for the cost of broader reinforcements triggered by projects, based on a study by network operators. In many other countries, such as Denmark, Sweden and Spain, deep connection charges are used at the transmission level.

Rationale and further considerations

- 5.8 Because connection charges are set at the time of a connection agreement and paid over the lifetime of an asset, a deeper connection charge could provide a stable locational signal without volatility following connection.
- 5.9 Additionally, by recovering a greater proportion of transmission network costs through connection charges, the proportion of costs recovered through TNUoS could be reduced, which could limit volatility of overall costs following connection and provide greater certainty for investors, depending on the future design of TNUoS charges. Deeper connection charges might also potentially be able to replace the onshore local circuit tariff (see below), removing another source of volatility in charges. The site-specific nature of connection charges would also make them well suited to sending a granular intrazonal locational signal.
- 5.10 There are, however, a number of potential challenges with deeper connection charges, such as the allocation of reinforcement costs between users. If an earlier

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user finances reinforcement that is later utilised by subsequent users, this may create fairness concerns and could create perverse incentives. For example, some projects might choose to delay investment in the hope that other users will fund the necessary reinforcements first. One option could be to introduce a mechanism under which later users contribute to those costs, with the initial user refunded accordingly, although any such mechanism would need to consider the implications for the strength and clarity of the locational signal.

- 5.11 Deeper connection charges may also be harder for developers to anticipate ahead of investment, as they would likely depend on project-specific network studies to determine the reinforcements required. Concerns about predictability and transparency of charges ahead of investment decisions have historically motivated a move away from deep connection charges in Great Britain. While such charges could provide stability once set, they could lead to greater uncertainty prior to Final Investment Decision (FID) around the level of connection costs. This additional pre-FID uncertainty may affect developers' ability to make timely, well-informed investment commitments and could also increase administrative complexity for transmission network operators and NESO.

Onshore local circuit charges

Onshore local circuit tariffs are designed to reflect the incremental cost and flow on circuits between its connection and the main transmission system. For an onshore generator, its local circuit tariff is designed to reflect its incremental impact on the infrastructure circuits that connect the generator to the wider transmission system. Local circuit tariffs can introduce additional volatility into charges, as they can change unexpectedly as a result of the decommissioning of nearby generators or the construction of new transmission lines flipping circuits from local to wider when new generators connect.

Onshore local circuit tariffs are calculated using the transport model. If reforms replaced or removed the transport model (as with Options B to E above) in wider TNUoS charges, then changes to local circuit tariffs might also be needed to avoid the inefficiency of maintaining multiple charging models for little benefit.

We are considering how local circuit charges might be reformed and whether it could be desirable to recover local circuit costs through connection charges rather than TNUoS.

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Q21. What role, if any, do you see for deeper connection charges as a tool to influence intrazonal siting decisions?

Please include views on:

- Whether deeper connection charges could complement or conflict with any of the previously listed interzonal locational charging options.
- Whether and how issues of fairness could be resolved through a sharing-based connection charge or similar mechanism.
- The impact of deeper connection charges on investor confidence or the timing of FID.

Q22. How should local circuit costs be recovered in the future?

Please include views on:

- The impact of local circuit charges on overall predictability of charges.
- Whether local circuit costs should be recovered through connection charges.
- Any alternative changes we could make to the recovery of these costs.

Intrazonal Use of System charges

5.12 Another approach would be to use Use of System (UoS) charges to provide a suitable intrazonal signal at transmission level.⁴⁹

5.13 An intrazonal signal could be created by subdividing SSEP zones into smaller charging areas or by applying a more granular Use of System signal within zones. A suitable methodology would need to set this charge.

Relevance of the charging options in Chapter 3

5.14 The potential relevance of the interzonal locational charging options to providing an intrazonal charge is briefly summarised below. This is not intended to indicate a preferred approach.

5.15 Options A (targeted charges) and B (Network utilisation impact charge), which use long-run marginal network cost to derive charges, could in principle be applied at an intrazonal level.

5.16 Option C (System and constraints impact charge) may be less applicable within zones, as structural constraints are generally expected to be more limited within

⁴⁹ This would likely be implemented either through TNUoS or through the introduction of a new UoS charge.

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zones than between them, reducing the effectiveness of the charge. This level of granularity may also require further adaptation of the model.

- 5.17 For Option D (a metric-based charge), suitability would depend on the metric(s) used. Metrics based on the SSEP would likely not be applicable (because an intrazonal charge would have higher granularity than the SSEP). This does not rule out the use of other metrics. For instance, metrics could instead draw on the ratio of generation capacity to transmission network capacity in a particular area within a SSEP zone.
- 5.18 Option E (charges set by auction) is unlikely to be relevant for intrazonal siting. Auctions are not well suited to determining locations within a zone; the smaller scale of intrazonal auctions would mean lower participation and less liquidity, and locations within zones will not have a planned generation capacity which could be used to set the auctioned capacity. If Option E were adopted, any intrazonal locational charge might have to come from another source, such as a connection charge.

Rationale and further considerations

- 5.19 An intrazonal UoS charge might, depending on design, potentially be more transparent and predictable ahead of FID than deeper connection charges.
- 5.20 However, it could also introduce greater complexity through increasing the number of transmission-level charging areas and/or introducing a separate UoS charge, in addition to the interzonal one, and alongside existing distribution charges.
- 5.21 In general, there may be limited benefit in developing and administering distinct, sophisticated charging methodologies for both intrazonal and interzonal charges. Using a common methodology to provide locational signals at both intrazonal and interzonal levels, if possible, would likely be simpler to implement and administer.

