

RNP: Balancing and Settlement Reforms

IEP 4: Policy Design, CBA & Implementation Update

Pre-read

22 July 2026

Pre-read contents

Following IEP feedback, some session content may differ from the pre-read, with additional materials introduced to build on content already reviewed. We assume all attendees have read the pre-read and are familiar with the core content

Item		Slides
Pre-Read Contents	CBA Sensitivities & Variants	3-10
	Assessment of Cost Framework	11-19

CBA: Variants and sensitivities

Sensitivity and variant analysis: our approach

How we identify, prioritise and run candidate sensitivities

Sensitivity and variant analysis tests how robust the CBA results are to the assumptions and uncertainties, or variants on detailed option design, that could most affect the balance of costs and benefits.



Prioritised against three criteria

Assumption / option design confidence

Confidence attached to the underlying assumption or specific option design

Materiality of impact

Expected materiality of sensitivity or variant for the balance of costs and benefits

Stakeholder feedback

Relative importance flagged by NESO, industry and regulators



Run proportionately – three approaches

Full model re-runs

Core modelling framework re-run end-to-end across all options

Targeted assessment

E.g. modelled against only one option package, modelled over a sample of spot years, etc

Separate ex-post analysis

Impact assessed outside the core model through targeted analysis to size impact

Time and modelling constraints require targeted selection of the highest priority sensitivities and variants (upper limit of 10 sensitivities, several modelled across multiple options, not including variants)
The final set will be confirmed through engagement with NESO, DESNZ and Ofgem informed by discussion with the IEP.



Candidate sensitivities (1/5)

Candidate sensitivities grouped by theme. Not all will be modelled — the final set will be confirmed through engagement with NESO, industry, DESNZ and Ofgem.

Low and high case

Name	Packages / options	Scope and approach	Analytical challenge	Relevance to the assessment (impact on reform outcomes)
Low case	All (*4) + counterfactual	Capturing: 1. Later central systems implementation 2. More limited / delayed market participant behaviour change through systems and processes changes, e.g., more market participants continue to trade at a 30mins granularity despite a move to SSPs 3. Ability to capture more benefits through systems and process change under the counterfactual, e.g. Power Requirement Accuracy (PRA) workstream 4. More limited delivery of additional system operation benefits across BM and reserve procurement, e.g., better visibility not translating into sufficiently better forecasting and/or earlier reserve product procurement	High	Delayed/more limited systems change will be reflected in delayed/reduced costs as well as delayed/reduced benefit, aligned to implementation workstream assessment.
High case	All (*4) + counterfactual	Capturing: 1. Accelerated and potentially more efficient central system implementation, e.g., through economies of scope in implementing multiple changes in one go 2. Accelerated adoption by market participants and by greater proportion at lower cost, e.g. based on learning from EU implementation of SSP 3. More limited delivery of benefits through counterfactual, e.g. mods to deliver wider workstreams are not accepted by Ofgem 4. Higher level of benefit delivered through system operation benefits across BM and reserve procurement	High	Successful implementation under accelerated timelines may bring forward costs, but possibly with similar overall cost burden (or some additional efficiencies). Earlier/additional benefit captured and aligned to implementation workstream assessment.

Candidate sensitivities (2/5)

Candidate sensitivities grouped by theme. Not all will be modelled — the final set will be confirmed through engagement with NESO, industry, DESNZ and Ofgem.

Alternative future system backgrounds

Name	Packages / options	Scope and approach	Analytical challenge	Relevance to the assessment (impact on reform outcomes)
Lower congestion	All (*4) + counterfactual	Model alternative future in which several features result in lower network congestion under the counterfactual and options, and lower constraint management costs. This could reflect: 1. Different network build-out assumptions (longer term) that better align with locational siting of capacity and demand 2. Strong outcomes from wider programmes such as Constraints Collaboration Project 3. Introduction of effective NESO tools for managing constraints caused by interconnector flows (e.g. use of Net Transfer Capacities following IEM participation) Option to capture this through the low case – and, equally, capturing higher congestion / higher constraint management costs in the high case	High	Some proportion of the benefits hypothesised across the reforms is regarding reductions in constraint management costs through reducing counterproductive market actions that NESO has to unwind. This would test the sensitivity to a different background regarding overall level of system constraints.
P462	Package 2 (given link to FPNs=TPs) + counterfactual	Include a simplified representation of P462 in both the counterfactual and Package 2 Option to capture this through tipping point analysis based on the results of the Elexon CBA rather than through core modelling	High	The CBA of P462 modelled a simplified representation of FPNs=TPs and found an interaction driving higher social welfare and producer > consumer transfers. This would test the same link, identifying the extent of potential additional benefit if P462 is implemented

