Demand Side Flexibility Routes to Market Review

Stage 3: Progress update on barrier removal

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National Energy System Operator

Contents

From Recognition to Action

This section reflects on why NESO launched this Route to Market Review and what has been achieved so far. From identifying the critical role demand side flexibility will play in the electricity system to designing a structured approach for barrier removal, these early foundations continue to guide our progress.

We are committed to enabling demand side flexibility

Objective of this Routes to Market Review

This report is a part of the third stage of the NESO Routes to Market Review for Demand Side Flexibility, that seeks to remove barriers for demand side flexibility in our markets. This report provides an update on recent progress in removing barriers and sets out our overarching approach and next steps.

Why it matters

Demand side flexibility refers to the flexibility across all consumer groups (domestic, industrial, commercial, and public sectors). It incorporates assets and technologies that can increase, decrease, shift demand for, and store electricity.

The "Enabling Demand Side Flexibility in NESO Markets" report outlines that identifying and removing barriers is a strategic priority for NESO. Our Clean Power 2030 advice to Government highlighted that we need to ensure that demand side flexibility is enabled to participate in markets where it can meet system operability needs. Our advice shows that 4 to 5 times more demand side flexibility is needed by 2030. This required a number of fundamental enablers such as market wide half hourly settlement, and an evolution of innovative tariffs and flexibility propositions. The role of markets is also important.

Our vision is 'Enabling flexibility resources to operate seamlessly between markets, driven by effective market signals, delivering whole electricity system value to consumers and supporting the transition to net zero'.

Stage 1 & 2 – identify & Prioritise Barriers

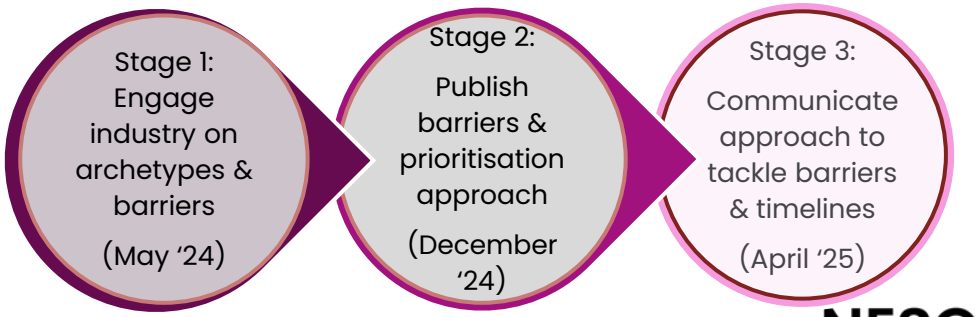
Stage 1 of this review focused on identifying barriers across all of our markets for a range of demand side flexibility archetypes. The stage 1 report and documents can be found on the following webpage:

https://www.neso.energy/publications/markets-roadmap/demand-side-flexibility-routes-market-review#Stage-1

Stage 2 of this review set out our approach to prioritisation of barriers. This clarifies that we will be prioritising the following balancing and ancillary services markets as part of this review: The **Demand Flexibility Service**(DFS), the **Balancing Mechanism**(BM), **Slow Reserve**, **Balancing Reserve**(BR) and **Static Recovery**. We will also be focusing on all barriers identified for "**demand turn up**".

The stage 2 report can be found on the following webpage:

https://www.neso.energy/publications/markets-roadmap/demand-side-flexibility-routes-market-review#Stage-2



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Growing Opportunities for Demand side Flexibility in NESO Markets

There are a range of demand side flexibility technologies and providers participating across NESO markets today, including the Balancing Mechanism(BM), Demand Flexibility Service(DFS), Local Constraints Market(LCM), Short Term Operating Reserve(STOR) and Static Firm Frequency Response(SFFR) service. Progress has been made over the past year In removing barriers for markets such as DFS and LCM, as well as opening up the Balancing Mechanism to demand side flexibility under relaxed operational metering standards. Here is a summary of the recent progress we have made.

DFS

DFS was relaunched in November 2024 as an in-merit margin tool for NESO. DFS has dispatched a record volume of capacity over an increased number of days since the relaunch. A number of barriers were removed for demand side flexibility as part of the service redesign, including enabling stacking with the Capacity Market and DNO flexibility services, and removing the need for asset meters to be associated with a half hourly settled boundary meter.

LCM

LCM introduced an ABSVD opt out and compensation mechanism to enable aggregators to participate on a more level playing field with suppliers. The requirement for boundary meter data to be provided alongside asset metering data was also removed in September 2024.

