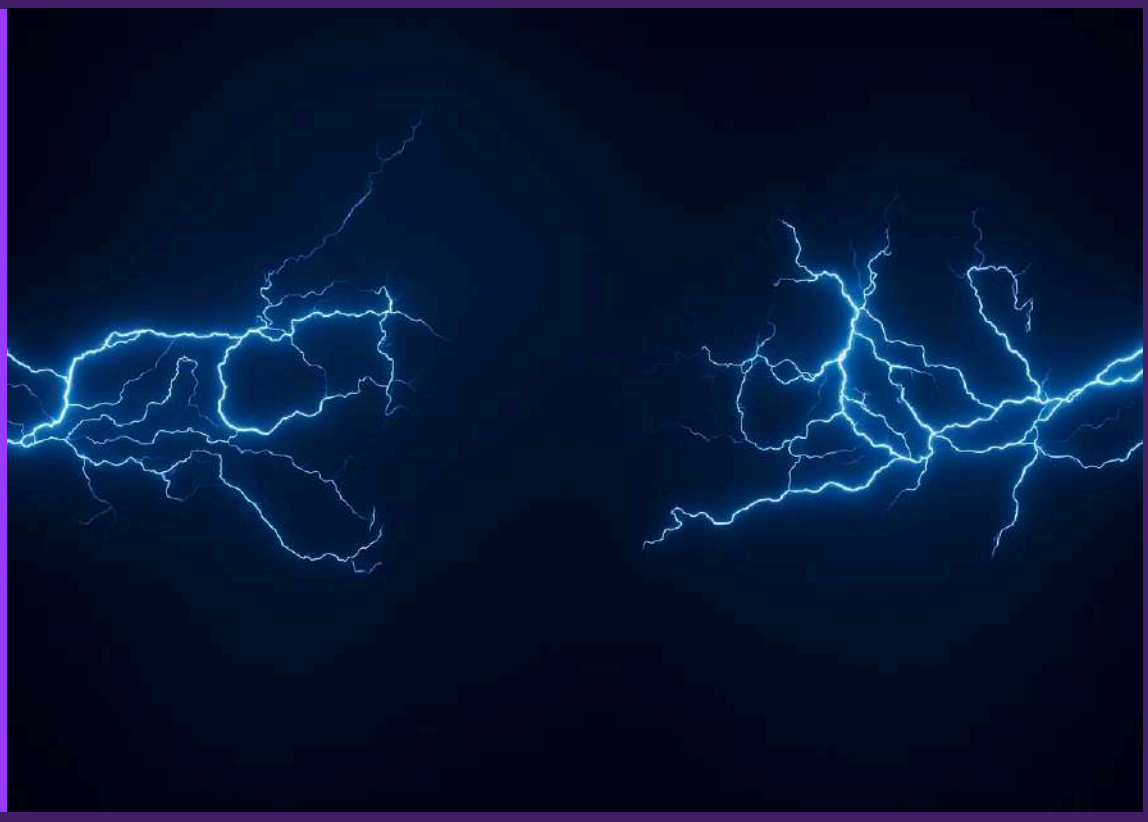

Report- Locational Signals under Reformed National Pricing (RNP)

Summary of Insights on the GB Electricity Market from a Multi-Stakeholder Workshop

Malte Jansen[1], Will Blyth[2,3], Callum MacIver[2,4], Aidan Rhodes[2,5], Margaux Daly[1]

[1] UCL, [2] UKERC, [3] Oxford Energy, [4] University of Strathclyde, [5] Imperial College London

Centre for Net Zero Market Design

UK Energy Research Centre

UCL

About this report

This report summarises key points of consensus and divergence emerging from a workshop held in November 2025 exploring the transition from the Review of Electricity Market Arrangements (REMA) programme to Reformed National Pricing (RNP). Held prior to the release of a full RNP Delivery Plan or Ofgem's publication of the reordered connections queue, this report aims to present an overview of key thinking within the energy system at this snapshot in time. We remain confident, however, that many of the findings presented herein will remain applicable throughout the process of implementing RNP.

Acknowledgments

Thank you to all the workshop participants whose valuable contributions enabled us to write this report.

This workshop and report were made possible through the generous support of the European Climate Foundation. We also gratefully acknowledge SSE, Centrica, National Grid, Rothesay, and Forta Advisor for their ongoing support of the Centre for Net Zero Market Design's work.

We also would like to thank all staff members involved in the process. Facilitators: Katrina Salmon, Claudia Brown, Michael Grubb, Serguey Maximov Gajardo, David Shipworth; Scribes: Adam Duncan, Federico Gambedotti, Isabella Ragazzi, Jane Pan, Julia Gao, Kaylen Camacho McCluskey, Tim Lancaster; Organisation: Anjali Singh, Jordan Willis, Kris De Meyer, Mason Parker, Oluwatobi Balogun, Rob Gross. Editors: Katrina Salmon and Andreas Walstad.

Suggested Citation

Jansen, M., Blyth, W., MacIver, C., Rhodes, A, & Daly, M. (2025) Post-REMA Locational Pricing Decision Workshop: Results and Findings. UCL Centre for Net Zero Market Design & UKERC. London, United Kingdom.

https://www.ucl.ac.uk/bartlett/sites/bartlett/files/2026-02/REMA%20Workshop%20Report%20.pdf

Contact

Email: cnzmd@ucl.ac.uk

Website: https://www.ucl.ac.uk/bartlett/sustainable/centre-net-zero-market-design

Publication Date: 10 February 2026

Executive Summary

In response to the UK Government's decision to retain a single national wholesale electricity price under the Review of Electricity Market Arrangements (REMA) and implement Reformed National Pricing (RNP), a Post-REMA Locational Pricing Decision Workshop was convened in November 2025 to capture stakeholder perspectives on critical next steps. This report synthesises the insights from the workshop across three key themes: efficient siting of new assets, operational efficiency, and distributional fairness. The findings highlight areas of consensus, divergent perspectives, and cross-cutting issues that will shape the next phase of electricity market reform.

We employed a structured, multi-stakeholder workshop design to elicit evidence-based insights on implementing RNP. Participants included senior representatives from government, industry, academia, and civil society. Each of the three workshop sessions focused on eliciting expert stakeholder viewpoints on a range of potential policy options that were seen as best-suited to meeting the aims of the RNP agenda. Several pre-defined policy options and levers, drawn from a combination of the RNP framework (as presented in the 2025 REMA Summer Update), the REMA process, and recent literature, were presented to the stakeholders for discussion while space was also given for new thinking to be put forward.

The findings presented in this report are grounded in a rigorous qualitative research design with a multi-source method ensuring transparency and validity, while anonymisation and adherence to the Chatham House Rule safeguarded confidentiality. AI-assisted processes were employed for rapid evidence collation, transcription, clustering, and formulation. All outputs were manually verified by the research team to maintain accuracy and neutrality.

Key Takeaways

Workshop Session 1: Investment and Siting under RNP

Mechanisms related to asset siting must attract investment, improve efficiency, and avoid bottlenecks so projects can be built on time and on budget. This session covered six areas of discussion: the Strategic Spatial Energy Plan (SSEP), local planning, network planning, network charging, seabed leasing and other levers. Whilst valuable discussions were held across all these, the following areas provided key learnings.

Centralised Energy Planning

The SSEP is a spatial blueprint designed to set the strategic direction for the energy sector. Participants consistently identified the SSEP as a potentially *"transformative"* foundation for siting yet stressed that it constitutes a framework rather than a lever in itself, with some scepticism remaining about its likely potency in practice. It was generally agreed that there is a strong link to the Centralised Strategic Network Plan (CSNP); since the latter drives the slowest-moving part of the energy system, strong alignment between the SSEP and CSNP is essential. Beyond networks, if the SSEP is to drive investment, it will need to connect into and effectively steer and coordinate enforceable delivery instruments including Transmission

Network Use of System (TNUoS) charges, Contracts for Difference (CfDs), connection reform, Regional Energy Strategic Plans (RESPs), seabed leasing, and other elements of spatial planning.

There were divergent views on the prescriptiveness of the SSEP; some participants argued that the above logic would imply a highly directive and detailed plan with strong links to the delivery levers, for instance by specifying special treatment for certain types of plant in certain locations. Others, however, argued for a more adaptive approach to build optionality, particularly regarding flexibility assets. To some extent this reflected divergence regarding the fundamental balance between a market-led versus a centrally planned energy model. Many noted that SSEP discussions have been too generation-centric and need to incorporate explicit treatment of demand clusters, as well as dealing with demand uncertainty.

Planning Reform

Participants emphasised that the current procedural requirement to submit grid connection applications prior to planning consent has fundamentally inflated the connection queue, further exacerbated by uncertainty over how the queue is managed, which is driving developers to submit multiple speculative projects to hedge their risk. These bottlenecks are further intensified by a severe lack of capacity in Local Planning Authorities, while the absence of clear spatial signals, whether through pricing or strategy, ensures the current queue fails to accurately reflect system needs. Participants largely agreed on streamlining decision-making (navigating the tension between national direction and local input), directly linking queue positions to strategic priorities defined in the SSEP (such as designated "fast-track" zones), and urgently scaling the administrative capacity required to process consents. There was divergence on the extent of centralisation versus regional and market considerations needed, the timeframe of reform, and the fairness and subsequent legitimacy of any planning reforms.

Transmission Network Use of System (TNUoS) Charges

Participants agreed that the current TNUoS framework fails to deliver effective locational signals as unpredictable changes often come after siting decisions, which raises costs by increasing investor uncertainty. Views were split regarding whether TNUoS should be reformed or replaced. In general, there was agreement that any administratively set locational price signal (whether TNUoS or otherwise) should be fixed at the point of investment and be designed to avoid unnecessary windfall gains and losses thereafter. In addition, locational signals should be aligned and streamlined across different instruments to avoid inefficient overlapping signals (across the SSEP, CfDs, leasing, and charging).

On the TNUoS ‘reform’ side of the argument, options with broad consensus included differentiated access products (firm vs. non-firm access), tradeable capacity rights, and the removal of the £0 floor for large demand users. On the ‘replace’ side of the argument, options included rationing / auctioning of capacity, or for TNUoS to be retained at a flat rate and used solely as a means of cost recovery with locational signals provided via other mechanisms. The role of locational CfDs was also discussed but with divergent views. There were warnings that

the 2029 implementation envisaged in the current TNUoS reform process is too late to meet the Clean Power 2030 targets.

Workshop Session 2: Operational Levers

In the absence of a zonal pricing system, other policies are required to embed suitable locational operational signals. This session covered 11 areas of discussion: Balancing Mechanism participation thresholds, trading deadlines, physical notifications, unit-level bidding, imbalance settlement periods, demand-behind-constraints contracts, interconnector flows, intraday markets, Security and Quality of Supply (SQSS) standards, dynamic line rating, and other emerging ideas. Whilst valuable discussions were held across all these, the following areas provided key learnings.

Precision of Trading Positions in the Intraday Market (IDM)

The workshop discussed three closely related proposals to (1) align trading deadlines, (2) enforce matching of physical notifications with trading positions, and (3) introduce unit-level bidding. Participants viewed these linked proposals with some scepticism, arguing that theoretical gains in operational efficiency would be outweighed in practice by reduced market liquidity due to the need to disaggregate trading portfolios, tightening timelines and making it harder to match trades with counterparties. The measures were viewed as likely to increase hedging costs and impose disproportionate administrative burdens (particularly regarding IT systems) without delivering commensurate efficiency gains. It was contended that perceived discrepancies between physical and traded positions are often overstated or effectively managed by existing incentives, suggesting that redispatch inefficiencies stem from structural blind spots, such as the poor visibility of distributed assets, rather than the procedural misalignments these "low priority" reforms seek to address.

Shifting Location-Related Trades out of the Balancing Mechanism (BM) into Forward Markets

Demand-Behind-Constraints Contracts were seen as having immediate, high-impact potential. Forward contracting for locational demand flexibility was widely endorsed as shifting the system from reactive, high-cost redispatch to proactive management, provided that forecasting risks and baseline verification are robustly designed. Whilst proposals to improve interconnector flows and strengthen intraday markets have similar objectives and attractive benefits in theory, some participants suggested that in practice they would deliver only incremental gains due to post-Brexit political complexities, the opacity of flow-based algorithms, and "hurdle behaviours" created by existing CfD incentives.

Maximising Use of Existing Network Capacity

Participants strongly supported measures to maximise existing network capacity, though drew a distinction between the deployment of engineering solutions like Dynamic Line Rating (DLR) or increased use of intertrip schemes and the politically sensitive regulatory step of relaxing Security and Quality of Supply (SQSS) standards. DLR was identified as a critical near-term win, currently stalled by a frustrating "integration gap" where installed hardware collects data that remains unused in operational decision-making due to regulatory and IT inertia. In contrast, while the relaxation of SQSS was acknowledged as logical, it provoked concern

regarding system security and investor confidence. Ultimately, success for both approaches relies on moving away from static assumptions to algorithm-driven, automated adjustments.