Candidate sensitivities (3/5)

Candidate sensitivities grouped by theme. Not all will be modelled — the final set will be confirmed through engagement with NESO, industry, DESNZ and Ofgem.

Behavioural assumptions				
Name	Packages / options	Scope and approach	Analytical challenge	Relevance to the assessment (impact on reform outcomes)
Physical NIV chasing	All (*4) + counterfactual	Capturing: 1. Lower overall volume of physical NIV chasing than under the base case, under both the counterfactual and options 2. Different decision algorithms for physical NIV chasers in determining their approach to NIV chasing, e.g., greater 'risk aversion', under both the counterfactual and options 3. Less additional ability for NESO to act on enhanced visibility of physical NIV chasing under the reform options relative to the counterfactual Option to focus on the link between enhanced physical NIV chasing visibility and reduced counterproductive NESO actions (#3) – this could also be used to indirectly test the significance of assumptions around the base level of NIV chasing and 'algorithms' for when this may arise (#1-2)	Medium	Though tested with IEP participants, the volume and nature of physical NIV chasing is one of the most significant uncertainties in the modelling with a limited evidence base across the market to draw on. The benefits driven by reforms are also sensitive to these assumptions. The physical NIV chasing sensitivity will test how the benefits of the reforms are impacted under different physical NIV chasing assumptions.
BM participation	LBM + counterfactual	Capturing: 1. Lower level of active BM participation reducing bid/offer acceptance of new capacity 2. Greater level of capacity deployment just below the threshold (e.g. 9.9 MW) to avoid needing to register as BMU but maintaining visibility requirements 3. Higher level of active participation by non-BM assets through VLPs under the counterfactual Option to also consider less successful skip rate reductions, and the extent to which these can be maintained with greater BM participation Note: More generally, the impact of skip rate assumptions under the base case will be tested through ex post analysis of revenue, profitability and investment implications for any assets who may continue to face skips.	Medium	The behavioural response for asset investment and active BM participation is subject to some level of uncertainty. This sensitivity will reflect and test how that uncertainty could impact on benefits, also supporting delineation of benefit driven by BM participation (10–50MW capacity) and visibility only (1–10MW capacity)



Candidate sensitivities (4/5)

Candidate sensitivities grouped by theme. Not all will be modelled — the final set will be confirmed through engagement with NESO, industry, DESNZ and Ofgem.

Behavioural assumptions 2

Name	Packages / options	Scope and approach	Analytical challenge	Relevance to the assessment (impact on reform outcomes)
Risk premia	SSP, Package 1, Package 2	Model impacts of different risk premia assumptions on market prices and financing costs, with implications for CfD auction clearing prices and CM costs – and the overall consumer passthrough costs. We assume that LBM does not result in material changes to risk premia at a whole system level that would subsequently be passed through to financing costs, and CfD strike prices, etc.	Medium	Higher risk premia than in our central case feed through to DA / ID prices, financing costs, and CfD strike prices and CM costs, which ultimately reach consumers.
Supplier cost pass-through	All	Vary assumptions on how different cost pass-through affects bill impacts on end consumers.	Medium	Determines how system-cost changes translate into consumer bills and the distribution of winners and losers across consumer archetypes.

Candidate sensitivities (5/5)

Candidate sensitivities grouped by theme. Not all will be modelled — the final set will be confirmed through engagement with NESO, industry, DESNZ and Ofgem.