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Growing Opportunities for Demand side Flexibility in NESO Markets

Balancing Mechanism

In 2024 we relaxed operational metering requirements to enable up to 300MW of small scale aggregated assets to participate in the Balancing Mechanism. There are a number of providers registered and participating in the BM under this initiative, and we expect to see further growth in 2025 with the continued roll out of market wide half hourly settlement and subject to the outcome of the P483 code modification. This initiative also opens up access to the Balancing Reserve (BR) as enables market participants to operate in BR under relaxed operational metering.

Crowdflex

CrowdFlex is enabling the Control Room to better understand and utilise domestic flexibility as a resource. The Crowdflex trials will help to inform thinking in the Control Room on how to manage the grid at different times of the day and at different times of the year. The data gathered will provide a better understanding of system challenges such as peak demand, network constraints and the potential balancing solutions which distributed domestic assets could provide. winter trials have now been completed and we are finalising the design of our summer trials. more information on findings so far can be found in our annual report.

Slow Reserve

The proposed operational metering requirements for Slow Reserve were revised in response to stakeholder feedback. We believe this removes a potential barrier that the initial proposal represented for demand side flexibility. We will shortly be consulting on the Slow Reserve service.

Power Responsive

Power Responsive is a stakeholder-led programme, facilitated by the NESO, to stimulate increased participation in the different forms of flexible technology such as demand side flexibility.

It brings together industry and energy users, to work together in a co-ordinated way. A key priority is to grow participation in demand side flexibility, making it easier for industrial and commercial businesses to get involved and to realise the financial and carbon-cutting benefits.

The role of Power Responsive is to:

- raise awareness of demand side flexibility and engage effectively with businesses
- shape the growth of the market in a joined-up way and ensure demand has equal opportunity with the supply side when it comes to balancing the system

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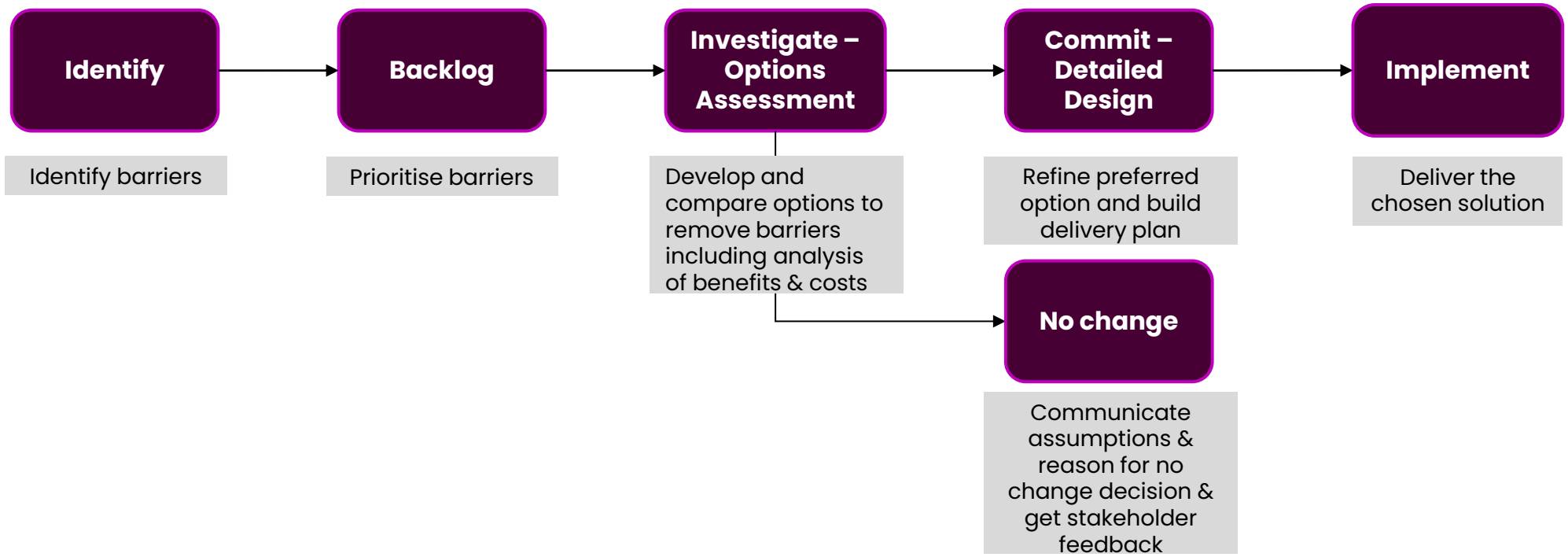
A Structured Process has been established for Barrier Removal

To ensure meaningful change, we have developed an overarching change process for identifying, prioritising and removing barriers from our services. This process aligns with our internal market change process stages[1].