Workshop Session 3: Distributional Fairness, Affordability & Politics

Workshop 3 reveals a consistent theme: technical optimisation under RNP cannot succeed without addressing issues of fairness such as affordability and regional equity. Political acceptability of the centrally-planned SSEP will be a challenge that needs to be overcome if it is to lay the foundations for sectoral reform. There was strong convergence on the urgent need to address regressive bill structures (thus highlighting the impact of standing charges and the large share of the bill not directly related to electricity generation). Specific options that were proposed included shifting social policy costs (such as the Warm Homes Discount) to general taxation and reforming standing charges that penalise low-volume users. To sustain public support, participants identified curtailment reduction (via pre-gate closure markets) as the essential "quick win" to demonstrate system efficiency and counter narratives of "waste." However, significant divergence persists regarding retail reform and risk allocation: while some advocated for capacity-based signals to improve economic fairness, others argued for "safe defaults" to protect disengaged consumers from a "postcode lottery" of regional impacts. Ultimately, the debate centred on a difficult narrative trade-off: the necessity of "honesty about costs" versus the political imperative to insulate voters.

Key Policy Implications

Implementing RNP requires a coherent package of reforms, not incremental adjustments. Policy design must tackle structural dependencies, governance gaps, and political economy constraints while sequencing interventions to avoid contradictory signals. Key priorities are:

- Foundational Levers / Sequencing: Make the Strategic Spatial Energy Plan (SSEP) operational through enforceable delivery mechanisms; accelerate and align the Centralised Strategic Network Plan (CSNP); coordinate seabed leasing, Contracts for Difference (CfD) rounds, and network planning to prevent locking in suboptimal siting.
- Planning Reform: Expand Local Planning Authority capacity; streamline consenting; introduce fast-track zones for strategic assets; ensure coherence between national and regional frameworks while embedding fairness and community benefits.
- Network Charging and Access: Provide certainty at investment by fixing locational signals upfront; introduce differentiated and tradeable access rights; avoid overlapping signals across Transmission Network Use of System (TNUoS) charges, CfDs, and the Capacity Market.
- Operational Efficiency: Scale demand-behind-constraints contracts and local constraint markets; integrate Dynamic Line Rating and explore dynamic SQSS adjustments; strengthen intraday markets and outage coordination; deprioritize low-impact proposals unless justified by cost-benefit analysis.
- Fairness and Political Narrative: Reform regressive bill structures by shifting social policy costs to general taxation; communicate reforms as consumer benefits; manage

political sensitivities around SSEP and infrastructure siting through transparent rationales and community benefit-sharing.

- Governance and Institutional Incentives: Clarify roles across DESNZ, Ofgem, and NESO; embed adaptive governance and reinstate performance-based incentives tied to measurable outcomes.
- Whole-System Coordination: Design CfDs, the Capacity Market, and charging reforms holistically; establish a coordination framework to align planning, charging, and contractual mechanisms under a single roadmap.

Table of Contents

Definitions

Mechanism	Description
Strategic Spatial Energy Plan (SSEP)	A national planning instrument that identifies optimal zones for generation and demand clusters based on system needs, resource availability, and network capacity. It provides a spatial blueprint to guide investment and coordinate with network and market signals.
Planning Reform	Regulatory and procedural changes to accelerate consenting for energy infrastructure. This includes streamlining approvals, aligning national and regional plans, and introducing prioritisation mechanisms for strategic projects.
Network Build via CSNP	A long-term transmission planning process that sets out anticipatory reinforcement and new build requirements. It ensures grid capacity aligns with projected generation and demand patterns, reducing curtailment and enabling system integration.
TNUoS & Connection Charging Reform	Adjustments to transmission charges and connection cost models to provide predictable, location-sensitive signals. The aim is to reduce volatility, improve investment certainty, and allocate costs fairly across users.
Seabed Leasing	Allocation of offshore wind development rights by the Crown Estate or equivalent authority. Leasing rounds determine site availability and influence early-stage siting decisions, requiring coordination with spatial and network planning.
Lower BM Participation Threshold	Reduces the minimum size for assets to participate in the Balancing Mechanism, enabling distributed resources such as batteries and flexible demand to provide balancing services. This would increase competition, improve price discovery, and enable more granular locational balancing, evolving the current re-dispatch paradigm, still dominated by large generators. This requires automation and telemetry upgrades for system operator integration.
Align Market Trading Deadline with Gate Closure	Synchronises the final trading window with the system's operational gate closure to minimise discrepancies between traded positions and physical notifications. This improves predictability and reduces redispatch costs.
Physical Notifications Matching Trades	Mandates that physical notifications submitted to the system operator reflect actual traded positions. This enhances transparency and reduces opportunities for imbalance gaming.
Unit-Level Bidding	Requires bids to be submitted for individual generating units rather than aggregated portfolios. This provides granular visibility for dispatch decisions but increases complexity and IT requirements.

Shorter Imbalance Settlement Period	Reduces settlement intervals from 30 minutes to 15 or 5 minutes to improve real-time balancing and price signals. This change demands metering upgrades and system capability for high-frequency data processing but would provide incentivise participants to manage positions more actively and enable faster response from flexible assets such as batteries.
Demand-Behind-Constraints Contracts	Forward procurement of demand-side flexibility located in constrained areas. These contracts allow the system operator to secure turn-down or turn-up services ahead of real-time to reduce curtailment and constraint costs.
Improve Interconnector Flows	Optimises cross-border electricity flows through enhanced coordination and dynamic countertrading. This requires integration with European balancing platforms and regulatory flexibility for interconnectors.
Strengthened Intraday Markets	Enhances liquidity and responsiveness of intraday trading windows to allow participants to rebalance positions closer to real time. This reduces reliance on costly re-dispatch actions in the Balancing Mechanism.
Relaxed SQSS Standards	Introduces dynamic adjustments to Security and Quality of Supply Standards to allow higher utilisation of network assets under certain conditions. This requires robust risk management and real-time monitoring systems.
Dynamic Line Rating / Intertrips	Uses real-time environmental data to adjust transmission line ratings dynamically, unlocking latent capacity without new build. Integration into control-room systems and regulatory approval are essential for implementation.

Introduction

Workshop Context

The UK electricity system faces a dual challenge: to decarbonise rapidly while meeting rising demand and maintaining affordability and security. Electricity demand is projected to increase significantly by 2050, driven by electrification of heat and transport and the integration of new industrial loads (UK Government, 2024, 2025). Achieving Net Zero by 2050 and the Clean Power 2030 commitment requires a wholesale market design that not only supports investment in low-carbon generation and incentivises flexibility but also addresses the implications of the Government's decision to retain a single national price under RNP. This decision frames the current debate on how to deliver efficient siting, operational optimisation, and fairness without locational wholesale pricing (Energy UK, 2025; Gill et al., 2025).

REMA, launched in 2022, was the most comprehensive review of GB electricity market arrangements in decades (BEIS, 2022). Its scope extended beyond locational pricing to address two fundamental dimensions of market design: temporal flexibility and geographical flexibility. Within each dimension, the market must send signals for both investment and efficient operation. Among the options considered for incentivising geographical flexibility were nodal pricing, zonal pricing, and reforms to maintain a national pricing model while strengthening complementary signals (Ofgem, 2023).

Zonal pricing attracted significant attention as a potential solution to high constraint costs and inefficient siting. However, after extensive consultation and impact assessment, the Government confirmed in July 2025 that it would retain national pricing (with reforms), citing concerns about complexity, investor confidence, and regional fairness (Ofgem, 2023; UK Government, 2025; UK Parliament, 2025).

The rationale for reform is clear. Current arrangements fail to provide strong locational signals, contributing to constraint costs exceeding £1 billion annually, long connection queues, and planning bottlenecks (Ofgem, 2023; Energy UK, 2025). Advocates of zonal pricing argued that it would reduce constraint costs and incentivise efficient siting by reflecting network conditions in wholesale prices (Savelli et al., 2022). Critics, however, warned of complexity, liquidity fragmentation, and the risk of a "postcode lottery" for consumers (Grubb and Newbery, 2018; Neuhoff, May and Richstein, 2022). Investor uncertainty and political sensitivity were decisive factors in the Government's rejection of zonal pricing.

This decision has far-reaching implications. The challenge now is to achieve the objectives of REMA (i.e., efficient investment, operational efficiency, and fairness) without wholesale locational pricing. This requires a coherent package of reforms that align planning, charging, and contractual mechanisms with system needs (Energy UK, 2025; Gill et al., 2025; Ofgem, 2025). Thus, the RNP framework was first outlined in a summer 2025 scoping document and will be elaborated in further guidance from DESNZ expected in early 2026 (UK Government, 2025). This framework includes planning instruments such as the SSEP, network investment frameworks like the CSNP, and reforms to transmission charging, connection arrangements,

and long-term contracts (Gill et al., 2025; Ofgem, 2025). The following was designed and convened to inform this process by identifying priority levers and sequencing for implementation

The Post-REMA Locational Pricing Decision Workshop

In response to the UK Government's decision to retain a single national wholesale electricity price under REMA and implement RNP a Post-REMA Locational Pricing Decision Workshop was convened by UCL's Centre for Net Zero Market Design and the UK Energy Research Centre (UKERC), on neutral ground at University of London's Senate House on 13 November 2025. The purpose was to capture stakeholder perspectives on considered options under RNP.

This report synthesises the insights from the workshop across three key categories: efficient siting of new assets, operational efficiency, and distributional fairness. The findings highlight areas of consensus, divergent perspectives, and cross-cutting issues that will shape the next phase of electricity market reform.

We employed a structured, multi-stakeholder workshop design to elicit evidence-based insights on implementing RNP. Participants included senior representatives of the electricity sector from government, industry, academia, and civil society. Each of the three workshop sessions focused on eliciting expert stakeholder viewpoints on a range of potential policy options that were seen as best suited to meeting the aims of the reformed national pricing agenda. There were presentations from director-level stakeholders and a panel discussion to address the big themes of the workshop.

A number of pre-defined policy options and levers drawn from a combination of the RNP framework, the REMA process and recent literature were presented to the stakeholders for discussion while space was also given for new thinking to be put forward. The purpose of the workshop was to find areas of common ground and discuss potential drawbacks of the most prominent reform mechanisms currently on the table under RNP. This report is a synthesis of those discussions to add to the debate regarding ways forward but also what must be carefully considered or avoided.

To meet the challenges set out in the REMA process of designing a future electricity market fit for a decarbonised system, government were clear that significant reform would have to accompany the retention of a single national wholesale price and set out a number of potential key frameworks and policy levers that they would expect to underpin their RNP agenda. The workshop was convened to gather multi-stakeholder perspectives on the reform options being proposed and how best to implement RNP effectively. Its scope was defined by the summer 2025 RNP scoping document and was deliberately focused on eliciting expert stakeholder views on the key levers and policy measures that should now accompany the decision on RNP. Participants included senior representatives from government, industry, academia, and civil society.

Operating under the Chatham House Rule, the workshop explored three tightly framed questions:

- *What levers can steer efficient siting of new assets under RNP?*
- *How can operational efficiency be improved to reduce constraint costs?*
- *What measures are needed to ensure fairness and political acceptability?*

The insights captured in this report are intended to inform both policy development and academic discourse. They highlight areas of consensus, divergent perspectives, and cross-cutting themes that will shape the next phase of electricity market reform.

The workshop served multiple functions beyond simple evidence gathering. Its overarching aim was to establish common ground among stakeholders while identifying areas of divergence on how to implement RNP effectively. To achieve this, the workshop was designed with three distinct purposes:

1. Collect evidence on what different stakeholders (i.e., policy makers, industry actors, and academics) perceive as the most significant challenges and potential solutions for investment, operational efficiency, and fairness under RNP.
2. Facilitate constructive exchange between diverse and sometimes conflicting views back into conversation through a structured dialogue. The workshop employed a highly structured format to break down entrenched narratives and encourage constructive exchange, ensuring that perspectives were shared systematically rather than dominated by prevailing positions.
3. Produce a written report that synthesises findings and provides a robust evidence base, sharing insights with participants and the wider energy community. The intended audience spans policy makers (DESNZ, Ofgem, NESO), industry stakeholders (generators, suppliers, flexibility providers, investors), and the academic community. By combining technical analysis with stakeholder insights, the report aims to inform both near-term policy decisions and longer-term research agendas.