Behavioural assumptions 2				
Name	Packages / options	Scope and approach	Analytical challenge	Relevance to the assessment (impact on reform outcomes)
Discount rate	All	Vary discount rate in the CBA model to test sensitivity of results (differentiation from the central 3.5% per Green Book)	Low	Will reweight early vs later benefits This will impact most on those reforms with significant upfront implementation costs
Assessment period	All	Vary assessment period in the CBA model to test sensitivity of results to 10-year vs 15-year assessment horizon	Low	The HMT Green Book recommends a 10-year horizon for 'regulations' but also recommends appraising over the period the reform is expected to be in place. A 10-year horizon may understate long-lived, later-year benefits (particularly for SSP)
Carbon valuation	All	Use high, central and low estimates of carbon values in the CBA model to test sensitivity of results <i>Note: Carbon values are used in the CBA model to capture the additional societal impact of changes to carbon emissions, over and above the implicit monetisation of any changes in carbon emissions at the market carbon price. For clarity, for the purposes of this sensitivity, market carbon prices will remain unchanged, as per the scenario assumptions in the base case.</i>	Low	Affects the monetised emissions impact of the reforms

Candidate variants

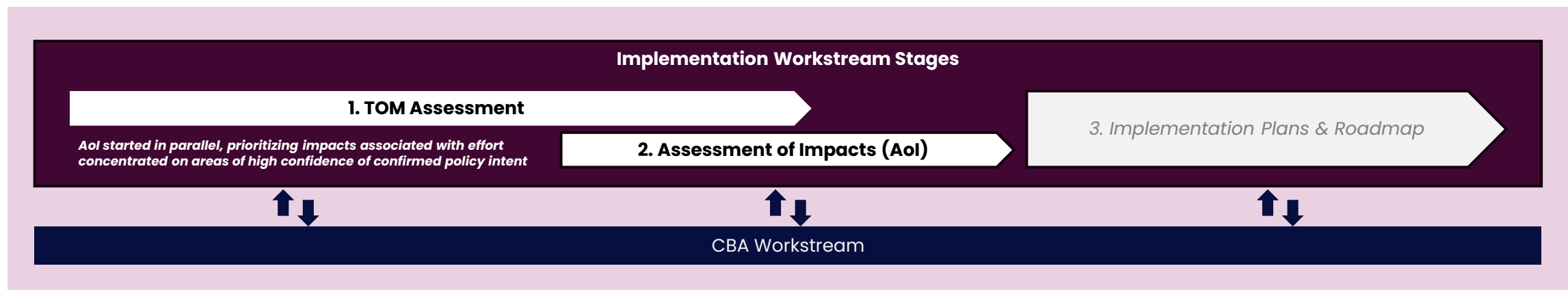
Principal option variants under consideration — design choices that can materially affect both the benefits realised and implementation costs. A selection will be assessed proportionately and confirmed with NESO and through the Industry Expert Panel.

Reform option	Potential variant	Description	Analytical challenge	Proposed treatment in the CBA
LBM	Threshold level / participation approach	The level at which the lowered threshold is set — e.g. including full BM participation (or some form of 'BM-light') at 1 MW.	Medium	Modelled as a standalone LBM option, with an alternative threshold level / approach compared as an option variant.
MTD = GC	Treatment of non-physical / OTC trading	Whether the deadline constrains only exchange / physical trading or also non-physical positions (OTC, hedges) that may otherwise continue post-GC.	High	Represented as a dependency on the extent of continued post-GC non-physical trading in wider liquidity analysis.
All options	Timing / phasing	Implementation timing (e.g. from 2027) and phasing of options.	Medium	Reflected in package sequencing and tested through implementation-pathway variants
SSP	Settlement granularity	5-minute SSP, or 15-minute SSP with '5-minute ready' implementation.	High	5-minute assessed as a sensitivity, modelled over a selection of spot years to assess impacts.
SSP	Retail-market applicability	Whether SSP applies to the retail / supplier market as well as wholesale, and how wholesale-vs-retail adoption is sequenced and cost pass-through governed.	Medium	Assessed as a variant in which the retail market is not incorporated (or is 'opt-in'), affecting the costs and benefits case.
Cross-cutting	Application to the supplier / non-BMU (demand) side	For LBM, MTD = GC and TPs = FPNs, whether obligations extend to suppliers and non-BMU demand (via supplier BMUs at GSP-group granularity) or apply to BMUs only.	Medium	Applicability under the central case to be confirmed. Alternative supplier / non-BMU application treated as a variant, with non-BMU NIV chasing modelled separately and indirect effects captured qualitatively.