Q23. Would you expect the benefit of a more efficient locational siting incentive to justify the complexity of introducing an intrazonal use of system charge?

Q24. Which, if any, of the charging reform options discussed in Chapter 3 could be suitable to provide an intrazonal charge, and why?

Q25. What is the appropriate balance between connection charges and ongoing use of system charges in achieving efficient investment and siting decisions within SSEP zones?

6. Wider design considerations

This chapter outlines common locational charging design considerations that are relevant to most of the options and approaches illustrated in the previous chapters. As we move towards implementation of a reformed network charging framework, a range of interrelated design choices will need to be made. These choices will shape how effectively the reformed charges could help to deliver RNP and meet the case for change for network charging, and how they may be experienced by different market participants. Broadly, these considerations span three areas:

- Key design choices about how to consider the trade-offs between providing predictable signals to support investment decisions and ensuring that charges remain accurate and reflective of network conditions;
- Technical design choices about how the modelling can and should be constructed and applied in practice, including what inputs and assumptions should underpin them; and
- Complementary design decisions on the use of regulatory levers that may be required to ensure the reformed charges deliver RNP.

6.1 The scope of this chapter only addresses new assets covered by reformed charges. The potential treatment of legacy and transitional assets, including whether and how charges might be fixed for those assets, is considered in the following chapter. We note the considerations in the chapter are not an exhaustive list and we welcome feedback on any significant issues or considerations that may be missing.

Key design choices on the trade-off between accuracy and predictability

6.2 Under current market arrangements, TNUoS charges are updated annually. Given the predictability and volatility challenges discussed in Chapter 2 there may be merit in exploring whether the frequency of charge updates should change in future, or even whether network charges should be fixed for assets. However, this highlights a key choice in determining the trade-off between providing predictable, stable signals for investors, and ensuring that the signals send an accurate and efficient signal.

Charge fixing

6.3 Fixing charges could increase predictability by providing clarity over long-term cost exposure at the point capital is committed, recognising that assets are limited in their ability to relocate once an investment decision is made. On the other hand, charges set ex-ante are based on assumptions about future network use and may become misaligned as system outcomes diverge from those assumptions – for example, where planned network upgrades are delayed, or as

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the SSEP iteratively changes. This could weaken locational signals and result in inefficient cost allocation, with distributional impacts for both consumers and investors. Decisions on how charges should be fixed or reset involve a fundamental trade-off between predictability and accuracy. We welcome views on how this balance should be managed, including whether certainty should be prioritised, or whether confidence can instead be delivered through consistency and transparency in the charging methodology.

- 6.4 If the benefits of fixing charges in terms of predictability are assessed to outweigh the potential inefficiencies, a range of approaches could be considered to provide a greater level of certainty. For example, we could apply a fixed charge that covers the entirety of assets' lifetime. We could also provide an indicative profile of charges for the full asset lifetime ahead of FID, improving clarity.
- 6.5 Another important consideration is when charges should be fixed and when investors need certainty over them, for example whether this should be at the point of FID or when a connection offer is received. Investment decisions are typically taken well in advance of commissioning, so it is important to understand how far ahead of time network charges need to be known to support these decisions. We welcome views on how assets make investment decisions, and the timescales over which these decisions occur.

Charge setting and resetting

- 6.6 How often to reset charges is a decision inherently linked to the choice of time horizon for representing the planned, future network in modelling (see the following subchapter on **Error! Reference source not found.**). An option could include aligning charge setting (and/or resetting) *and* updates to modelled network representation with iterations of the SSEP or CSNP, for example through a multi-year update cycle. This could help balance the trade-offs associated with different resetting timelines but would require complementary measures to mitigate unintended incentives. Alternatively, charges could be updated based on other triggers, for example in line with significant network developments.
- 6.7 If charges are fixed over a large proportion of assets' lifetimes, it would be important to consider under which circumstance those may need to be reset. For example, when we see material changes to network plans and system conditions, including situations where generation or network build does not materialise as expected. This might be useful for assets making material investment decisions during the asset's lifetime, such as batteries making decisions on augmentation or, for assets approaching a decommissioning, repowering or refurbishment decisions. However, this may be viewed as a risk by investors who cannot readily adjust their location or project plans in response to cost changes. The frequency of resetting could also impact investor behaviour, with a risk of encouraging herding in time and location to secure a lower network charge.

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Q26. How can charges be applied to improve the long-term stability and predictability of transmission charges, while ensuring charges appropriately reflect underlying system costs and a fair risk allocation for consumers?

Please include views on:

- Whether charges should be fixed at the point of FID, and if so, for how long, including the opportunities and risks of charge fixing.
- If charges were fixed at point of investment, how frequently charges for new assets looking to connect should be recalculated, and what principles should guide the appropriate update cycle (for example, alignment with periodic plans such as the SSEP).
- How far in advance of commissioning charges should be known to developers, and how this should balance investment certainty against the need for charges to adapt to evolving system needs.

Technical design choices

6.8 Beyond the key trade-off outlined above, there are also technical design decisions to be made. Some of these choices may themselves influence the balance between accuracy and predictability in network charging.

Model inputs and assumptions

6.9 Charging options relying on energy system modelling (Options A, B and C) would require decisions about inputs and assumptions. These choices matter because they influence the level of the charge and the type of locational signal the charges produce. These technical choices may also influence the trade-off between predictability and accuracy introduced above. A fundamental choice of model input would be the representation of the network.

6.10 The current TNUoS model determines charges by modelling power flows through the 'existing network' – the network topology forecast for the year in which charges will apply. This produces an accurate signal, reflective of real network condition, but limits the predictability of the charges year to year.