Methodology

This study synthesises multi-stakeholder perspectives on implementing RNP in Great Britain's electricity market following the UK Government's REMA decision. We adopted a qualitative, structured workshop design to elicit and compare perspectives, identify shared and divergent perspectives, and generate policy-relevant insights across three themes: (1) investment and siting; (2) operational efficiency and constraint cost reduction; and (3) distributional fairness and political economy. The workshop design deliberately focus discourse on specific topics outlined in the RNP framework as introduced in the Government's REMA Summer Update 2025 (UK Government, 2025).

The workshop was convened on 13 November 2025 at UCL Senate House by the Centre for Net Zero Market Design with UKERC. The day comprised a morning plenary (keynote, policy dialogue, panel) followed by three table-based workshops (Investment & Siting; Operational Efficiency; Distributional Fairness), each with facilitator-led discussion and structured worksheets. The event was conducted under the Chatham House Rule (participants may use information but not attribute identities or affiliations).

Attendance included 60 registered stakeholders, with active traceable participation from 38 individuals in Workshop 1, 32 in Workshop 2, and 34 in Workshop 3. The stakeholders are categorised into: Policy/Government (7); Industry (19); Academia (4); NGOs/Think Tanks (8). Invitations targeted senior stakeholders across policy/government, industry, academia, and NGOs/think tanks (as reflected in panel composition and participant table plans).

Each participant received a structured worksheet for every workshop session, containing the main question and prompts aligned with REMA levers. Each workshop used a structured dialogue format with initial silent individual reflection, facilitator-led, and takeaways recorded on worksheets. Roles and logistics (main facilitator, table facilitators, scribes, time/progress watcher, digitiser) and step-by-step running tables were pre-specified.

We triangulated five sources: 104 worksheets (208 pages), 103 pages of scribe notes, 12 pages of facilitator notes, 7 pages of facilitator debrief summaries, and 41 pages of transcription of facilitators' meeting. All documents were scanned, anonymised, and archived. We used a highly directive approach with Copilot AI (GPT-5) for transcription assistance, first-pass summarisation, and clustering candidate themes.

Limitations

The sampling strategy targeted high-profile experts but is not statistically representative; findings should be interpreted as informed perspectives rather than generalisable trends. Predefined lever categories enhanced policy relevance but constrained inductive breadth; emergent themes outside these categories may be under-represented. Positions presented as having gained some degree of consensus should be understood as outputs of specific discussions rather than definitive or universally held views. Not all ideas were explored with equal depth or tested across all participants, and dissenting perspectives may exist both within and beyond the workshop. AI-assisted transcription and summarisation accelerated

processing, there is an inherent risk of nuance loss during initial machine-generated outputs. This was mitigated through rigorous human verification and triangulation but cannot be eliminated entirely. Accordingly, findings should be understood as indicative rather than prescriptive.

Observations on Workshop 1: Investment & Siting under RNP

Strategic Spatial Energy Plan (SSEP)

The workshop revealed strong alignment on the SSEP's importance and its need for integration, adaptability, and demand-side inclusion. There were differences of opinion on prescriptiveness, enforcement, and the balance between planning and market signals, and how desirable people felt such a strong approach to be. While many saw the SSEP as a *"transformative approach,"* others cautioned that without clear delivery levers and iterative design, it risks becoming *"just another strategy."*

Shared Perspectives

Participants consistently described the SSEP as *"very important for siting"* and *"transformative,"* yet emphasised that it is a framework, and *"not a lever in itself."* To be effective, it must cascade into enforceable instruments such as TNUoS, connection queue reform, CfDs, and the CSNP. Illustrative comments included: *"Without (a) measures to make it stick and (b) a way to evolve, it's a paper doc,"* and *"Plan without levers won't move off paper; integration is critical."*

There was broad agreement that the SSEP must align with market signals and planning processes to avoid contradictions. Comments included: *"Align with market signals and connections reform; don't overlook local priorities,"* and *"What are levers for delivery - need connections/CfD rounds in line, so changes don't undermine investment."* Participants also highlighted the link to network planning: *"Must account for supply/demand volumes, locations, time of use; implementability via CSNP and TNUoS."*

Many noted that SSEP discussions have been too generation-centric and called for explicit treatment of demand clusters: *"Demand (at least large-scale) should be included"* and *"Data-centre co-location with areas needing excess heat."* The absence of demand-side focus was described as a *"blind spot"* and *"limited demand-side work."*

Participants agreed that the SSEP cannot be static. The planned three-year update cycle was seen by some as inadequate: *"Needs more iterative updates than 3 years," "Build agility into process,"* and *"Adaptation needed, dependent on many assumptions with material impact."* Participants said the SSEP is not a lever itself but needs to be integrated into other levers; remarking that we must *"build agility into the process and consider cumulative impact in communities",* further noting that *"Presentation will be critical."*

Divergent Perspectives

The prescriptiveness of the SSEP was a contested issue. Some argued for highly directive planning, especially for strategic assets: *"Direct allocation to locations for most strategic*

assets (esp. nuclear)," "Should cap technologies in an area," and *"Applicable to all, but most granular for large-scale assets; very precise for nuclear."* Others warned against rigidity: *"Less prescriptive for flexible assets; build optionality"* and "*Avoid over- prescription below certain scale (<100 MW?)."* One participant summed up the tension: *"Key question is how directive; if directive, it drives other levers; if not, other levers must do more."*

While some saw the SSEP as an electricity-focused instrument, others pushed for a whole-energy approach: *"Plan must be actual plan, not another strategy; must support major energy infrastructure; think all-energy,"* and *"Include gas, CO_2, H_2 and associated offshore networks."*

Several participants questioned whether the SSEP could "stick" without strong incentives: *"Enforcement question: how to make it stick?"* and *"If 'in' SSEP: capacity-based support up to target and hedging of TNUoS; if 'out': exposed to market and no hedging."* Others suggested softer approaches, such as signalling preferential treatment rather than mandating compliance.

Underlying many comments was a philosophical divide: *"Could be effective but raises question on erosion of market role; is NESO better placed than market?"* and *"We're between market model and more planned model, [must] clarify scope."*

One participant asked: *"How prescriptive will this be? Will it dampen price discovery for CfD auctions? Does SSEP extend to demand side?"*

Planning Reform

Taken together, the workshop's planning strand presents a coherent core and several contested edges. The presence of both shared and divergent perspectives is analytically useful: it indicates substantial room for agreement on the ends of planning reform (capacity, coherence, prioritisation, legitimacy), while leaving open the means (degree of direction, legal instruments, timelines, and scope) by which those ends are to be realised under RNP.

Core needs:

- Capacity and throughput are insufficient and must be expanded.
- National and regional planning must be made coherent with SSEP/RESP and the connections regime.
- Prioritisation mechanisms (fast-track zones, designated uses) are required for strategic assets, including storage and demand side.
- Community engagement must be improved, with clearer rationales and benefit pathways.

Contested edges:

- Institutional stance (centralisation versus market sensitive decentralisation).
- The feasibility of queue reordering and objection overrides.
- The expected timing of effect.
- The breadth of assets explicitly encompassed by reform.

Shared Perspectives

In the absence of zonal pricing, participants repeatedly returned to the centrality of planning reform for delivering efficient siting at pace. Across tables and roles, there was widespread agreement that the planning system, both in terms of organisational capacity and procedural design, is a binding constraint on the energy transition. Several contributions emphasised the practical bottlenecks: *"Speed up build process; get planners in place, but large bottlenecks,"* and *"Current processes too slow; need coordination and upfront surveys to accelerate."* These remarks carried a consistent implication: without a step change in resourcing and throughput, any gains from market or network design will be dampened at the point of consenting.

Beyond capacity, participants converged on the need for coherence between national spatial planning and devolved/local processes. Planning was described by more than one table as *"one of the big 3 locational signals"* with the explicit question of *"how will it reflect national SSEP and regional RESP?"* A recurrent concern was the risk that a top-down SSEP might be undermined by fragmented regional decision-making, or vice versa. The phrase *"Aligned local/regional & national planning; opportunities to provide certainty"* captured a normative aspiration: that planning reform should be architected to make the SSEP and regional energy system plans mutually reinforcing rather than mutually frustrating.

This imperative to align was also framed in terms of its effect on the connection's regime, with multiple contributions linking planning misalignment to the persistence of long queues. One comment noted that the *"planning system contributes to connections queue risk – developers maintain multiple options,"* underscoring how uncertain or protracted consents create incentives for speculative positions that exacerbate congestion in the queue. Another intervention *"Clearing out the queue [would be] positive"* treated streamlining planning as part of a broader programme of delivery discipline, including more assertive triage of stalled or low-materiality projects.

Participants widely endorsed the principle of prioritisation mechanisms, such as fast- track pathways and designated zones, for strategic sites. The notion of *"fast-track [onshore] wind zones"* surfaced repeatedly as a tangible reference point, alongside calls to *"prescribe fast-track areas" and "use positively [as] designated use zones; removes barriers."* These proposals were not merely about speed; they were about strengthening the signal that certain projects, in certain places, are systemically valuable and should be processed differently. Several remarks argued that prioritisation should explicitly extend beyond generation to *"storage queues as much as generation,"* signalling an evolving view of storage as core infrastructure rather than ancillary capacity.

Divergent Perspectives

While these strands (i.e., capacity, alignment, prioritisation) constituted clear common ground, the discussion also marked out important lines of divergence. First, views differed on the appropriate degree of centralisation and the role of the state in adjudicating conflicts. Some argued for stronger national steering: *"There is a need to strengthen national authority over local authority planning restrictions,"* and *"Reduce local ability to contest application; increase capacity of central planner."* Others cautioned that *"Too much centralised planning without*

market considerations is a risk and could kill investor confidence." This tension reflects a substantive debate about institutional design under RNP: how far should planning be directive, and how far should local contestation and price-based signals remain leading?

Second, participants diverged on the legal and political practicability of assertive interventions, such as re-ordering queues or overriding entrenched local objections. The suggestion that *"brave political decisions to override current queue orders… [are] probably necessary"* sat alongside weary scepticism *"What if it doesn't happen?"* and *"Will planning reform actually be delivered?"*, pointing to uncertainty about the state's appetite (and bandwidth) for contentious decisions and litigation risk (with possible links to fairness in workshop section 3). These divergences are not merely attitudinal; they imply different trajectories for reform design, with one camp favouring explicit authority and the other emphasising incrementalism and negotiated consent.

Third, expectations varied regarding the timing of impact. Several remarks sounded a pessimistic note *"Won't happen until post-2030"* whereas others pressed for near-term moves such as *"Clearing out the queue"* and *"Prescribe fast-track areas."* The difference here is not simply optimism versus caution; it lays bare a methodological point about sequencing: whether to rely on structural statutory change with long lead times, or to push operational reforms within current frameworks to buy near-term efficiency.

"The desirability of speed must be weighed against
the legitimacy costs of foreclosing community voice."

A fourth axis of divergence concerned scope. Many participants argued that planning reform must make space explicitly for non-generation assets (e.g., storage, demand-side infrastructure, data centres) so that strategic projects are not constrained by a generation-centric consenting architecture. Others treated demand-side inclusion more implicitly, framing planning through a traditional lens of generation projects. Still, even within this divergence, notable statements linked planning to wider spatial industrial policy. For example, *"planning to recover more value for consumer associated with uplift in land value"* and *"communities: need carrots to accept infrastructure… make benefits obvious (community-owned projects)."* These contributions reframed planning not as a narrow gatekeeping function, but as a policy lever for distributional fairness and local benefit-sharing.

Across the discussion, the normative stance that planning must retain procedural justice was never absent. The call to *"streamline planning/appeals without removing fairness"* captured a vital constraint: the desirability of speed must be weighed against the legitimacy costs of foreclosing community voice. Incidentally, the warning that we can't force communities into hosting assets reinforced the argument for a transparent, system-level justification tied back to strategic planning, rather than project-by-project persuasion alone. In this sense, planning reform is as much about the narrative of the transition as about the mechanics of consenting: early engagement, clarity about whole-system need, and visible local benefits were repeatedly emphasised as preconditions for sustained delivery.

Network Build Coordinated through the Centralised Strategic Network Plan (CSNP)

The CSNP emerged as a foundational lever for delivering efficient siting under RNP, but its effectiveness depends on four conditions:

- Alignment with the SSEP and other levers to ensure coherent signals.
- Regulatory reform to support long-term, anticipatory investment.
- Flexibility and optionality to manage uncertainty without locking into politically driven assumptions.
- Clear governance and accountability to translate planning into delivery.