Assessment of Costs

Progress to Date

Starting the Aol in parallel, focusing on impacts linked to confirmed policy design while future-state details continue to be defined



As the project has progressed, we have started the Assessment of Impacts in parallel with the TOM assessment.

This change recognises:

- Outstanding design questions that continue to be explored and refined as the future state develops.
- The need to test and challenge emerging design options through impact analysis rather than waiting for all design decisions to be finalised.
- Compressed delivery timelines, requiring activities to run concurrently to maintain momentum and support timely decision-making.
- The value of using assessment findings to inform and shape the evolving future-state TOM, creating a more iterative and evidence-led process.
- The requirement to share assessment of impact findings with CBA team.

Assessment of Impacts | Cost Framework

Consistent with IEP 2, we consider significant costs across the following archetypes and organisations

Total Cost



**Market Participant
Costs (& Savings)**



**Central Body
Costs (& Savings)**

Groups & Archetypes

Archetypes help assess where costs are likely to fall across the market, however market participants may in reality align to multiple archetypes, meaning costs do not map on a strict 1:1 basis.

Groups	Archetype
Asset Owners	Intermittent generation (price takers)
	Dispatchable Assets
Suppliers	Portfolio Players
	Independent B2C Suppliers
Optimisers	Aggregators
Assetless traders	Non-physical traders
Consumers	I&C customers
	Small Medium Enterprises
	Residential consumers
Third-Party	Technology Providers

Organisations in scope

The nature and materiality of impacts varies. The assessment prioritises accordingly.

Organisation
NESO
Elxon (BSC, FM, DIP, EMRS)
Distribution Network Operators (DNOs) / Distribution System Operators (DSOs)
Transmission Owners (TOs)
Power Exchanges
DESNZ / Smart DCC / SECCo
Ofgem
LCCC / ESC

Assessment of Impacts | Macro Cost Categories

Across our analysis we categorise individual cost items within wider macro categories