6.11 In the move to a more strategically planned system, the SSEP and linked CSNP will map out the future optimised energy system, providing greater visibility of the expected state of the future network, ahead of time. As was introduced in our 2025 open letter, this creates the opportunity to set network charges based on the planned, future network (the outputs of the SSEP and CSNP).

6.12 As introduced in Chapter 3, charges under Option B would still be based on long-run marginal network costs but would be calculated via load flow power system modelling able to reflect spare network capacity. In this example, charges could

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send a signal to locate where there is spare capacity relative to the *planned, future* state of the network. This contrasts the alternative, which would send a signal to locate where there is spare capacity in the expected *existing* state of the network for the year of charging.

- 6.13 Trade-offs exist. The former would treat much of the planned network as a sunk cost, producing more predictable charges and encouraging assets to site in alignment with the SSEP. The latter would retain greater accuracy of long-run marginal costs of connecting in specific locations and using the network, irrespective of planned future network build. The former would help to mitigate future constraints and minimise network build in the longer-term (minimising overall costs), while the latter would encourage siting to reduce nearer-term constraints (minimising transitional costs).
- 6.14 In practice, there is optionality within the decision to model the planned, future network, allowing a balance of these trade-offs to be achieved. Modelling could either be based on the planned network much further in the future or plans closer to real-time.
- 6.15 For example, modelling the planned state of the network in 3 years would retain flexibility for charges to periodically respond to the real-world changes, such as delays to planned reinforcement that would also feed into subsequent SSEP updates. Alternatively, modelling the planned network much further into the future would reduce the scope for charges to reflect iterative changes to the strategic plan, but would provide greater predictability.
- 6.16 Option C is inherently based on modelling a future version of the energy system and would equally require decisions about how far ahead the modelled forecasts should extend.
- 6.17 The choice of network representation modelled in Options A-C interacts with design choices introduced above, particularly how often the model should be updated (resetting). These choices will be considered in tandem.

Q27. What factors should be considered when determining the appropriate representation of the network from which to derive charges?

Technology-specific considerations

- 6.18 Another design choice includes how reformed network charges might apply to different technology groups. Under the current charging regime, generators and storage are classified as intermittent, conventional low carbon or conventional carbon, according to how they use the transmission system.

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- 6.19 The SSEP, however, will set out pathways for different technologies on a technology-by-technology basis. Therefore, when further developing and evaluating the charging options, it will be important to consider how any reformed charges will be applied to various technology groups, particularly where the SSEP is used as a basis for charges. Additionally, we would need to determine whether these existing charging classifications remain fit for purpose both in terms of how well they align with the level of granularity used in the SSEP, and how accurately they reflect network usage for various asset types.⁵⁰
- 6.20 In general, there may be a role for technology-specific charges, or the use of credits and discounts, to provide a more refined siting signal that better reflects SSEP outcomes and the different impacts they may have on the system. The feasibility and value of such approaches would depend on the underlying TNUoS methodology chosen and the role that locational charging is intended to play. We will continue to assess this as policy development progresses.

Q28. How can locational charging best reflect technology-specific differences?

Negative charges or credits in a reformed framework

- 6.21 Under current arrangements, the GB transmission charging methodology aims to incentivise efficient network use and development by ensuring that users face charges that reflect the costs or benefits arising from choice of location. In some TNUoS zones, charges applied to generators are negative. This is currently the case in the south of England, meaning that generators receive network charge credits and are effectively paid to use the network through UoS charges.
- 6.22 In practice, these negative charges act as an investment incentive to locate in areas where little or no additional network reinforcement is expected to be needed to accommodate generators. However, demand users must pay higher TNUoS to fund these negative charges.⁵¹

⁵⁰ Subject to limitations in statutory definitions such as the categorisation of storage as generation for licensing purposes.

⁵¹ As TNUoS is a long-run marginal cost signal, as part of calculating charges the transport model calculates the marginal MWkm (megawatt-kilometres) that would result from the addition of an incremental 1 MW of new generation or demand. These incremental MWkm are then multiplied by a £/MWkm value (the Expansion Constant and where appropriate the applicable Expansion Factor) based on the actual, historical costs incurred by the Transmission Owners in transporting 1MW over 1km. In zones where local demand exceeds generation, the transport model sees this as reducing flows on the wider network, and treats them as a negative cost, producing a negative locational charge.

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- 6.23 This raises another important design choice. Should negative TNUoS charges continue to play a role in a reformed charging regime, and do they remain appropriate in a system more closely aligned with strategic planning?
- 6.24 As is discussed below, we could consider treating assets differently where they diverge from planned system needs, to reduce consumer costs. Where there is a need for greater or faster asset connection in a certain area, negative locational charges could potentially play a role. Negative charges or credits could incentivise new generation investment in such zones. This could provide a stronger incentive than discounts alone.
- 6.25 However, any benefit from this would have to be weighed against the additional cost to other network users.

Q29. In areas where adding generation reduces the need for additional transmission infrastructure, should network charge credits continue to apply under a reformed framework? Is it appropriate these charges are paid for by final demand?

Q30. If network charge credits were to continue in a reformed framework, how should they be used to provide an effective and proportionate locational signal?