While participants agreed that *"you can't say 'maybe' on grid build: by the time you know, you'll wish you started five years ago,"* they also cautioned that the CSNP must avoid becoming a static artefact. Its success will hinge on adaptive design, integrated decision-making, and credible sequencing across the wider RNP package.

Shared Perspectives

Participants consistently emphasised that the CSNP is a critical enabler for efficient siting under RNP, given the long lead times and binary nature of transmission investment decisions. There was strong agreement that the CSNP should cascade from the SSEP rather than operate independently, with feedback loops to avoid networks *"playing excessive catch-up."* Several tables described the CSNP – and by proxy network buildout in general – as *"the slowest component of the transition"* and therefore the lever that must be *"fixed furthest in advance."*

A recurrent theme was the need for robust planning combined with flexibility. Many advocated a *"baseline plus flex"* approach, where a core network plan is resilient to multiple futures, supplemented by adaptive measures as technology costs, demand patterns, and policy evolve. This principle was linked to governance: participants argued that the current five-year RIIO price control cycle is misaligned with 25-year transmission asset lifetimes. Proposals included rolling regulatory windows (e.g., a 15-year moving review) to support anticipatory investment and reduce the risk of stranded assets.

Integration across levers was another point of convergence. The CSNP must align with TNUoS reform, connection queue management, and planning processes to avoid contradictory signals. Participants also highlighted the potential for non-firm and flexible connection products as a practical complement to network build, enabling earlier deployment while reducing curtailment costs.

Divergent Perspectives

Despite broad consensus on the CSNP's importance, views diverged on how prescriptive and adaptive the plan should be. Some argued for a highly directive approach, locking in decisions until 2030 to provide certainty, while others warned against rigidity, favouring iterative updates and scenario-based planning to accommodate uncertainty. This tension extended to the

question of whether the CSNP should be tied to a single decarbonisation pathway or designed to operate under multiple credible futures.

Participants also disagreed on scope. While most treated CSNP as an electricity transmission instrument, others called for integration with cross-vector infrastructure (e.g., hydrogen, CO2 networks) and industrial strategy. Timing was another contested issue: several voices warned that CSNP reforms risk coming *"too late"* to influence CfD rounds and seabed leasing already underway, raising concerns about sequencing and coherence across levers.

Finally, governance and institutional roles were debated. Some saw NESO as the natural authority to lead CSNP, while others questioned its capacity and remit, citing *"bloated governance"* and a lack of clarity on enforcement. The willingness of regulators and government to take politically risky decisions – such as prioritising projects or revising queue orders – was seen as uncertain.

TNUoS and Connection Charging

TNUoS and connection charging emerged as highly contentious, but important levers for efficient siting under RNP. While consensus exists on the need for reform, opinions differ on scope, timing, and integration with other instruments. The dominant themes were:

- Certainty and predictability at the point of investment.
- Alignment of TNUoS with the SSEP and CfD design to avoid contradictory signals.
- Optionality through differentiated access products and tradeable rights.
- Urgency of reform to prevent misaligned incentives during the transition.

Participants summed up the challenge succinctly: *"If reforms only arrive by 2029, it's too late relative to CfD rounds."* Delivering a coherent, timely package of changes will be critical to ensuring that network charging supports (not undermines) the strategic objectives of RNP.

Shared Perspectives

Participants broadly agreed that the current TNUoS framework is not delivering effective locational signals and often acts as an administrative charge rather than a true price signal. Its volatility, such as changes after siting decisions, was repeatedly cited as a source of investor uncertainty and inefficiency. The creation of such changes leading windfall losses (or gains), lead to uncertainty. This unpredictability undermines confidence and increases financing costs, particularly for capital-intensive assets such as offshore wind.

There was broad agreement, though not unanimous, that alignment with the SSEP is essential. TNUoS reform must fit within a coherent package of levers, ensuring that CfD allocation, connection queue management, and planning processes do not pull in contradictory directions. Participants stressed the principle that locational signals should be known in full at the point of investment, to reduce the risk of unexpected gains or losses and better support rational siting decisions. Several practical proposals emerged:

- Differentiated access products: long-term firm access (e.g., 10–20 years) with compensation for curtailment; short-term firm access; and non-firm access for flexible assets.
- Tradability: access rights should be clearly defined and potentially tradable, creating secondary markets for connection capacity.
- Preferential treatment for SSEP-aligned projects, such as lower charges or greater choice of contract types.
- Removal of the £0 floor for large demand users, enabling negative charges to incentivise siting in constrained regions (e.g., Scotland).

Connection charging reform was also seen as critical. Participants called for clear, upfront costs to reduce uncertainty and avoid *"first-mover disadvantage"* under deep connection models. Suggestions included auctioning connection rights and embedding locational signals in auction design.

Divergent Perspectives

Views diverged on the future role of TNUoS. Some argued it is a *"legacy lever"* that should be scrapped in favour of alternative mechanisms such as rationing connections or introducing locational CfDs. Others saw reform as unavoidable but warned against overloading TNUoS with objectives beyond cost recovery.

Timing was another point of contention. Many expressed concern that reforms planned for 2029 will come too late to influence upcoming CfD rounds and seabed leasing decisions, creating a risk of mixed signals during the transition.

There was also debate over the depth of reform: whether to maintain shallow connection charging or move to deeper models where developers pay for associated network upgrades. Hybrid approaches, such as combining upfront charges with long-term certainty, were suggested as a compromise.

Finally, interaction with other levers raised questions. Should CfDs and the Capacity Market incorporate locational signals to complement or substitute TNUoS? Participants warned of *"stacking effects"* if multiple instruments (e.g., seabed leasing, TNUoS, CfD) impose overlapping locational signals, potentially distorting investment decisions.

Seabed Leasing

Seabed leasing was viewed as a missed opportunity for effective locational signalling, primarily because decisions were made before REMA reforms and without integration into a coherent planning framework. While its early timing offers flexibility for developers, misalignment with the SSEP and network planning creates sequencing risks. Political optics, particularly around windfall profits and revenue distribution, add a layer of complexity that could influence future policy choices. Future rounds may need to consider explicit coordination with the SSEP and network planning and address public perception concerns to maintain legitimacy.

Shared Perspectives

Participants agreed that seabed leasing plays a critical early-stage role in offshore wind development, occurring well before CfD allocation or network charging decisions. This timing gives developers scope to plan around leasing outcomes, which was seen as an advantage compared to later-stage levers. However, there was strong consensus that seabed leasing should align with the SSEP to avoid misaligned signals and sequencing issues. Several tables highlighted that seabed leasing decisions influence siting long before locational signals from other levers are clear, making integration essential.

There was also recognition that seabed leasing could have been a powerful tool for sending upfront locational signals had it been designed differently. Participants noted that the opportunity was largely missed because *"too much has already been given away,"* with existing leasing rounds locking in sites without coordination with REMA reforms.

Divergent Perspectives

The debate centred on whether seabed use should be charged at all. Some questioned the Crown Estate's role, asking whether its primary function is to provide locational signals or simply to maximise revenue for the taxpayer. Others argued that the Crown Estate's objectives may conflict with system planning needs, creating misalignment with the SSEP and network planning.

Political and public perception risks were a recurring theme. Strong concerns were raised about the optics of windfall profits from seabed leasing by turning previously zero-value assets into high-value rights. This was seen as politically sensitive and potentially damaging to public trust in the transition. Additional criticism focused on revenue distribution, with suggestions that not all proceeds flow back to the public purse, amplifying negative perceptions.

Finally, sequencing was flagged as part of the broader "inconsistent and wrong sequencing" problem across RNP levers. Misalignment between seabed leasing, the SSEP, and network planning risks locking in suboptimal siting before locational signals from other levers are clear.

Other Levers

The "Other Levers" identified in Workshop 1 (grid connections regime, the CM, CfDs, and interconnectors) represent critical enablers and risk factors for the success of RNP reforms, although not capture by it. While not the headline levers, their interaction with the SSEP, CSNP, and TNUoS means they cannot be treated in isolation. Delivering a coherent package will require:

- A queue reform aligned with strategic planning.
- A careful consideration of locational signals in CM and CfDs to avoid stacking effects.
- Integrated governance and sequencing to ensure consistency across all instruments.

Participants summed up the challenge succinctly: *"Using policies to support other policies' objectives can backfire if not designed holistically."* These levers therefore demand attention in any roadmap for implementing RNP.

Shared Perspectives

Several additional levers were identified during Workshop 1 as important for delivering efficient siting and operational coherence under RNP. These levers share a common theme: they interact with core mechanisms such as the SSEP, CSNP, and TNUoS charges and therefore require integrated design to avoid contradictory signals.

The grid connections regime was repeatedly flagged as a critical process needing reform. Participants agreed that the current queue system is a major bottleneck and misaligned with strategic planning. There was strong support for prioritisation based on system needs rather than *"first come, first served,"* and for exploring tradable connection rights and differentiated firmness levels.

The Capacity Mechanism (CM) attracted debate over whether it should incorporate locational signals. Some participants argued that a *"locational CM"* could be a major fix for siting challenges, while others warned against using CM for objectives beyond its original purpose, citing risks of undermining reliability and market integrity.

Contracts for Difference (CfD) were also discussed as a potential locational lever. While CfDs are currently designed to deliver technology-neutral support, some participants suggested embedding locational signals to complement other reforms. However, concerns were raised about *"stacking"* effects if multiple instruments, e.g., CfD, CM, and TNUoS, send overlapping signals, creating distortions and complexity.

Interconnectors were highlighted as part of broader system design considerations. Participants noted that physical siting and operational coordination with European TSOs could influence system efficiency and social welfare outcomes (see also workshop 2 session). While not a primary RNP lever, interconnectors were seen as integral to achieving whole-system optimisation.

Finally, governance and sequencing emerged as a cross-cutting issue. The overarching criticism was that *"the current system is inconsistent and the sequencing is wrong."* Participants stressed the need for clear institutional roles, adaptive governance, and integrated decision-making across all levers to prevent misaligned incentives and stranded investments.

Divergent Perspectives

While there was broad agreement on the importance of these levers, views diverged on scope and timing. For example, some participants advocated for rapid introduction of locational signals into CM and CfDs, while others argued that these instruments should remain focused on their original objectives. Similarly, opinions differed on whether queue reform should be incremental or involve a fundamental redesign of connection rights and auction-based allocation.

There was also disagreement on the degree of integration required. Some saw these levers as complementary to core reforms, while others warned that layering too many locational signals could create complexity and undermine investor confidence.

Observations on Workshop 2: Operational Efficiency

Lower Mandatory Balancing Mechanism Participation Threshold

Lowering the BM participation threshold is widely regarded as a sensible and potentially transformative reform for unlocking flexibility and reducing constraint costs. However, its success depends on addressing deep-seated capability gaps and institutional constraints. Without parallel investments in automation, data systems, and governance, the measure risks creating operational overload rather than delivering efficiency gains. This lever should not be implemented in isolation but as part of a coherent package that includes technology upgrades, visibility improvements, and proportionate compliance design. The effectiveness of this lever is contingent on several systemic enablers:

- Full deployment and operational integration of OBP, alongside automation and AI tools for dispatch.
- Reliable telemetry and forecast data from all materially relevant assets.
- Current governance arrangements do not reward operational efficiency; incentive realignment may be required.
- Rules tailored to asset size and risk, with aggregation pathways to avoid excessive burden on small participants.

"Compliance obligations should scale with asset size and systemic impact."

Shared Perspectives

Across all workshop tables, participants expressed strong conceptual support for this lever. The anticipated benefits include broader market participation, reduced reliance on re-dispatch of large units, and improved responsiveness to local network constraints. One participant summarised the prevailing view: *"Lower BM thresholds expand market access and competition, aiding price discovery and improving opportunities for demand- side assets to share in BM rewards."* Facilitator notes corroborate this consensus, noting that no objections were raised to the principle of threshold reduction.

Divergent Perspectives

Despite this alignment on principle, discussions revealed significant caveats. The most striking concern relates to the system operator's current capability limitations. Control-room engineers already experience high *"skip rates,"* whereby smaller units are ignored because manual dispatch processes cannot accommodate the volume. The Open Balancing Platform (OBP), which is intended to automate and streamline dispatch, remains only partially deployed and is not fully integrated into real-time operations. Without these upgrades, lowering thresholds

risks exacerbating operational complexity rather than delivering efficiency gains. As one participant warned: *"NESO already struggles, it would be worse without IT upgrades."*

A second axis of divergence concerns the nature of participation. Several participants argued that improving visibility of asset positions and forecasts is more critical than mandating BM participation, particularly for flexible demand. This perspective reframes the lever as a data problem rather than a compliance problem: *"Should relate to information provision, not mandatory BM participation; especially for flexible demand."* Such comments highlight the importance of telemetry and forecast accuracy as prerequisites for effective system operation.