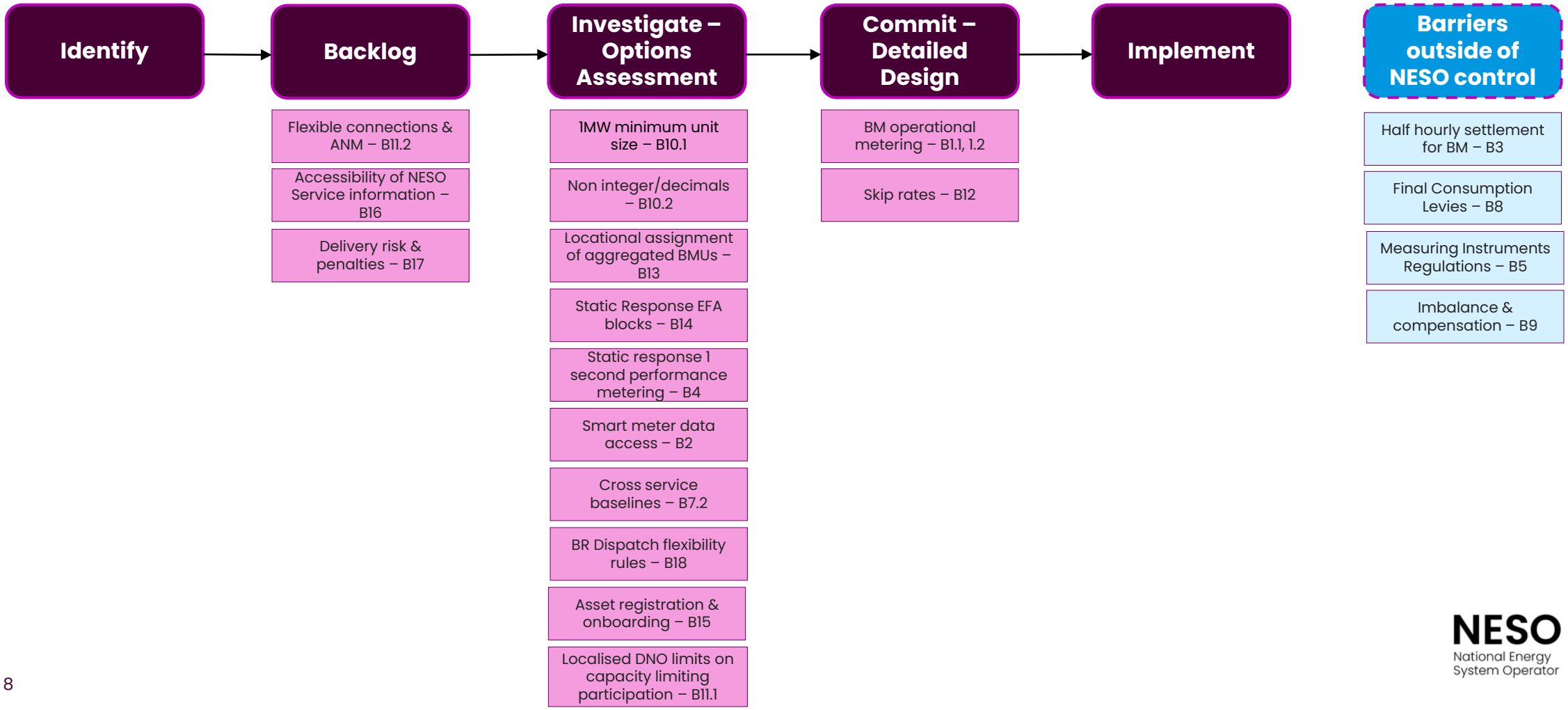


As part of the Enabling Demand Side Flexibility in NESO Markets activity, we have established an internal Steering Board to accelerate decision-making, enhance collaboration, and ensure alignment across the organisation. Each of the prioritised barriers will be associated with a formal internal project, which will have a clear sponsor, internal lead, process stage outputs and stage gates. The Steering Board will oversee the programme of activities to remove barriers and is empowered to intervene where necessary.

[1] We have slightly altered the process stage names since the Stage 2 report to align with existing internal process terminology.

Where Each Barrier Stands Today

- This diagram highlights where each barrier sits in the removal process.
- B numbers refer to the barrier number & description from our stage 2 report.
- Not all barriers are in the control of NESO to fully or partially resolve. The barriers outside of our control are highlighted.