Complementary regulatory levers to support RNP delivery

- 6.26 In addition to the strategic and technical design considerations relating specifically to network charging reforms, it may be important to consider complementary adjustments to other regulatory levers to help deliver RNP.
- 6.27 Subject to government decisions on the relative role of different siting and investment levers in delivering SSEP, we may wish to consider the possibility that some connection offers may be granted in excess of the level specified in the chosen SSEP pathway (for example, to promote competition or allow for attrition). If so, this raises the question of whether projects receiving connection offers in excess of the SSEP should experience the same arrangements as those within the SSEP.
- 6.28 In theory, additional generation outside the strategic plan could create extra network costs, for example by increasing constraints in areas where reinforcements did not anticipate that additional capacity, or by affecting the scale or timing of future network investment needed. While the impact would vary by technology, we do not yet know how significant this effect could be.
- 6.29 Similar considerations could also arise even if connection offers were not granted in excess of the chosen SSEP pathway, for example, if assets connect earlier than wider reinforcements, or if planned reinforcements are delayed, resulting in

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periods where constraint costs are higher than anticipated. Further analysis is needed before drawing any conclusions.

Time-limited flexible connection as a backstop measure

- 6.30 One potential post-2030 approach would be to allow assets seeking to connect ahead of planned network delivery to do so under time-limited flexible connection agreements. This could offer a complementary mechanism for supporting earlier connection dates, while mitigating associated risks in cases where charges or other locational levers alone are insufficient in aligning investment decisions with strategic planning.
- 6.31 In this context, the current definition of flexible connection could be expanded to wider works⁵² and assets seeking to connect ahead of, or in excess of, planned reinforcement could potentially be offered a non-firm flexible connection in order to help mitigate the resulting risk of increased constraint costs.
- 6.32 The non-firm nature of the access could apply on a temporary basis, with the expectation that access conditions would change once sufficient network reinforcement has been delivered to accommodate the asset without leading to excessive constraint costs.
- 6.33 This approach could also be relevant even where connection offers are not issued in excess of the SSEP pathway. In such cases, assets seeking to connect before network build is complete could, in principle, be given the option of either waiting until reinforcement is delivered or accepting flexible connection in the interim. Further analysis is needed before drawing any conclusions.

Q31. Should flexible connection offers be used to manage the possibility of connections in advance of (or in addition to) planned capacity as a complementary backstop and time-limited measure?

Deeper connection charges above planned capacity

- 6.34 Another potential approach would be to apply deeper connection charges to assets connecting beyond planned network investment. Where additional assets are allowed to connect above planned assumptions, this may, in some circumstances, lead to additional or earlier network reinforcements to accommodate their connection.

⁵² Wider works are the transmission reinforcement works (in addition to enabling works) associated with reinforcing the network beyond the immediate connection point to accommodate the new connection and ensure overall network compliance with the Security and Quality of Supply Standard.

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- 6.35 In this context, deeper connection charges could potentially be used to ensure that assets connecting beyond planned levels contribute to the costs of any additional network reinforcement they trigger, rather than socialising these costs through TNUoS. This could help limit the extent to which above-plan connections increase costs for consumers and other network users.
- 6.36 However, whether deeper connection charges would be suitable would likely depend on the rationale for allowing additional connections in the first place. For example, if the decision were taken to offer more connections to promote competition in the market, then this could be undermined by deeper charges for some assets; those assets paying deeper connection charges could become less competitive relative to other assets connecting within planned capacity levels. This trade-off would need further consideration, and no view has been formed at this point.

Q32. If projects are, under limited circumstances, permitted to connect above the planned capacity in a zone, to what extent should deeper connection charges be used to recover any additional network reinforcement costs they may trigger?

7. Treatment of legacy and transitional assets

This chapter discusses the need case for legacy and transitional arrangements for sites where investment decisions have already been taken or will be taken prior to the introduction of revised charging arrangements under RNP (referred to as ‘charging reforms’). It seeks views on the potential scope of those arrangements and several design considerations, and, in particular, how those charges could be set for assets within scope. This comprises:

- The potential case for introducing legacy and transitional arrangements;
- The principles on which these arrangements could be based;
- The scope and definition of legacy and transitional arrangements;
- Relevant design considerations; and
- Options for fixing charges for in-scope assets.

Context

- 7.1 The implementation of potential significant reforms to network charging as a result of the RNP programme could introduce uncertainty for organisations making investment decisions ahead of RNP and those operating existing assets. Typically, when we make changes to the transmission charging regime, the new arrangements apply to all system users at the same time.
- 7.2 While we have not yet decided whether a different approach might be appropriate, we recognise that the potential scale of these reforms could lead to notable cost changes for existing generators and storage asset owners. This is because uncertainty may arise for owners of those assets who may have predicted charges based on a fundamentally different methodology. Because of this, it may be in consumers’ wider interests to introduce bespoke arrangements for legacy and transitional assets to manage the change from the current regime to a new one under RNP, so that consumers are not worse off due to costs that arise due to uncertainty.
- 7.3 We distinguish between two types of assets within the scope of legacy and transitional (LAT) arrangements:
- Legacy assets – existing assets already operating and that are liable to TNUoS wider locational charges.
 - Transitional assets – investments for which decisions are taken before fully implementing RNP.
- 7.4 The outlined arrangements in this chapter are applicable to both types of assets.
- 7.5 The chapter starts by setting out why we are considering introducing LAT arrangements and the principles any such arrangements may be expected to adhere to. It then covers potential design aspects such as the scope and

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eligibility, and how any enduring charging regime under LAT arrangements might function. We invite industry to share views on the topics covered in this chapter and have included specific questions to help guide responses.