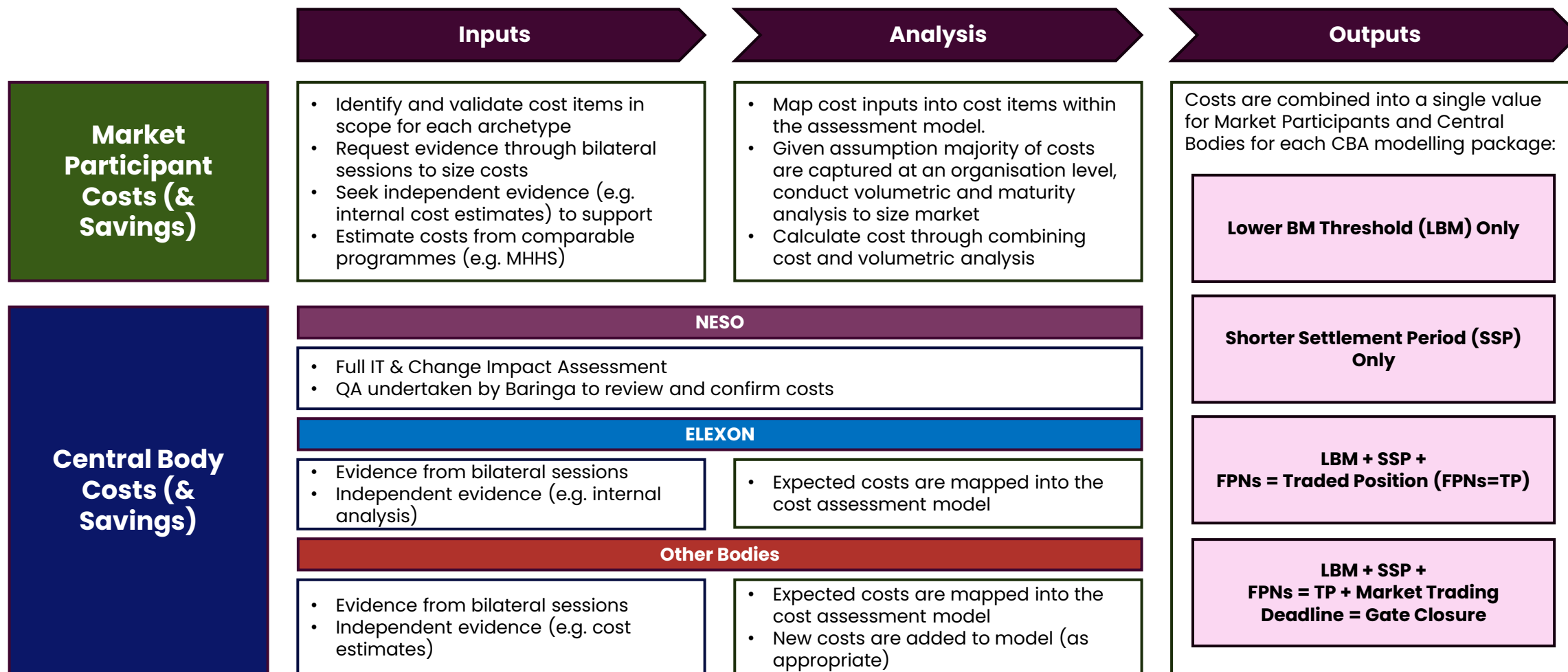


Macro Cost Categories sit under the following impact categories

	Capital expenditure required to...	Incremental ongoing operating and maintenance costs....
Technology & Systems	develop, enhance, and deploy IT systems, applications, platforms, interfaces, and technology infrastructure	maintenance costs relative to the as-is state.
Data & Metering	establish or enhance data, forecasting, analytics, and metering capabilities	data acquisition, processing, storage, forecasting, and metering activities relative to the as-is state.
People & Operating Model	establish new operational capabilities, facilities, tooling, and organisational structures	workforce, training, and operational delivery costs relative to the as-is state.
Governance, Rules & Compliance	develop and implement governance frameworks, regulatory arrangements, controls, and assurance mechanisms	compliance, assurance, monitoring, and reporting costs relative to the as-is state.
Commercial & contractual	establish or modify commercial arrangements,	N/A

Evidence Gathering

Consistent with IEP 2, our assessment of impacts considers significant costs across the following organisations



Where evidence is unavailable we will rely on SMEs to provide estimates

Understanding Market Participant Cost Items (1/2)

Outlining the key costs and their scaling factors to size the total cost of market participants

Cost Item		Definition	Policy Impact					Rationale	Cost Scalar
			LBM	SSP	FPN=TP	MTD=GC	Unit Bid		
Technology & Systems	Trading & position management	Investment in ETRM platforms, trade execution systems and algorithmic trading tools to absorb new requirements introduced by the reform.	✓	✓	✓	✗	✓	LBM: Onboarding smaller / distributed assets into trading and position-management processes. SSP: Increases granularity of positions and trade volumes, driving changes to ETRM / position tools FPN=TP: Allocation of traded positions to physical portfolio. Unit Bidding: Requires positions and trades to be managed at unit level	Estimated number of market participants with trading desks (excluding those that subcontract)
	Scheduling, nomination & dispatch	Any modification in scheduling systems, telemetry and SCADA required by the reforms.	✓	✓	✓	✗	✓	LBM: Brings more assets into PN / FPN, EDT / EDL and BMU registration processes, requiring scalable scheduling and nomination workflows. SSP: Requires scheduling and nominations to operate at finer settlement granularity, increasing submission volumes and operational decision points. FPN=TP: Submission of FPN in line with traded positions. Unit Bidding: Requires nominations, dispatch instructions and trade allocations to be managed per unit rather than at portfolio level.	Estimated number of market participants that submit (or will be expected to submit) scheduling and nomination data
	Settlement & billing	Development or reconfiguration of settlement and billing systems to reconcile metered volumes, contracted positions and imbalance.	✓	✓	✗	✗	✓	LBM: New BM participants / smaller assets may create additional settlement, reconciliation and invoicing flows, particularly where third-party providers or route-to-market contracts are involved. SSP: Directly impacts settlement and billing by increasing the number of settlement periods, metered-volume reconciliations and supplier / customer billing data points. Unit Bidding: Could require settlement, reconciliation and profitability reporting to be allocated at asset / BMU level rather than portfolio level.	Estimated number of market participants that across relevant archetypes that have settlement and billing systems
	Forecasting & analytics	Implementation or upgrade of forecasting tools and related data platforms to accommodate new granular requirements.	✓	✓	✗	✓	✓	LBM: More granular assets require new or enhanced forecasting / telemetry analytics to support visibility and accurate PNs / FPNs. SSP: Increases the need for higher-frequency forecasting, intraday optimisation and analytics to manage 15- or 5-minute exposures. MTD=GC: Increases reliance on earlier forecasts by reducing the window for self-balancing after Gate Closure. Unit Bidding: Requires asset-level forecasting and optimisation, rather than portfolio-level allocation, to support unit-specific bids and positions.	Estimated number of market participants with forecasting and analytics capabilities