Concerns were also raised regarding fairness and proportionality. If onboarding requirements mirror those for large generators, the administrative and technical burden could deter entry and undermine inclusivity. Aggregation was repeatedly suggested as a mitigation strategy, enabling smaller assets to participate through intermediaries rather than individually. This reflects a broader principle of proportionality in market design: compliance obligations should scale with asset size and systemic impact.

Institutional inertia compounds these technical and design challenges. Current re-dispatch practices remain focused on large generators, and cultural resistance to change within the system operator was noted. Participants highlighted a persistent fear of operational risk, captured in the remark: *"Principles still focused on re-dispatch of big generators; fear persists about changing the system … things are OK until Spain happens."* This observation points to the need for governance reforms that align organisational incentives with efficiency objectives.

Alignment of the Market Trading Deadline with Gate Closure

This lever proposal illustrates a recurring tension in electricity market design: the trade- off between operational certainty and market flexibility. While aligning trading deadlines with gate closure could marginally improve predictability, the evidence suggests that its standalone impact on efficiency would be limited. Participants repeatedly emphasised that redispatch inefficiencies stem more from structural issues, such as inadequate visibility of distributed assets and fragmented ancillary markets, than from timing misalignments. Consequently, this measure is best considered as part of a package with complementary reforms (e.g., improved telemetry, OBP integration) rather than as a priority in isolation. The effectiveness of aligning trading deadlines with gate closure depends on:

- Robust enforcement mechanisms to prevent gaming without imposing disproportionate compliance burdens.
- System operator capability to process more granular data in real time, which is currently constrained by legacy IT systems.
- Market design coherence, ensuring that changes to trading timelines do not conflict with broader objectives such as promoting flexibility and maintaining liquidity.

Shared Perspectives

Participants acknowledged the theoretical appeal of this measure: reducing the gap between trading and operational timelines could, in principle, enhance transparency and reduce

inefficiencies caused by last-minute adjustments. The proposal was often discussed alongside related ideas such as requiring physical notifications to match traded decisions and introducing unit-level bidding, as part of a broader effort to improve the integrity of dispatch signals.

Divergent Perspectives

Despite its intuitive logic, the proposal attracted significant scepticism. Across multiple tables, participants argued that the perceived problem (i.e., the disparity between traded and physical positions) is overstated. Market participants already have strong incentives to maintain accurate positions, and any residual mismatch is typically managed through existing BM processes. *Tightening deadlines could therefore impose additional complexity without delivering commensurate efficiency gains*. Concerns focused on three dimensions:

- Reduced intraday market liquidity by curtailing participants' ability to adjust positions in response to evolving conditions, which could undermine flexibility and increase costs, particularly for intermittent generation and demand-side resources.
- Several participants questioned whether the measure addresses a material inefficiency, as *"the real issue is not disparity; it's that market participants already know their physical positions."* Forcing alignment may yield diminishing returns relative to the complexity introduced.
- Contingency on complementary changes such as mandatory PN-trade matching and unit-level bidding. Without these, aligning deadlines alone would not significantly alter system behaviour. Conversely, implementing all three measures together could fragment liquidity and increase hedging costs.

Physical Notifications (PNs) Matching Traded Positions

Requiring PNs to match traded *positions* reflects a broader tension in electricity market design: the desire for greater transparency versus the need to preserve liquidity and flexibility. While improved alignment could marginally enhance predictability, the evidence suggests that its standalone impact on efficiency would be limited. Participants repeatedly emphasised that re-dispatch inefficiencies stem more from structural issues, such as inadequate visibility of distributed assets and fragmented ancillary markets, than from PN mismatches. Consequently, this measure is best considered as part of a targeted enforcement strategy rather than as a priority reform in isolation. The effectiveness of PN-trade matching depends on:

- Robust compliance and enforcement frameworks, ensuring that rules deter gaming without imposing disproportionate burdens.
- System operator capability to process and validate more granular data in real time.
- Market design coherence, avoiding conflicts with other reforms such as portfolio bidding and aggregation.

Shared Perspectives

Participants acknowledged that inaccurate or misleading PNs can undermine efficient system

operation. When physical notifications diverge significantly from traded positions, the system operator faces greater uncertainty, increasing reliance on re-dispatch and raising balancing costs. Improved alignment was therefore seen as desirable in principle, particularly to curb behaviours such as *"tariff chasing,"* where participants exploit imbalance prices by misrepresenting positions.

Divergent Perspectives

Despite agreement on the underlying problem, the proposed solution attracted strong criticism. Across multiple tables, participants questioned whether mandatory PN-trade matching would deliver meaningful efficiency gains. Several argued that existing rules already prohibit systematic misstatement of PNs, and that enforcement – rather than new obligations – should be the focus. As one participant noted: *"Incorrect PNs lead to inefficiency and constraint actions, but tightening rules too far might undermine operational flexibility."* Concerns centred on three issues:

- Forcing strict alignment between traded and physical positions could fragment liquidity and complicate hedging strategies. Many market participants manage portfolios rather than individual units, and portfolio bidding allows them to optimise risk across assets. Disaggregating positions to match PNs would increase administrative burden without changing the economic outcome, since settlement cash-out remains at a single clearing price.
- Participants warned that rigid PN-trade matching could reduce the ability to respond to short-term changes in demand or generation. In a system increasingly reliant on intermittent renewables, flexibility is essential; constraining participants' ability to adjust positions could lead to higher costs and less efficient dispatch.
- Several contributors questioned whether the measure addresses a material inefficiency. The perceived benefits (i.e., greater transparency and reduced gaming) may not justify the complexity introduced, particularly given that enforcement of existing rules could achieve similar outcomes.

Unit-Level Bidding

Unit-level bidding shows the tension between transparency and practicality in electricity market design. While the measure could theoretically improve dispatch precision, the evidence suggests that its standalone impact on efficiency would be limited and potentially outweighed by liquidity fragmentation and operational complexity. The effectiveness of unit-level bidding would depend on:

- System operator capability to process and optimise a vastly increased volume of bids in real time.
- Market design coherence, ensuring that changes do not conflict with aggregation models or flexibility objectives.
- Cost-benefit justification, given the significant investment required in IT systems and compliance processes.

Participants repeatedly emphasised that re-dispatch inefficiencies stem from deeper structural issues, such as poor visibility of distributed assets and inadequate integration of flexibility, rather than from the absence of unit-level bidding. Consequently, this reform is best regarded as low priority and should only be considered if supported by robust cost-benefit analysis and complementary technology upgrades.

Shared Perspectives

Participants acknowledged that greater granularity could, in theory, improve visibility and allow the system operator to optimise re-dispatch more effectively. In principle, unit-level bidding could align physical and commercial behaviour more closely, reducing uncertainty and improving system security.

Divergent Perspectives

Despite these theoretical benefits, the proposal attracted strong opposition across multiple tables. Concerns focused on four key dimensions:

- Disaggregating bids from portfolio to unit-level was widely seen as detrimental to market liquidity. Portfolio bidding enables participants to hedge risk across multiple assets and optimise their positions efficiently. Forcing unit-level bidding would increase the number of bids, reduce ability to match, and create operational complexity without changing the economic outcome, since settlement cash-out remains at a single clearing price.
- Participants warned that unit-level bidding would impose significant administrative and IT burdens on both market participants and the system operator. The additional complexity could slow decision-making and increase transaction costs, undermining the efficiency gains the reform seeks to achieve.
- Several contributors questioned whether the measure addresses a material inefficiency. Re-dispatch inefficiencies were attributed primarily to structural issues, such as inadequate visibility of distributed assets and fragmented ancillary markets, rather than to the absence of unit-level bidding. As one participant noted, *"Portfolio bidding removes risk from a generator perspective; unit-level bidding adds complexity without clear benefit."*
- This proposal was often discussed alongside physical notification matching and trading deadline alignment. Participants argued that implementing all three measures together could compound complexity and reduce flexibility, particularly for intermittent generation and demand-side resources.

Shortening the Imbalance Settlement Period

Shortening the imbalance settlement period is widely regarded as a desirable evolution toward a more dynamic and efficient electricity system. However, its implementation poses significant technical and economic challenges. The evidence suggests that this reform should be pursued incrementally, with careful sequencing alongside metering upgrades and retail market adjustments. Without these prerequisites, the measure risks imposing high costs without delivering commensurate benefits. In short, while shorter settlement periods are aligned with

long-term system needs, their near-term materiality depends on infrastructure readiness and a clear cost-benefit case. The effectiveness of this reform depends on:

- Smart meter roll-out and data quality, enabling accurate measurement and settlement at shorter intervals.
- System operator capability to process and act on high-frequency data without compromising reliability.
- Retail market readiness, ensuring that increased granularity does not create unintended distributional impacts.

Shared Perspectives

Participants broadly supported the principle of shorter settlement periods, noting that greater granularity aligns with international best practice and reflects the operational realities of a system increasingly dominated by intermittent renewables. Facilitator notes confirm that no major downsides were identified in principle, and several contributors described the reform as "logical" given the need for more dynamic system management. One participant observed that, *from a system operator perspective, "in an ideal world, the shorter the better."* The potential benefits discussed by the participants include:

- Improved price signals for flexibility, encouraging more active participation in balancing markets.
- Enhanced system efficiency, as settlement periods closer to real-time reduce imbalance risk and associated costs.
- Alignment with European standards, where 15-minute settlement is common.

Divergent Perspectives

Despite conceptual support, participants highlighted significant implementation challenges and trade-offs:

- Moving to shorter settlement intervals would require substantial investment in metering, data systems, and IT infrastructure. The UK has only recently completed a costly transition to market-wide half-hourly settlement, and shortening intervals further could entail redundant effort and expense. As one participant noted, *"after spending years moving to half-hourly settlement, jumping to 15-minute intervals would be hugely costly and complex."*
- Questions were raised about how wholesale reforms would flow through to retail markets and billing systems. Shorter settlement periods could increase volatility and complexity for suppliers and consumers, raising concerns about fairness and affordability.
- While participants agreed that shorter intervals could improve optimisation, no robust cost-benefit analysis has been undertaken. The financial gains from moving to 15-minute versus 5-minute settlement remain unquantified, and several contributors cautioned against assuming proportional benefits.

Demand-Behind-Constraints Contracts

Demand-behind-constraints contracts offer high potential impact and low political risk. By shifting procurement from reactive BM actions to proactive, locational contracting, this measure could materially reduce constraint costs and improve system flexibility. However, its effectiveness hinges on careful design to manage forecasting risk, prevent gaming, and ensure coherence with existing market arrangements.

Success depends on accurate forecasting, proportionate compliance frameworks, and integration with other levers such as local constraint markets. NESO's capability and incentives were repeatedly flagged as critical: current governance does not strongly reward forward efficiency, creating a structural barrier.

Shared Perspectives

Participants strongly endorsed this measure, describing it as a *"no-brainer"* for reducing constraint costs and unlocking flexibility. The current reliance on reactive re-dispatch was widely criticised as inefficient. Forward procurement is considered to lower the unit cost of remedial actions, provide locational signals for siting flexible assets, and reduce curtailment of low-marginal-cost generation. Facilitator notes confirm this lever was considered among the most impactful options for improving operational efficiency.

Divergent Perspectives

Despite broad support, several design challenges emerged from the discussions:

- Forward procurement depends on reliable constraint forecasts; errors could lead to stranded costs or residual risk for consumers.
- Robust baselines are essential to prevent gaming, but overly complex frameworks could deter participation.
- Poor coordination could result in double-payment, particularly for assets receiving CfDs.
- Participants stressed the need for common product definitions and transparent procurement processes to avoid fragmentation.
- Without clear rules, forward contracts risk overlapping with BM actions, creating inefficiencies.

Improving Interconnector Flows

Improving interconnector flows offers clear operational benefits but faces structural and political barriers. While technical solutions such as flow-based coupling and dynamic countertrading could reduce constraint costs, their implementation requires institutional alignment and regulatory reform. Participants emphasised that this lever should be pursued in parallel with domestic efficiency measures, such as demand-side flexibility and dynamic line rating, rather than as a standalone fix. Interconnector optimisation is strategically important but unlikely to deliver transformative gains without broader market integration. According to the workshop participants, success depends on:

- Enhanced coordination with European TSOs, including agreements on countertrading and capacity buy-back.
- System operator capability to integrate cross-border optimisation into real-time operations.
- Regulatory flexibility to allow interconnectors to participate in balancing markets, which they are currently excluded from.

Shared Perspectives

Participants agreed that interconnectors play a critical role in operational efficiency and security of supply. There was broad recognition that current arrangements often fail to deliver optimal flows, particularly at key National Grid boundaries such as B4 and B6, where inefficiencies contribute to unnecessary curtailment. Facilitator notes confirm that improving interconnector flows was seen as a desirable objective, with references to European practices such as flow-based coupling as potential models.