The potential case for legacy and transitional arrangements

- 7.6 The role and shape of siting and investment levers (including charging) is still being developed. Nevertheless, it is possible that a new locational charging regime would be substantially different to the current one, making charges substantially different to those anticipated when making investment decisions, and difficult to predict for those making decisions during the transition.
- 7.7 As part of RNP, we are considering whether it is feasible to make charges more predictable and how this would be achieved. We are exploring potential design options in which charges for new investments are fixed for longer periods.⁵³
- 7.8 If reformed charges were to differ substantially to the current ones and/or be fixed for longer periods, there may be a strong case for introducing LAT arrangements. We would not anticipate the introduction of any such arrangements until after government has considered the legislative provisions that may be needed to support RNP delivery, with progress dependent on identifying an appropriate legislative vehicle to deliver these changes.

Q33. Under what circumstances do you see a need for introducing LAT arrangements? Do you agree with our rationale for the potential introduction of such arrangements?

Q34. Can you provide details and/or information on how investment decisions have been made to date and what factors or assumptions regarding TNUoS charging were taken into account?

Principles of prospective legacy and transitional arrangements

- 7.9 In designing LAT arrangements, we must ensure that the benefit of greater certainty is balanced against consumer bill impacts. To do so, we seek views on the following policy principles:
- Any arrangements should support a stable and predictable investment environment for assets affected by them – ensuring an appropriate risk allocation between consumers and asset owners.

⁵³ See Chapter 6 – Wider design considerations.

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- Consumers should not be worse off overall due to the introduction of the arrangements – this will require balancing the risk of pass-through costs of increased risk premia and the risk of increases to demand charges. For transitional assets, an appropriate level of locational investment signal should be maintained.
- Any arrangements should mitigate risks of investment hiatus – by reducing the incentive to delay investment until charging reforms are implemented.
- These arrangements should be simple and clearly communicated to the sector as early as practicable – potentially implementing them ahead of the full suite of charging reforms, noting that government is considering the legislative provisions that may support accelerating RNP delivery, subject to Parliamentary time.
- Arrangements should follow a similar charging structure to the current one – a £/kW charge that does not affect operational behaviour.

Q35. Do you agree with these principles for LAT arrangements? Are there any which we are missing?

The scope and definition of prospective legacy and transitional arrangements

7.10 The scope of LAT arrangements would determine the number of assets that may be covered by such arrangements. In determining the scope, we would need to account for the ability of assets to respond to any change in charges that RNP would introduce, and whether this ability changes based on various factors.

7.11 We consider that a broad scope for LAT arrangements could use FID as the primary eligibility criterion. This would mean that assets that have made FID ahead of a set date would be covered by LAT arrangements and those making FID afterwards would be covered by enduring RNP network charging arrangements.

7.12 To make FID a practicable eligibility criterion, data from relevant projects under development which have not yet shown evidence of reaching further milestones such as commencement of construction will be required. While proof of FID is one evidentiary source developers can submit to NESO to progress their connection through Milestone 7⁵⁴, it is not the only option. We therefore consider that a new process to obtain this information may be required were we to

⁵⁴ See [section 16.3 of the Connection and User System Code](#).

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introduce LAT arrangements using FID as a criterion. We invite commentary on how such a process might work in practice.

7.13 We may consider narrowing the scope of LAT arrangements in recognition of the relationship between network charging and other market arrangements, including government schemes. This could include:

- CfD contracted assets – these may have more limited ability to respond to significant changes introduced by reformed charges given that they are bound by 15-20 fixed price year contracts.
- CM contracted assets – their ability to respond to changes may vary based on classification. Assets classified as new Capacity Market Units may have more limited ability to respond, given 15-year contracts, but existing Capacity Market Units may be able to adjust their bids as they participate in annual auctions.
- Fully commercial assets – these assets may be able to respond by reflecting changes in their bids to wholesale and balancing markets, but with less ability to do so if they are bound by long-term Power Purchase Agreements. This category may also include assets under the Renewable Obligations or CfD nearing the end of their support period – ‘the tail’.

7.14 Depending on their current TNUoS zone, some assets currently receive credits, while other are liable for paying charges. We seek views on whether this is a relevant consideration in determining the scope of arrangements.

7.15 We note that granular detailed scoping of arrangements would need to be balanced against the complexity of implementation.

Q36. Do you believe determining the scope of LAT arrangements solely based on a FID cut-off date is appropriate, or should we narrow their scope based on route to market or other differentiators?

Q37. What would be the best way, in your view, for the Authority to collect and assess evidence of FID for the purposes of determining eligibility for LAT arrangements? Would it be more appropriate to use Milestones 7 and/or 8 of the connections process as the method of determining eligibility?

Q38. Should we consider differentiating between generators that are currently receiving TNUoS credits and those liable for paying TNUoS charges in determining the scope of any LAT arrangements?

Design considerations for legacy and transitional arrangements

7.16 Beyond the question of how assets might be categorised for the purposes of establishing any LAT arrangements were any introduced, we consider that there are some critical design choices. We set out below three design choices we may consider, from which a series of other decisions could flow:

- Retain a parallel charging regime based on the existing methodology that keeps updating each year based on the transport model. This could mitigate the risk of higher or lower than expected financial returns to asset owners, and ensure consumers are not worse off. It can also be viewed as less disruptive. However, it is likely to be resource intensive; charges would need to be recalculated every year, and code change processes may need to be maintained for both reformed charges and LAT arrangements. Furthermore, such arrangements could be viewed as less desirable to asset owners who see the existing annually set charges as difficult to forecast.
- Phased implementation from the existing charging methodology to the future RNP approach over a set period, progressively increasing the exposure of assets within scope to reformed locational charges. This would require several years of parallel running of the transport model to allow assets time to adjust to a new charging regime. However, this approach may result in inconsistency if RNP charges are designed to be fixed at the point of investment for a large proportion of assets' lifetimes.
- Create a fixed charging regime based on the existing methodology for assets within scope of the arrangements, meaning that charges would not be recalculated once set. Such an approach could provide stability for existing asset owners if we consider that they are limited in their ability to respond to annual variations in charges. Fixed charges for LAT assets would need to be designed to ensure they do not disproportionately impact demand users, while supporting a more stable charging framework to the extent it benefits consumers. We note that the considerations for fixing under LAT arrangements may differ to those for fixing in the enduring RNP locational charging reform as laid out in Chapter 6 of this CfI.