Q1: Have all significant costs been identified?

Q2: Have we correctly identified cost items across policies?

Q3: Could you provide any relevant evidence to support our estimation?

Understanding Market Participant Cost Item (2/2)

Outlining the key costs identified for Market Participants across Technology & Systems

	Cost Item	Definition	Policy Impact					Rationale	Cost Scalar
			LBM	SSP	FPN=TP	MTD=GC	Unit Bid		
Data & Metering	Metering & data infrastructure	Installation of physical meters and build-out of data pipelines, storage and validation systems to support required granularity and frequency.	✓	✓	✗	✗	✓	LBM: Drives the largest metering and telemetry costs as smaller assets require CVA metering, communications links, EDT/EDL connectivity, telemetry ingestion and BM participation infrastructure. SSP: Requires increased metering granularity, higher-frequency data capture, storage and processing capabilities. Unit Bidding: May require enhanced asset-level telemetry, monitoring and data segregation to support unit-level submissions and reporting.	Estimated number of assets requiring new or updated metering & data infrastructure.
People & Operating Model	Operating model & people	One-off organisational redesign, delivery change resources, tooling for new ways of working.	✓	✓	✗	✗	✓	LBM: Requires new operational processes for BM participation, registration, monitoring and management of a larger pool of assets. SSP: Increases operational workload, forecasting cycles and trade execution frequencies, with most participants expecting greater reliance on automation and algorithmic trading (particularly for 5 minute settlement). MTD=GC: Limited organisational redesign, although trading, risk and forecasting teams may need to adapt processes to earlier position finalisation. Unit Bidding: Requires new operating procedures, unit-level trade allocation and significantly greater operational coordination across trading, dispatch and risk functions.	Estimated number of market participants that require significant organisational redesign informed by archetypes
Governance & Compliance	Compliance & obligations	Changes required to compliance monitoring and regulatory reporting systems.	✓	✓	✓	✗	✓	LBM: New BM participants must comply with BM, Grid Code, metering and data-submission requirements, creating monitoring and reporting obligations. SSP: Higher data volumes and automated decision-making may require enhanced controls, audit processes and regulatory compliance procedures (particularly for 5 minute settlement). FPN=TP: Establishing controls to match FPNs with traded positions Unit Bidding: Creates additional reporting, auditability and compliance requirements through asset-level transparency and monitoring of trading behaviour.	Estimated number of assets requiring new or updated monitoring and/or regulatory reporting systems.
Commercial & Contractual	Contract renegotiation	One-off legal and commercial effort to renegotiate PPAs, route-to-market and aggregation agreements.	✗	✓	✓	✓	✗	LBM: Most participants expect limited contractual change, with markets and route-to-market providers likely to adapt over time. SSP: May require updates to route-to-market agreements, supplier contracts, settlement arrangements and service-provider agreements where granularity changes. FPN=TP: Dependent on materiality of penalties associated with non-compliance Unit Bidding: Direct contractual impact, particularly for portfolio-based commercial arrangements	Estimated number of PPAs, route-to-market agreements or similar agreements that may require renegotiation.