Divergent Perspectives

Despite consensus on the goal, participants highlighted significant practical and political challenges:

- Current interconnector operations are governed by the Trade and Cooperation Agreement, limiting NESO's ability to implement dynamic countertrading without renegotiating bilateral arrangements.
- Flow-based coupling algorithms used in continental Europe were described as opaque and difficult to replicate, with one participant noting that *"only four people in the EU understand how the algorithms work."*
- Some participants questioned whether improving interconnector flows would deliver substantial savings relative to other levers, cautioning against overstating its impact.
- Closer alignment with EU balancing platforms was seen as desirable but politically sensitive post-Brexit, requiring government-level engagement beyond NESO's remit.

Strengthened Intraday Markets

Strengthening intraday markets offers incremental efficiency gains but is not a standalone solution. Participants stressed that re-dispatch inefficiencies stem more from structural issues, such as fragmented ancillary markets and inadequate visibility of distributed assets, than from intraday liquidity alone. Consequently, this measure should be pursued as part of a broader package of reforms, including forward contracting for flexibility and improved interconnector coordination. Success depends on:

- Regulatory and market design clarity on what *"strengthening"* entails (e.g., enhanced liquidity, improved transparency, or new products).
- Integration with CfD and flexibility incentives to avoid distorted participation.
- Institutional coordination for cross-border optimisation, including agreements with European TSOs.

Shared Perspectives

Participants agreed that improving intraday liquidity and responsiveness could help reduce constraint costs and optimise system operation. Facilitator notes confirm that this lever was seen as complementary to other reforms, particularly forward contracting for demand-side flexibility. Several contributors highlighted the potential benefits of closer alignment with European market coupling arrangements, which allow interconnector flows to respond dynamically to price signals.

Divergent Perspectives

Despite broad support for the concept, participants raised several concerns:

- There was an unclear definition of *"strengthening"*. The intraday market already facilitates continuous trading close to real time, and participants questioned what additional measures would materially improve efficiency.
- Generators operating under CfDs face *"hurdle behaviours,"* participating only when intraday prices exceed their strike price. Without addressing these structural incentives, strengthening intraday markets may have limited impact.
- Participants emphasised that intraday trading cannot replace the BM, which remains essential for locational redispatch. Elevated BM prices reflect the cost of ramping and redispatch, which intraday markets cannot fully resolve.
- Re-coupling with EU markets was seen as desirable but politically and technically challenging post-Brexit.

Relaxing Security and Quality of Supply Standards (SQSS)

Relaxing SQSS standards offers potential efficiency gains but carries significant operational and political risks. Participants emphasised that any changes should be incremental, predictable, and supported by strong monitoring systems. Rather than wholesale relaxation, the preferred approach is dynamic adjustment based on real-time conditions, combined with clear rules to protect investor confidence. In short, this lever is best treated as a complementary measure within a broader package of operational reforms, rather than as a standalone solution. Success depends on:

- Algorithm-driven adjustments to ensure predictability and transparency.
- Integration with other measures, such as dynamic line rating and outage coordination, to avoid conflicting signals.
- Robust governance and communication, including clear risk allocation and contingency planning.

Shared Perspectives

Participants acknowledged that SQSS is a major determinant of operationally useable network capacity and that greater flexibility could reduce curtailment and improve efficiency. References were made to international examples, notably Iberia, where dynamic standards have been implemented to accommodate renewable variability. Several contributors

described the concept as *"logical"* in principle, provided that changes are predictable and risk-managed.

Divergent Perspectives

Despite conceptual support, discussions revealed strong reservations:

- Relaxing standards could compromise system security, particularly during periods of high demand or low inertia. Participants warned that political and reputational risks of outages are significant.
- Unpredictable changes to standards could undermine confidence in network access rights and increase financing costs for generators.
- Dynamic standards require advanced forecasting, real-time monitoring, and clear governance frameworks. Without these, flexibility could introduce unmanageable uncertainty.
- Several participants noted that *"everyone likes the concept of a reduced standard until the consequences kick in,"* highlighting the difficulty of sustaining public and political support if reliability is perceived to decline.

Dynamic Line Rating and Improved Utilisation of Network Capacity

Dynamic Line Rating and improved utilisation of network capacity offer significant potential to reduce constraint costs and defer network investment. However, their success hinges on closing the persistent gap between technology deployment and operational integration. Participants emphasised that these measures should be prioritised as part of a near-term efficiency package, supported by regulatory approval and robust automation. DLR represents a high-impact, low-regret option, provided institutional and technical barriers are addressed. Effective implementation depends on:

- Full integration of DLR data into NESO's control-room systems and optimisation algorithms.
- Regulatory clarity on cost recovery and risk allocation for dynamic standards.
- Complementary measures, such as improved outage coordination and governance frameworks, to ensure predictability and transparency.

Shared Perspectives

Participants across tables described DLR as a *"no-brainer"* and questioned why it had not been implemented at scale. The principle of maximising flows over existing infrastructure before committing to new build was widely endorsed. Facilitator notes confirm strong support for this lever, with references to international examples where DLR is already operational. Several participants linked DLR to outage planning, arguing that better coordination could further reduce constraints.

Divergent Perspectives

Despite consensus on the concept, discussions highlighted persistent barriers:

- Hardware for DLR has been deployed and is collecting data, but integration into operational decision-making remains incomplete. As one participant noted, *"the kit is installed; the data is not used."*
- Ofgem approval processes were cited as a constraint, with concerns about cost justification and risk management.
- Dynamic ratings require robust forecasting and automation to avoid introducing uncertainty into dispatch decisions. Without algorithm-driven adjustments, manual processes could increase operational risk.
- Participants warned that unpredictable changes to network capacity could undermine confidence in access rights and increase financing costs for generators and storage operators.

Additional Levers and Emerging Ideas

Beyond the predefined set of operational levers, participants introduced a range of additional measures aimed at addressing structural inefficiencies and unlocking flexibility. These ideas often reflected frustration with incremental reforms and a desire for systemic solutions that combine forward procurement, governance reform, and technology integration.

One prominent theme was the creation of pre-gate closure constraint markets. Several participants argued that the Balancing Mechanism's reliance on last-hour re-dispatch is inherently inefficient and costly. By procuring flexibility ahead of gate closure (e.g., through structured tenders for turn-down and turn-up services) the system operator could reduce reliance on expensive thermal units and avoid curtailing renewable generation. This approach was seen as a practical way to reveal lower prices than the BM can achieve, provided that forecasting accuracy and baseline verification are robust.

Closely related was the call for expanding local constraint markets. Trials at transmission boundaries were widely welcomed, but participants stressed that these markets must be standardised to avoid fragmentation across distribution network operators. The principle of *"MW solutions for GW problems"* captured the logic: local flexibility should be mobilised to manage local constraints rather than relying on large- scale re-dispatch. Standard product definitions, transparent data on constraint forecasts, and interoperability with national systems were identified as prerequisites for success.

Access and connection reform also featured prominently in the discussion. Participants proposed non-firm and differentiated access products, allowing risk to be allocated more efficiently and reducing compensation obligations for assets located outside strategic zones. Suggestions included tradable connection rights and hybrid firmness models, which could complement reforms to the connections queue. These ideas reflect a broader concern that current access frameworks are too rigid and fail to incentivise siting decisions aligned with system needs.

Several conversations focused on dynamic pricing and charging mechanisms. One proposal was to introduce dynamic distribution charges, adjusting tariffs based on day- ahead congestion forecasts to incentivise load shifting by distributed energy resources. This measure was seen as a way to relieve grid stress and minimise the need for costly network reinforcement, though participants acknowledged the complexity of integrating such signals into retail markets.

Participants also highlighted the need to reform CfDs to improve operational efficiency. Suggestions included incorporating capacity-based elements, revising negative price rules, and designing auctions that reward flexibility rather than purely lowest-cost generation. These changes were framed as essential to align long-term support schemes with short-term system needs, particularly as the share of intermittent renewables grows.

Governance and institutional incentives emerged as a cross-cutting concern. Multiple participants noted that NESO lacks strong incentives to prioritise forward efficiency, with performance-based schemes diluted under the new institutional model.

Proposals included reintroducing incentive frameworks tied to measurable outcomes such as reduced redispatch costs and improved utilisation of flexibility. Enhanced enforcement of the Transmission Constraint Licence Condition (TCLC) was also suggested to curb gaming and ensure compliance for storage and demand-side assets.

Finally, outage coordination was identified as an overlooked but critical lever. Participants described outages as a major driver of constraints and called for transparent scheduling based on whole-system cost optimisation. Integrating outage planning with locational procurement strategies was seen as a way to reduce constraint costs and improve system resilience.

Taken together, these emerging ideas highlight a clear message: operational efficiency cannot be achieved through isolated rule changes. Participants consistently advocated for packages of measures combining forward markets, dynamic access arrangements, technology integration, and governance reform.

Observations on Workshop 3: Distributional Fairness, Affordability & Politics

The third session shifted the conversation from technical levers to the political economy of reform. Participants repeatedly stressed that fairness is not a peripheral issue but a binding constraint on the legitimacy of RNP. As one contributor put it bluntly, *"Keeping consensus on the Net Zero project is of primary importance. It is a PR exercise."* This sentiment framed much of the discussion: reforms must not only work technically but also land politically.

Workshop 3 reveals a consistent theme: technical optimisation under RNP cannot succeed without addressing affordability, regional equity, and political optics.

Convergent perspectives included on the need for:

- Bill transparency,
- Near-term consumer benefits, and a
- Fairness narrative that links reforms to tangible outcomes.

Divergent perspectives remain on:

- Tariff models,
- Depth of locational signals, and the
- Balance of state versus market roles.

The overarching insight is pragmatic: *"There is a danger that attempts at perfection risk inertia. The market may be asked to fix outcomes it's ill-suited to resolve."*

Bill Architecture

Affordability dominated the debate. Stakeholders highlighted the opacity of current bill structures and the regressive nature of fixed charges. One participant captured the frustration succinctly: *"£20 generation becomes £80 retail price; the public sees subsidies for generators while bills rise."* Others pointed to standing charges as a structural inequity: *"Standing charges ~£300/year discourage efficiency and hit low-use households."* Suggestions ranged from removing policy costs from bills (*"Social costs* (ECO, WHD, bad debt) *should come off the bill; electricity-only taxes should be returned to consumers"*) to recycling ETS revenues for targeted relief. The urgency of short-term measures was stressed by the reminder that *"Government did not blink at a £50bn price cap… keep this in mind when considering levers."*

Political Optics

Beyond affordability, the optics of major planning instruments loomed large. The SSEP was repeatedly described as politically sensitive: the *"SSEP could land very badly… and risks of being framed as political failure."* Another warned of regional backlash: the *"SSEP could have a very rough landing… with anger in some regions because of pylons."* These remarks emphasise the need for a narrative that links infrastructure to tangible benefits (e.g., jobs, security, and long-term savings) rather than abstract system optimisation.

Regional Fairness

Concerns about geographic equity surfaced in discussions of network charging. One participant noted starkly: *"Postcode lottery remains."* Others acknowledged the inevitability of distributional trade-offs: *"Measures that are 'for fairness' still have winners & losers… someone needs to take on risk, e.g., government."* This tension between efficiency and legitimacy recurred throughout the session, reinforcing calls for predictable long-term signals and transparent risk-sharing mechanisms.

Retail Reform

Retail design was seen as central to fairness yet largely absent from the RNP debate. Participants cautioned against assuming high engagement burdens: *"Consumers don't want to be actively engaged, they just want affordable energy."* Proposed solutions included hybrid tariffs and capacity-based charging: *"Capacity charging as alternative to kWh charging [with better] economics & distributionally positive."* Others suggested defaulting households onto supportive products: *"Default customers onto tariffs that help transition."* These interventions reflect a broader concern that retail reform must complement wholesale changes to avoid regressive outcomes.

Curtailment Costs

Operational levers were reframed through a fairness lens. Curtailment cost reduction was identified as the most politically visible win: *"Most politically important task for RNP is to reduce curtailment costs."* Pre-gate closure contracting was described as a *"no- brainer"*: *"Pre-gate closure constraints market… reduces curtailment costs, good for consumers & politics."* These proposals illustrate how technical measures can be packaged as consumer benefits as *"less waste, lower bills"* to uphold legitimacy.

Governance Structure

Institutional clarity emerged as another fairness dimension. One participant asked pointedly: *"DESNZ, Ofgem, NESO: are these the right roles & responsibilities?"* Others linked governance to risk-bearing: *"How to pay fairly for upfront costs [and] is regulated asset base sufficient?"* These remarks highlight the need for coherent sequencing and incentive alignment across institutions.