Q39. Which design – parallel running, phased implementation or a fixed charging regime – could best achieve a balance of the aims for LAT arrangements?

Options for fixing charges for assets within scope of LAT arrangements

7.17 Forms of charge stabilisation have been considered previously in the context of Connection and Use of System Code (CUSC) modification proposals.⁵⁵ In relation to those particular modifications, we considered the negative impacts on cost reflectivity were detrimental to consumers. The context of any decision made on LAT arrangements is materially different to that of said previous modification proposals: network charging under any LAT arrangements would play a more limited role in driving siting decisions and would largely affect retirement/repowering decisions. We also acknowledge that we would need to consider the balance between the principle of cost-reflectivity and the implications of running a parallel charging regime, and that it may be in consumers' wider interests to adopt a fixing regime even if it would entail a reduction in cost-reflectivity.

7.18 We consider various potential options for charge fixing, such as:

- Fixing at the prevailing value of TNUoS in the year prior to the implementation of any new regime – with assets facing the same charge for the remaining lifetime. This option could be the simplest option to implement but could depart from assets' projections on charges and may weaken the locational signal for transitional assets.
- Forecasting future charges and taking an average (weighted or otherwise) – we envisage this most appropriately being done through NESO's Five-Year Forecast; potentially flatlining charges in year six onward based on the last year of the forecast (adjusted for inflation). A variant could include taking a view of both past and forecast future charges to derive an average using a mix of NESO's Five-Year Forecast and actual historical charge values.
- Applying different fixes based on historical year of FID - this contrasts with the two prior options, which would be universally applied to all assets within scope regardless of the historical year they commissioned. Such fixes could be aligned with the best knowledge developers could have had at the time they made an investment decision. For example, for an asset that commissioned in 2018, we could look at the TNUoS Five-Year Forecast that was available at the time.

7.19 The limitation of an approach based on historical year of FID is that it may give rise to step changes in charges for assets that are well into their operational lifetime, with current charges materially differing to those derived based on this approach.

⁵⁵ [Final Decision in respect of CMP444 – Introducing a cap and floor to wider generation TNUoS charges & Connection and Use of System Code \(CUSC\) CMP413: Rolling 10-year wider TNUoS generation tariffs](#)

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It would also heavily rely on historical TNUoS forecasts. It could also add complexity, given that LAT arrangements would differ based on historical year of FID.

7.20 We have set up a Charging Transitional Arrangements Group⁵⁶ (CTAG) to facilitate in-depth discussions with industry and accelerate policy development. In order to progress work on these issues quickly, the CTAG will commence ahead of wider industry engagement. The material discussed in the groups and their minutes will be made available online.

Q40. If fixing of charges for legacy generators was deemed appropriate, which of the options described could achieve a balance of aims for the LAT arrangements? Are there other options we should consider for fixing?

⁵⁶ [Establishing a Charging Transitional Arrangements Group under the Reformed National Pricing programme | Ofgem](#)

8. Next steps

- 8.1 Thank you for taking the time to read and consider our Cfl. We welcome stakeholder views on the possible reforms we have outlined. Your feedback will be very valuable in shaping future policy.
- 8.2 The deadline for responses to this Cfl is **26 May 2026**. Please send your response to: RNPchargingreform@ofgem.gov.uk. Stakeholder input will help identify where further analysis is best focused and whether further options warrant consideration before any minded-to positions are developed. We intend to publish a summary of the Cfl responses by late 2026. We will publish non-confidential responses on our website.
- 8.3 Alongside this Cfl, we have published an Expression of Interest (EoI)⁵⁷ to invite stakeholders to participate in an upcoming working group on RNP charging reforms (Locational Charging Design Group - LCDG). The deadline for applications to this working group is **22 April 2026**. We have also established dedicated engagement on legacy and transitional arrangements (Charging Transitional Arrangements Group - CTAG). This group will inform our view of the case for legacy and transitional arrangements and how they might be designed.
- 8.4 Insights from our engagement groups will support the next phase of policy development. We anticipate that all materials used within meetings of the working groups, as well as minutes of the meetings themselves, will be published online.
- 8.5 Any future proposals arising from this work will be subject to further detailed design, assessment, and engagement with industry and stakeholders before any implementation decisions are made. We will continue to work closely with government as it progresses its thinking on wider RNP policy issues to ensure regulatory alignment with other strategic policy goals.

⁵⁷ [Locational Charges and Regulatory Siting Levers under Reformed National Pricing – Ofgem](#)

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Send us your feedback

We believe that consultation is at the heart of good policy development. We are keen to receive your comments about this Call for Input. We would also like to get your answers to these questions:

- Do you have any comments about the quality of this document?
- Do you have any comments about its tone and content?
- Was it easy to read and understand? Or could it have been better written?
- Are its conclusions balanced?
- Did it make reasoned recommendations?
- Do you have any further comments?

Please send your feedback to stakeholders@ofgem.gov.uk.

Appendix 1 Call for Input questions

The case for change for regulatory siting levers

Q1. Do you agree with our assessment criteria for locational charging options?