Q1: Have all significant costs been identified?

Q2: Have we correctly identified cost items across policies?

Q3: Could you provide any relevant evidence to support our estimation?

Understanding Central Bodies Cost Items (1/2)

Outlining the key costs identified for Central Bodies across all categories

Cost Items			Policy Impact					Organisation
			LBM	SSP	FPN = TP	MTD = GC	Unit Bid	
Technology & Systems	Dispatch & optimisation systems	Development, procurement, integration and testing of new control-room systems and optimisation engines	✓	✓			✓	NESO
	Settlement systems (BSC)	Enhancement and reconfiguration of settlement platforms, interfaces and data-processing capabilities to support increased volumes, granularity (SSP) and new calculations (for FPN matching).	✓	✓	✓		✓	Elxon
	Market platform & product & market configuration	Development and implementation of platform changes enabling new products (incl. market time units), gate closure arrangements and market functionality.		✓		✓	✓	Power Exchanges
Data, Forecasting & Metering	System planning, forecasting & reserve analytics	Investment in forecasting models (demand/generation), analytical tools (margin calculation), automation and supporting technology infrastructure.	✓	✓	✓			NESO
	Network visibility, coordination & operational data systems	Development of data-sharing platforms, interfaces and communications infrastructure enabling enhanced network visibility and coordination. This includes any changes to systems to enable smaller units (e.g. KW/MW or different tolerance levels).	✓	✓				NESO, DNO
	Data transfer, reporting & facilitation (DIP/MF & BSC)	Development and implementation of new interfaces, reporting tools and data-transfer capabilities.		✓	✓			Elxon
	Settlement metering systems (CVA, SVA)	Enhancement of settlement metering systems, data-collection infrastructure and related capabilities (note costs depend on participation routes to BM)	✓	✓				Elxon
	Operational telemetry & visibility systems	Changes required to ingest, validate and utilise operational metering and telemetry data needed for visibility, dispatch and control of participating assets.	✓				✓	NESO
	Smart meters & data infrastructure	Changes to smart meters (firmware upgrades or replacement), communications and supporting data infrastructure.		✓				Smart DCC

Q4: Have all significant costs been identified?

Understanding Central Bodies Cost Items (2/2)

Outlining the key costs identified for Central Bodies across all categories

			Policy Impact					Organisation
Cost Items	Definition		LBM	SSP	FPN = TP	MTD = GC	Unit Bid	
People & Operating Model	Control-room operating model	Investment in automation tools, process redesign, workforce transition and training required to establish the future operating model.	✓	✓			✓	NESO
	Programme Delivery	Central programme management, PMO, stakeholder engagement, implementation coordination, governance forums and delivery oversight (similar to MHHS).		✓			✓	NESO, Elexon, Ofgem, DESNZ
Governance, Rules & Compliance	Registration & onboarding (BSC)	CVA / SVA registration (note costs depend on participation routes to BM); if CVA volumes significantly increase then automating currently-manual onboarding for high BMU volumes.	✓					Elexon
	Compliance	Development of compliance monitoring capability (incl. setting and reviewing tolerances), expansion of performance assurance processes and reporting capabilities			✓			Elexon
	Code & governance change	BSC modifications, licences (potential threshold change), Grid Code changes.	✓	✓	✓	✓	✓	Elexon, NESO, Ofgem
	End-to-end testing, transition & implementation assurance	Cross-party testing, migration, readiness assurance, transition management and implementation support activities.	✓	✓	✓		✓	Elexon, NESO

Q4: Have all significant costs been identified?

Programme Delivery required for all reforms. Material where this is of a significant scale and scope, beyond the RNP Programme

No material standalone Commercial & Contractual costs have been identified (outside Balancing & Reserve cost impact which will be captured by CBA modelling team).

Supplier/vendor contract costs captured within relevant other categories (e.g. enhanced system support hours under Technology & Systems).