Communication and Public Narrative

Finally, participants called for honesty and reframing. *"Need honesty about costs… consumer narrative needs to change,"* one urged, while another warned that resilience for CP2030 is *"thin and shrinking."* The message was clear: without transparent communication about trade-offs and benefits, reforms risk political rejection. As one participant concluded, *"Almost nothing to be done to significantly reduce costs [so we] must focus on perception and distributional fairness."*

Discussion

This section synthesises insights across the three thematic workshops and situates them within the broader policy and governance context of implementing RNP. It integrates shared perspectives and divergence, identifies systemic implications, and outlines actionable lessons for policymakers.

Summary of Key Findings

Investment and Siting under RNP

Stakeholders consistently emphasised that efficient siting cannot be achieved through market signals alone under a single national price. Instead, a coherent package of planning and network reforms is required. The SSEP was widely regarded as potentially transformative, but only if operationalised through enforceable delivery levers such as TNUoS reform, CfD allocation, and connection queue management. Divergence emerged on prescriptiveness: some advocated highly directive planning for strategic assets, while others favoured adaptive approaches to maintain flexibility.

Planning reform was identified as a binding constraint, with consensus on the need to streamline consenting processes, expand Local Planning Authority capacity, and align national and regional frameworks. However, views differed on centralisation and the political feasibility of interventions such as queue reordering.

Network build via the CSNP was seen as foundational but slow-moving. Participants agreed on anticipatory investment and alignment with the SSEP, while debating rigidity versus flexibility and integration with cross- vector infrastructure (see Chapter 2.8).

TNUoS and connection charging attracted strong criticism for volatility and weak locational signals. Stakeholders supported predictable, upfront signals and optionality through differentiated and tradeable access rights but split on whether to reform or replace TNUoS entirely. Sequencing risks were highlighted across all levers, particularly the misalignment of seabed leasing with the SSEP and network planning.

Operational Efficiency

Participants converged on the need for packages of measures rather than isolated rule changes. High-impact, low-regret options included demand-behind-constraints contracts, local constraint markets, and dynamic line rating, all seen as critical for reducing constraint costs and unlocking flexibility. Conversely, proposals such as unit-level bidding, mandatory PN-trade matching, and trading deadline alignment were viewed as complex and low-value relative to their theoretical benefits.

Emerging ideas, such as pre-gate closure constraint markets, dynamic access arrangements, and outage coordination, reflect a broader consensus that operational efficiency depends on forward procurement, technology integration, and governance reform.

Distributional Fairness and Political Economy

Technical optimisation under RNP cannot succeed without addressing fairness and legitimacy. Affordability and regional equity emerged as binding constraints, with strong convergence on the need to reform regressive bill structures by shifting social policy costs to general taxation and revising standing charges. Curtailment reduction was identified as the essential *"quick win"* to demonstrate system efficiency and counter narratives of waste.

Significant divergence persists on retail reform and risk allocation: while some advocated for capacity-based tariffs to improve economic fairness, others argued for *"safe defaults"* to protect disengaged consumers from regional disparities. Political optics surrounding the SSEP and infrastructure siting were repeatedly flagged as high-risk, underscoring the need for transparent communication and a narrative linking reforms to tangible consumer benefits.

Cross-Workshop Insights

Across all workshops, stakeholders stressed that achieving REMA's objectives under RNP requires integrated governance, coherent sequencing, and a fairness narrative that sustains political legitimacy. Efficiency gains cannot be delivered through incremental adjustments alone; they depend on packages of reforms combining planning instruments, network charging reform, operational levers, and institutional incentives.

Integration and Sequencing as a Systemic Imperative

Participants repeatedly emphasised that misalignment between levers, such as seabed leasing, CfD allocation, TNUoS reform, and planning instruments, risks locking in inefficiencies and stranded assets. Current sequencing was described as *"inconsistent and wrong,"* with early-stage decisions (e.g., seabed leasing) occurring before spatial signals from the SSEP or network planning are clear. This creates path dependency that undermines system optimisation. The consensus view was that a coherent roadmap is essential, linking planning, charging, and contractual mechanisms to avoid contradictory signals and ensure timely delivery.

Governance and Institutional Incentives

Across workshops, stakeholders identified governance as a binding constraint. NESO's current incentive framework does not strongly reward forward efficiency, with performance-based schemes diluted under the new institutional model. Participants argued that institutional roles and responsibilities remain unclear, particularly regarding the authority to enforce prioritisation and sequencing across levers. Proposals included reinstating measurable incentives tied to outcomes such as reduced redispatch costs and improved utilisation of flexibility, alongside clarifying mandates for DESNZ, Ofgem, and NESO.

Demand-Side Blind Spots

Despite repeated references to flexibility, discussions revealed a persistent generation-centric bias in planning and operational design. Demand clusters, such as data centres and industrial loads, were largely absent from SSEP deliberations, and retail reform was treated as peripheral to wholesale market design. Participants called for explicit inclusion of demand-side

considerations in spatial planning and for retail architecture that complements wholesale reforms to avoid regressive outcomes.

Technology Integration Gap

Hardware for dynamic line rating and digitalisation has been deployed but remains underutilised due to regulatory inertia and IT integration failures. Participants described this as an *"integration gap,"* where installed technology collects data that is not operationalised in real-time decision-making. Closing this gap was identified as a near- term priority, requiring algorithm-driven automation and regulatory clarity on cost recovery and risk allocation.

Political Economy as a Binding Constraint

Technical optimisation cannot succeed without addressing fairness, affordability, and optics. Stakeholders stressed that reforms must be packaged as consumer benefits, such as lower curtailment costs and improved bill transparency, and communicated through a narrative that links infrastructure to tangible outcomes (jobs, security, savings). The SSEP was repeatedly flagged as politically sensitive, with risks of regional backlash if benefits are not clearly articulated. Participants warned that attempts at *"perfect"* technical design risk inertia if they fail to account for legitimacy constraints.

Risk of Stacking Effects and Policy Fragmentation

Interaction between multiple instruments, such as CfDs, the CM, and TNUoS charges, could create overlapping locational signals, distorting investment decisions and increasing complexity. Participants cautioned against "stacking" effects, arguing for holistic design principles that align incentives across instruments rather than layering signals in an ad hoc manner.

Policy Implications

The evidence from the three workshops and cross-cutting analysis points to a clear conclusion: implementing RNP successfully requires a coherent package of reforms, not incremental adjustments. Policy design must address structural dependencies, governance gaps, and political economy constraints while sequencing interventions to avoid contradictory signals. The following implications emerge from the participants' views:

Prioritise Foundational Levers and Integrated Sequencing

- The SSEP must move beyond a conceptual framework to an operational instrument. Its effectiveness depends on enforceable delivery mechanisms being explicitly linked to SSEP priorities.
- The CSNP should be accelerated and aligned with the SSEP to avoid networks *"playing catch-up."* Regulatory frameworks must support anticipatory investment and adaptive planning to manage uncertainty.
- Sequencing matters: seabed leasing, CfD rounds, and network planning must be coordinated to prevent locking in suboptimal siting before locational signals are clear.

Deliver Planning Reform at Pace

- Expand Local Planning Authority capacity and streamline consenting processes to address bottlenecks that currently undermine investment signals.
- Introduce fast-track zones for strategic assets (generation, storage, and demand clusters). Ensure coherence between national and regional planning frameworks.
- Balance speed with legitimacy: reforms must retain procedural fairness and embed community benefit-sharing to sustain public support.

Reform Network Charging and Access

- Provide certainty at the point of investment by fixing locational signals upfront and avoiding volatility that creates windfall gains or losses.
- Introduce differentiated access products (firm, non-firm) and enable tradeable rights to improve flexibility and reduce curtailment risk.
- Avoid overlapping locational signals across instruments (TNUoS, CfDs, CM) to prevent *"stacking"* effects that distort investment decisions.

Unlock Operational Efficiency Through Packages, Not Isolated Levers

- Scale demand-behind-constraints contracts and local constraint markets to shift from reactive redispatch to proactive flexibility procurement.
- Complete integration of Dynamic Line Rating and explore dynamic SQSS adjustments to maximise existing network capacity.
- Strengthen intraday markets and improve outage coordination to reduce constraint costs.
- Treat low-impact proposals (e.g., unit-level bidding, mandatory PN-trade matching) as non-priority unless supported by robust cost-benefit analysis.

Embed Fairness and Political Narrative into Reform Design

- Address regressive bill structures by shifting social policy costs to general taxation and revising standing charges.
- Communicate reforms as consumer benefits to counter narratives of *"waste."*
- Prepare for political sensitivities around the SSEP and infrastructure siting by linking decisions to transparent system-level rationales and community benefits.

Governance and Institutional Incentives

- Clarify roles and responsibilities across DESNZ, Ofgem, and NESO to ensure accountability for sequencing and delivery.
- Embed adaptive governance to manage uncertainty and avoid rigid, path- dependent decisions.

Manage Interaction Between Levers to Avoid Fragmentation

- Design CfDs, Capacity Market, and network charging (and other) reforms holistically to prevent overlapping locational signals.

- Establish a whole-system coordination framework to align planning, charging, and contractual mechanisms under a single roadmap.

Conclusion

The workshop stressed that delivering the objectives of REMA under RNP will require a coherent package of reforms rather than isolated measures. Stakeholders converged on the need for enforceable planning instruments, anticipatory network investment, and operational efficiency levers that prioritise flexibility and cost reduction. At the same time, fairness and political optics emerged as binding constraints as reforms must be sequenced to demonstrate early consumer benefits and maintain legitimacy. The overarching message is clear: technical optimisation, governance reform, and transparent communication must advance together to ensure that RNP delivers a system that is efficient, equitable, and resilient.

There are, for example, many levers available to influence the locational siting of assets, but there are questions regarding which asset classes should be prioritised, how those planning decisions are made, and how they are implemented from a legal perspective and considering implementation capacity. Moreover, operational reforms are needed so NESO can better manage the increasing complexity and data within the system. To this end, packages of reforms are needed to meet any one goal, but it remains unclear how to gain a sufficient level of operational information and how NESO will manage that information effectively.

Political buy-in is key and thus there is a need to address how costs of the transition are distributed, how benefits of the transition are experienced in communities, and how transition activities are contextualised outside the sector. This includes curtailment, communication and the political narrative, for example, when it comes to consumer benefits such as bill transparency. During the discussions, the SSEP was repeatedly flagged by stakeholders as politically sensitive, with risks of regional backlash if benefits are not clearly articulated.

Another key issue is misalignment between levers, such as seabed leasing, CfD allocation, and TNUoS reform, which risks locking in stranded assets. Current sequencing was described by participants as inconsistent and a roadmap linking planning, charging, and contractual mechanisms to ensure timely delivery is seen as essential. Stakeholders generally identified governance as a binding constraint, as NESO's current incentive framework does not strongly reward forward-efficiency and institutional roles and responsibilities across NESO, Ofgem, and DESNZ remain unclear.

Participants also expressed concern over a generation-centric bias in planning and operational design while demand clusters, such as data centres, were largely absent from SSEP deliberations. They called for inclusion of demand-side considerations in spatial planning and, at the same time, also warned against "stacking" multiple overlapping instruments, such as CfDs, the CM, and TNUoS charges which could distort investment signals.

An outstanding question remains whether the focus is on reform for transition, or for a new and more stable long-term structure for a renewables-dominated system. Developing a reformed system that sends investment and operational signals to effectively accommodate both locational and temporal flexibility needs is the continued focus. However, experts disagree

about the i) extent to which the required scale of reform is feasible in practice and ii) how to best encourage the actioning of reforms through various options.

The SSEP is due for initial publication in autumn 2027, feeding into the more granular CSNP and RESPs aimed to guide effective asset siting to improve system balance and reduce system cost. The TNUoS reform implementation date is due by 2029, so investment uncertainty associated with transmission costs will persist at least until then, impeding investment for the 2030 targets and risking inefficient locational choices some of which could last for decades after.

The electricity system is complex and reforming a market that manages it requires a deep understanding of the many parameters involved. For RNP to be successful, the scope of reform must be broad enough to integrate generation, transmission, demand and flexibility. Centrally planned measures must develop credibility through thoughtful design and implementation. Moreover, distributional impacts must be managed to retain the objective of fairness. A continued focused dialogue with key holders of expert knowledge in the GB system is necessary to prioritise reforms and ascertain potential negative impacts of reform options so these can be mitigated against pre-emptively.