Potential options for interzonal locational charges

Q2. Do you have a preference for any of the five options? If so, why?

Q3. For each of the options presented, what do you see as the key costs, benefits, and system-wide implications given the case for change set out in Chapter 2?

Q4. How does each option perform against the assessment criteria set out in Chapter 2?

Q5. Are there options not considered here which we should be exploring? If so, please provide detail.

Option A: Targeted changes to the current charging regime

Q6. What are your views on the possible changes outlined in Option A? What other alterations could be made to the current methodology to support the SSEP and deliver benefits?

Please include views on:

- How far a modified transport model could be well aligned with the SSEP.
- To what extent a modified transport model should be used to reflect spare capacity and whether it could do so effectively.

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Option B: Network utilisation impact charge

- Q7. What long-run costs should NUIC reflect, particularly in the context of the growing share of network investment made anticipatorily through the CSNP rather than responding directly to the connection of new assets?
- Q8. Should the costs of network build determined by strategic planning be recovered on the same bases as the network build required by assets locating outside of the SSEP (and therefore requiring network beyond the SSEP's optimisation)?
- Q9. If an LRIC-type methodology were developed for transmission network charging, how could the concepts of (a) time-to-reinforcement and (b) baseline demand projections be adapted in the context of strategic planning and anticipatory network reinforcement?
- Q10. Could any other LRMC approaches be used to send a locational signal to support the SSEP or deliver wider system benefits? Please clearly indicate any relevant methodologies, including those applied in other international contexts.

Option C: System and constraints impact charge

- Q11. What additional measures might be required to deliver effective locational signals using the approach in Option C?
- Q12. Are there any alternative approaches integrating SSEP outcomes to send a signal reflecting assets' wider system impact, including constraints?

Option D: Metric-based charge

- Q13. To what extent could a metric-based charge act as a complementary 'top up' signal alongside a broader charging methodology, rather than operating as a standalone approach? What challenges would this present?
- Q14. What other metric-based approaches might be a suitable basis for setting charges?

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Option E: Plan-based auction pricing

Q15. What interactions do you foresee between plan-based auctions for generation, government support mechanism auctions and the connections regime? What potential implementation risks and mitigations should be considered?

Q16. What design features could help ensure that auctions remain workable across zones with very different levels of project interest?

Q17. Could alternative mechanisms achieve similar outcomes with fewer risks or dependencies?

Provisional design considerations for locational charges for demand and storage

Provisional considerations for final demand

Q18. What role should locational charges for demand play in future?

Please include views on:

- What types of demand users are likely to be able to respond effectively to a locational investment signal, and why.
- Relevant international examples of demand siting decisions made in response to locational pricing signals.
- What the charging basis for the signal should be if sending locational investment signals is deemed as effective for some types of demand.
- How suitable the options for a locational charge set out above could be for demand, and whether there are other alternative charging approaches that could be applied for demand.
- Whether different charging methodologies should be used for demand and generation, and any practical considerations in doing so.

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Provisional considerations for storage

Q19. What should be considered when designing a network charge for storage?

Please include views on:

- Whether or not the TNUoS fees paid by storage should have a locational element, guiding where assets are encouraged to site, in a strategically planned system.
- Whether storage should continue to face the same charge as some forms of generation, or whether a more tailored approach should be considered.
- If a more tailored approach to storage charging were considered, whether or not differences in storage asset class and characteristics should be reflected. If differences should be reflected, please indicate which, with rationale.
- The extent to which the charging options (A-E) described above might be appropriate and provide useful locational signals to storage.
- Whether network charges for storage should reflect the extent and characteristics of network constraints.
- Any possible roles for any types of flexible connections for storage assets.

Approaches for intrazonal locational charges

Q20. What role, if any, should there be for an intrazonal locational charge?

Please include views on:

- How effective an intrazonal locational charge might be in directing siting within SSEP zones.
- The relative costs, benefits and complexity of such a charge.

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Deeper transmission connection charges

Q21. What role, if any, do you see for deeper connection charges as a tool to influence intrazonal siting decisions?

Please include views on:

- Whether deeper connection charges could complement or conflict with any of the previously listed inter-zonal locational charging options.
- Whether and how issues of fairness could be resolved through a sharing-based connection charge or similar mechanism.
- The impact of deeper connection charges on investor confidence or the timing of FID.

Q22. How should local circuit costs be recovered in future?

Please include views on:

- The impact of local circuit charges on overall predictability of charges.
- Whether local circuit costs should be recovered through connection charges.
- Any alternative changes we could make to the recovery of these costs.

Intrazonal Use of System charges

Q23. Would you expect the benefit of a more efficient locational siting incentive to justify the complexity of introducing an intrazonal use of system charge?

Q24. Which, if any, of the charging reform options discussed in Chapter 3 could be suitable to provide an intrazonal charge, and why?

Q25. What is the appropriate balance between connection charges and ongoing use of system charges in achieving efficient investment and siting decisions within SSEP zones?

Wider design considerations

Key design choices on the trade-off between accuracy and predictability

Q26. How can charges be applied to improve the long-term stability and predictability of transmission charges, while ensuring charges appropriately reflect underlying system costs and a fair risk allocation for consumers?

Please include views on:

- Whether charges should be fixed at the point of FID, and if so, for how long, including the opportunities and risks of charge fixing.
- If charges were fixed at point of investment, how frequently charges for new assets looking to connect should be recalculated, and what principles should guide the appropriate update cycle (for example, alignment with periodic plans such as the SSEP).
- How far in advance of commissioning charges should be known to developers, and how this should balance investment certainty against the need for charges to adapt to evolving system needs.

Model inputs and assumptions

Q27. What factors should be considered when determining the appropriate representation of the network from which to derive charges?

Technology specific considerations

Q28. How can locational charging best reflect technology-specific differences?

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Negative charges or credits in a reformed framework

Q29. In areas where adding generation reduces the need for additional transmission infrastructure, should network charge credits continue to apply under a reformed framework? Is it appropriate these charges are paid for by final demand?

Q30. If network charge credits were to continue in a reformed framework, how should they be used to provide an effective and proportionate locational signal?

Time-limited flexible connections as a backstop measure

Q31. Should flexible connection offers be used to manage the possibility of connections in advance of (or in addition to) planned capacity as a backstop complementary measure?

Deeper connection charges above planned capacity

Q32. If projects are, under limited circumstances, permitted to connect above the planned capacity in a zone, to what extent should deeper connection charges be used to recover any additional network reinforcement costs they may trigger?

Treatment of legacy and transitional assets

The potential case for legacy and transitional arrangements

Q33. Under what circumstances do you see a need for introducing LAT arrangements? Do you agree with our rationale for the potential introduction of such arrangements?

Q34. Can you provide details and/or information on how investment decisions have been made to date and what factors or assumptions regarding TNUoS charging were taken into account?

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Principles of prospective legacy and transitional arrangements

Q35. Do you agree with these principles for LAT arrangements? Are there any which we are missing?

The scope and definition of prospective legacy and transitional arrangements

Q36. Do you believe determining the scope of LAT arrangements solely based on a FID cut-off date is appropriate, or should we narrow their scope based on route to market or other differentiators?

Q37. What would be the best way, in your view, for the Authority to collect and assess evidence of FID for the purposes of determining eligibility for LAT arrangements? Would it be more appropriate to use Milestones 7 and/or 8 of the connections process as the method of determining eligibility?

Q38. Should we consider differentiating between generators that are currently receiving TNUoS credits and those liable for paying TNUoS charges in determining the scope of any LAT arrangements?

Design considerations for legacy and transitional arrangements

Q39. Which design – parallel running, phased implementation or a fixed charging regime – could best achieve a balance of the aims for LAT arrangements?

Options for fixing charges for assets within scope of LAT arrangements

Q40. If fixing of charges for legacy generators was deemed appropriate, which of the approaches described could achieve a balance of aims for the LAT arrangements? Are there other approaches we should consider for fixing?

Appendix 2 Glossary

CM

Capacity Market. The CM provides a payment to reliable sources of capacity to ensure security of electricity supply.

CfD

Contracts for Difference. The government's main mechanism for supporting low carbon electricity generation.

Cost-reflective charges

A charge which seeks to recover network costs from users in a manner which is reflective of the level of costs they themselves cause to be conferred upon or in respect of the network. For clarity, in this context, network costs include wider system costs such as constraint costs.

CSNP

Centralised Strategic Network Plan. The CSNP will provide an independent, coordinated, and long-term whole-system approach to planning the electricity and natural gas transmission networks, as well as hydrogen transport and storage (T&S) networks across Great Britain.

Deeper connection charge

Involves the recovery of a greater proportion of the total costs resulting from connecting new generation or load to the system, including costs of wider network reinforcement, through an up-front connection charge.

DUoS

Distribution Use of System charges. These recover the cost of building and maintaining the electricity distribution network.

EHV

Extra High Voltage. Typically refers to the level of the distribution network with a voltage of 33 kV or above.

Enabling works

The minimum transmission reinforcement works local to the point of connection which need to be completed before an asset can be connected to and given firm access to the transmission network.

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FID

Final Investment Decision.

Interzonal charge

An interzonal charge varies between SSEP zones and provides an investment signal as to which zone developers should invest in.

Intrazonal charge

An intrazonal charge varies within SSEP zones and provides an investment signal as to where developers should invest within a given zone.

ICRP

Investment Cost Related Pricing. ICRP is a long-run marginal cost-based charging methodology currently used to set transmission charges in Britain. Charges are set based on a model of the power flows resulting from an increment of demand/generation at a node (the transport model). This model assumes that network components are fully utilised and that any additional flows will require reinforcement.

Legacy assets

Existing assets already operating and that are liable to TNUoS wider locational charges.

LRIC

Long Run Incremental Cost. LRIC is a type of charging methodology used in Extra High Voltage DUoS charging where charges depend on how a project affects the need to reinforce network components.

LRMC

Long Run Marginal Cost. LRMC-based network charging methodologies set network charges based on how an increment of generation/demand at a node affects the long-term costs of maintaining and reinforcing the network.

RNP

Reformed National Pricing.

SRMC

Short Run Marginal Cost. SRMC-based network charging methodologies set network charges based on how an increment of generation/demand at a node affects the short-term costs of operating the network. These short-term costs may include constraint management/balancing costs.

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SSEP

Strategic Spatial Energy Plan.

TNUoS

Transmission Network Use of System charges. These recover the cost of building and maintaining the electricity transmission network.

Transitional assets

Assets for which investment decisions are taken before fully implementing RNP.

Transport model

The model used under the existing TNUoS regime to calculate charges using a representation of the GB electricity network.

UoS

Use of System charges. These charges include (but are not limited to) TNUoS charges, and they recover the costs associated with building, maintaining and operating the transmission and distribution networks.

Wider works

The transmission reinforcement works (in addition to enabling works) associated with reinforcing the network beyond the immediate connection point to accommodate the new connection and ensure overall network compliance with the Security and Quality of Supply Standard.