References

Brailas, A. (2025) 'Artificial Intelligence in Qualitative Research: Beyond Outsourcing Data Analysis to the Machine', Psychology International, 7(3), p. 78. Available at: https://doi.org/10.3390/psycholint7030078.

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', Qualitative Research in Psychology, 3(2), pp. 77–101. Available at: https://doi.org/10.1191/1478088706qp063oa.

Braun, V. and Clarke, V. (2021) Thematic Analysis. Available at: https://uk.sagepub.com/en-gb/eur/thematic-analysis/book248481 (Accessed: 24 November 2025).

Brucknell University (2025) '8 Steps Guide for AI-assisted Qualitative Analysis'. Brucknell University. Available at: https://www.bucknell.edu/sites/default/files/institutional-research/8_steps_guide_for_ai-assisted_qualitative_analysis.pdf.

Chatham House (2025) Chatham House Rule. Available at: https://www.chathamhouse.org/about-us/chatham-house-rule (Accessed: 24 November 2025).

Denzin, N.K. (1978) Sociological methods : a sourcebook. New York : McGraw-Hill. Available at: http://archive.org/details/sociologicalmeth0000denz (Accessed: 24 November 2025).

Energy UK (2025) 'Energy UK Explains: The Review of Electricity Market Arrangements', Energy UK. Available at: https://www.energy-uk.org.uk/publications/energy-uk-explains-the-review-of-electricity-market-arrangements/ (Accessed: 24 November 2025).

Gill, S. et al. (2025) Locational signals in a reformed national market - A Review of Options. UKERC.

Grubb, M. and Newbery, D. (2018) 'UK Electricity Market Reform and the Energy Transition: Emerging Lessons'. Available at: https://www.econ.cam.ac.uk/publications/cwpe/1834 (Accessed: 24 November 2025).

Neuhoff, K., May, N. and Richstein, J.C. (2022) 'Financing renewables in the age of falling technology costs', Resource and Energy Economics, 70, p. 101330. Available at: https://doi.org/10.1016/j.reseneeco.2022.101330.

Ofgem (2023) Assessment of locational wholesale pricing for Great Britain | Ofgem. Available at: https://www.ofgem.gov.uk/publications/assessment-locational-wholesale-pricing-great-britain (Accessed: 24 November 2025).

Ofgem (2025) 'Open Letter: Reforming network charging signals to align with the Government's decision on the future design of Great Britain's electricity system'.

Resnik, D.B. and Hosseini, M. (2025) 'The ethics of using artificial intelligence in scientific research: new guidance needed for a new tool', AI and Ethics, 5(2), pp. 1499–1521. Available at: https://doi.org/10.1007/s43681-024-00493-8.

Savelli, I. et al. (2022) 'Putting wind and solar in their place: Internalising congestion and other system-wide costs with enhanced contracts for difference in Great Britain', Energy Economics, 113, p. 106218. Available at: https://doi.org/10.1016/j.eneco.2022.106218.

UK BEIS (2022) Review of Electricity Market Arrangements.

UK Government (2024) Clean Power 2030: Action Plan: A new era of clean electricity. Available at: https://assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf.

UK Government (2025) Review of electricity market arrangements (REMA): Summer update, 2025, GOV.UK. Available at: https://www.gov.uk/government/publications/review-of-electricity-market-arrangements-rema-summer-update-2025 (Accessed: 24 November 2025).

UK Parliament (2025) Electricity Market: Review - Hansard - UK Parliament, Hansard. Available at: https://hansard.parliament.uk/Commons/2025-07-10/debates/25071036000015/ElectricityMarketReview (Accessed: 24 November 2025).

University of Oxford (2024) New ethical framework to help navigate use of AI in academic research. Available at: https://www.ox.ac.uk/news/2024-11-13-new-ethical-framework-help-navigate-use-ai-academic-research (Accessed: 28 November 2025).

Yang, Y. and Ma, L. (2025) 'Artificial intelligence in qualitative analysis: a practical guide and reflections based on results from using GPT to analyze interview data in a substance use program', Quality & Quantity, 59(3), pp. 2511–2534. Available at: https://doi.org/10.1007/s11135-025-02066-1.

Annex I

Extended Methodology

Research Design

This study synthesises multi-stakeholder perspectives on implementing Reformed National Pricing (RNP) in Great Britain's electricity market following the UK Government's REMA decision._ We adopted a qualitative,_ structured workshop design to elicit and compare perspectives, identify areas of consensus and divergence, and generate policy-relevant insights across three themes: (1) investment and siting; (2) operational efficiency and constraint cost reduction; and (3) distributional fairness and political economy. The workshop design deliberately used predefined lever categories from the organisers' worksheets and slides to focus discourse on specific, policy-relevant topics outlined in the RNP framework.

The RNP framework, introduced in the Government's REMA Summer Update 2025 (UK Government, 2025), sets out a package of complementary reforms to deliver efficient investment and operational optimisation without locational wholesale pricing. It emphasises spatial planning through the Strategic Spatial Energy Plan (SSEP), anticipatory network investment via the Centralised Strategic Network Plan (CSNP), and transmission charging reform, alongside measures to improve operational efficiency and fairness. These levers formed the basis for the workshop discussions and are central to DESNZ's forthcoming guidance on RNP implementation.

The analysis adopted a Framework Method (i.e., template) analysis (Braun and Clarke, 2021), a widely used approach for thematic analysis in applied policy research. The Framework Method provides a systematic matrix-based approach for managing and analysing qualitative data when categories are known a priori and multi-disciplinary teams must work transparently and efficiently.

We are applying a pragmatic-interpretivist approach. Pragmatic because the objective is policy utility (actionable levers and sequencing); interpretivist because stakeholder accounts are situated within institutional, geographic and political contexts. The stance is consistent with applying a deductive framework grid (lever families) supplemented by inductive sub-coding (nuance, risks, dependencies, guardrails) and cross-source triangulation (Braun and Clarke, 2006).

Workshop Setup

The workshop was convened on 13 November 2025 at UCL Senate House by the Centre for Net Zero Market Design with UKERC. The day comprised a morning plenary (keynote, policy dialogue, panel) followed by three table-based workshops (Investment & Siting; Operational Efficiency; Distributional Fairness), each with facilitator-led discussion and structured worksheets. The event was conducted under the Chatham House Rule (participants may use information but not attribute identities or affiliations).

Attendance included 60 registered stakeholders, with active traceable participation from 38 individuals in Workshop 1, 32 in Workshop 2, and 34 in Workshop 3. The stakeholders are categorised into: Policy/Government (7); Industry (19); Academia (4); NGOs/Think Tanks (8). Invitations targeted senior stakeholders across policy/government, industry, academia, and NGOs/think tanks (as reflected in panel composition and participant table plans). While participation is purposive and non-probability, we mitigate representational bias by (1) capturing every participant's individual worksheet, (2) formal scribe notes for each table, and (3) a facilitator de-brief to surface convergences/divergences observed across tables. Confidentiality was maintained through anonymisation and application of the Chatham House Rule. Participants were reminded of their right to withdraw at any stage.

Each workshop used a structured dialogue format with initial silent individual reflection, facilitator-led, and takeaways recorded on worksheets. Roles and logistics (main facilitator, table facilitators, scribes, time/progress watcher, digitiser) and step-by-step running tables were pre-specified; the slides and worksheets operationalised predefined lever sets to elicit focused contributions. This design mitigates groupthink and ensures individual perspectives are captured prior to discussion, consistent with best practice for qualitative facilitation and triangulation (McLeod, 2024; Hassan, 2024).

Data & Coding

We have applied McLeod and Qassimi's multi-source approaches for triangulation, adhering to academic standards to ensure validity of the finding (McLeod, 2024; Qassimi, 2023). We triangulated five sources: 104 worksheets (208 pages), 103 pages of scribe notes, 12 pages of facilitator notes, 7 pages of facilitator debrief summaries, and 41 pages of transcription of facilitators' meeting. All documents were scanned, anonymised, and archived.

A short pre-workshop survey was distributed to registered participants to estimate initial expectations and priorities, and to encourage well-prepared participants at the workshop. The survey had 7 responses and informed logistics and emphasis but is excluded from formal analysis due to sample size and non-comparability with in-session artefacts. It is retained in the audit trail.

We seeded a deductive codebook with the predefined lever families and workshop prompts (as printed on worksheets/slides), ensuring analytic alignment with the study purpose (RNP implementation levers). Each participant received a structured worksheet for every workshop session, containing the main question and prompts aligned with REMA levers. Worksheets were completed individually during silent reflection phases and again at the end of discussions to record key takeaways. In total, 104 worksheets were collected across three workshops (two-sided; approximately 208 pages). These artefacts provided granular, participant-authored insights and served as the foundation for thematic coding.

table had a scribe responsible for capturing detailed notes of discussions and a facilitator who summarised emerging themes. This produced 103 pages of scribe notes and 12 pages of facilitator summaries, offering rich contextual detail and clarifying points of convergence and

divergence. These notes were critical for triangulation and for validating interpretations derived from worksheets.

A four-hour debrief meeting was held on 14 November 2025, involving facilitators and the research team. This session consolidated observations, identified preliminary themes, and guided the subsequent coding process. Notes from this meeting (7 pages) and a 41-page transcription of the discussion were archived. The debrief also informed AI-assisted clustering, ensuring that automated processes were grounded in expert interpretation rather than operating in isolation.

We triangulated sources (worksheets, scribe notes, facilitator summaries, debrief transcript)_ to assess convergence/divergence by lever and theme,_ following Denzin's typology (Denzin, 1978) (data-source and analyst triangulation) and documented negative cases where accounts conflicted. Triangulation outputs fed a synthesis grid: (1) Convergences for statements repeated across at least sources and/or 2 tables/stakeholder groups, (2) divergences for well-articulated counter-positions appearing in more than one source with clear rationale and on (3) materiality, factoring appearance frequency, argument depth and cross-workshop relevance.

In the course of this study, we utilise direct quotations. They serve to illustrate the discussions and to retain original meaning. These were sourced from participants' worksheets and scribe notes. This practice is consistent with qualitative research standards, which recommend using anonymised extracts to substantiate analytic claims and enhance methodological rigour (Braun and Clarke, 2006, 2021). All quotations have been fully anonymised. Any personal names, organisational identifiers, and any contextual markers that could enable identification have been removed or redacted. This approach complies with the Chatham House Rule (Chatham House, 2025). It also adheres to UCL ethics approval and informed consent protocols, under which participants were advised that anonymised contributions may be used in reporting. Audit trail artefacts (codebook, matrices, prompt archive) will be available upon journal submission; contact CNZMD for access in the meantime.

AI-Assisted Procedures and Human Oversight

We used a highly directive approach with Copilot AI (GPT-5) for transcription assistance, first-pass summarisation, and clustering candidate themes. The use of CoPilot allowed a 2-week turnaround time between the workshop and write-up of this study. We have observed best-practice guidelines for AI-assisted qualitative research according to (Brailas, 2025; Brucknell University, 2025; Yang and Ma, 2025), providing all prompts archived verbatim with timestamps, manual verification (human-in-the-loop validation) by the lead author to correct every AI output for accuracy and neutrality. Prompts instructed AI to remain evidence-bound and avoid normative framing. Lastly, AI summaries were cross-checked against raw worksheets and scribe notes before inclusion. The facilitators workshop was conducted before any AI was involved, to gather observations from the facilitators to inform the write-up process. We are hereby disclosing the use of AI in this study. The human authors retain full responsibility for interpretations, consistent with global guidance on AI ethics (University of Oxford, 2024; Resnik and Hosseini, 2025).

Limitations

Despite these measures, several limitations must be acknowledged. First, the sampling strategy targeted high-profile experts but is not statistically representative; findings should therefore be interpreted as informed perspectives rather than generalisable trends. Second, the use of predefined lever categories enhanced policy relevance but constrained inductive breadth, meaning that emergent themes outside these categories may be under-represented. Third, attendance varied slightly across workshops, which may have influenced the depth of discussion on certain topics. Fourth, while AI-assisted transcription and summarisation accelerated processing, there is an inherent risk of nuance loss during initial machine-generated outputs. This was mitigated through rigorous human verification and triangulation but cannot be eliminated entirely. Fifth, the insights reflect stakeholder views at a specific policy juncture, immediately following the Government's decision to retain national pricing, and may evolve as reforms progress. Sixth, inter-coder reliability was addressed through negotiated agreement rather than formal statistical thresholds; while this aligns with qualitative best practice, it limits comparability with positivist standards. Finally, even positions presented as having gained some degree of consensus should be understood as outputs of specific discussions rather than definitive or universally held views. Not all ideas were explored with equal depth or tested across all participants, and dissenting perspectives may exist both within and beyond the workshop. Accordingly, findings should be understood as indicative rather than prescriptive.