Plan on a page

This section sets out the planned timeline for removing identified barriers. The plan reflects both NESO-led activities and broader industry dependencies, helping stakeholders understand when changes will take effect and how they align with wider industry initiative timelines. A deeper dive into each project will be provided in the following section.

Barrier removal programme plan

External activities

barrier removed - expected

Barrier removed - indicative

Quarters are calendar years throughout this report		2025				2026				2027			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Onboarding	B15 Registration	BM SMP migration	Continuous improvement of onboarding & registration systems, processes & information										
	B15 Registration		Flexibility Market Asset Registration (FMAR) design and development										
	B11.2 Flexible & ANM connections				ANM & flex connections methodology & policy								
Procurement & Dispatch	B10.1 , B10.2 Sub 1 MW & non integer	Sub 1MW & non integer options assessment				Detailed design & implementation subject to outcome of Options Assessment. Implementation will take several months, in line with relevant IT system & process changes, Code changes & service consultations							
	B13 Aggregated BMU location	Assessment of locational assignment of aggregated BMUs											
	B18 Dispatch flexibility rules	Dispatch flexibility rules review	Balancing Reserve consultation										
	B12 Skip rates	DSR "Skip Rate" reporting		Ongoing Skip Rate programme activities									
	B14 Static resp. EFA blocks	Static response analysis & design		Static response impact assessment		Static response reform implementation							
	B11.1 DNO DTU limits	Short term DTU approach agreed with DNOs				Market Facilitator and RESP coordination, Primacy implementation							
Settlement	B9 Imbalance & compensation	Issue Group 114 and Code changes											
Metering & Baselines	B1.1, 1.2 BM Ops metering	Independent Review of BM Ops metering		NESO decision	Implement ation plan								
	B2 Smart meter data access	Smart meter data access options assessment											
	B5 Measuring Instrument Regs	MIR consultation											
	B4 Static response metering	Static response analysis & design		Static response impact assessment									
	B7.2 Cross Service Baselines	ENA/MF Baselining Technical Working Group				NESO and DSO services aligned , in line with Market Facilitator decision							

Zooming in: Project Updates

Removing barriers requires sustained action across multiple fronts. In this section, we provide detailed updates on the progress and upcoming activities for each barrier removal initiative. Barriers are grouped according to the stages they are currently in.

Barriers in Options Assessment

Barrier	Number	Relevant Services	Recent progress	Upcoming activity	Milestones
1MW minimum unit size to participate in services	B10.1	All except LCM	• Project initiated including investigation options to introduce non integer(decimals) & sub 1MW procurement & dispatch across NESO services. • Virtual project team in place, including representation from relevant NESO teams • Scoping of investigate stage activities and output • Initiation of benefits analysis • Initiation of IT Impact Assessment • Codes change assessment initiated • Implementation scoping	• Engagement with industry about benefits to participation from options available • Completion of IT impact assessment Completion of benefits analysis, code change assessment and implementation scoping • Internal governance to conclude "investigate" stage, and decision on options to process to "detailed development"	• Options assessment complete– Q4 '25 • Next steps & roadmaps – Q1 '26
Only allow bids in whole MW increments and do not allow decimals of 1MW	B10.2	All except DFS and LCM			

Aggregated BMUs cannot assign to a specific GSP	B13	BM	• Investigation of processes for allocating aggregated units locationally within GSP groups:
			  • Each aggregated BMU is assigned to a single geographical node in our legacy BM systems, and to a single GSP in the Open Balancing Platform (OBP). OBP is replacing our legacy BM systems.
			  • This locational assignment is used to system tag BMUs for constraints actions.
			  • We have concluded that locational assignment is not the "barrier" it is perceived to be.
				• We have some further investigation to undertake in relation to processes and allocation of aggregated BMUs to GSPs, but we believe that this "barrier" may not in fact be a barrier preventing aggregated BMUs from being used for constraints actions.
				• We welcome further engagement with stakeholders who believe they are being adversely affected by how we locationally assign aggregated BMUs.
					• Problem investigation & engagement with industry complete – Q3 '25

Barriers in Options Assessment

Barrier	Number	Relevant Services	Recent progress	Upcoming activity	Milestones
Localised DNO limits on capacity limiting participation	B11.1	LCM	• We have been collaborating with DNOs on Demand Turn Up (DTU) locational capacity through LCM as well as through the Crowdflex innovation project. • We have agreed to the Primacy Rules Framework and are working with DNOs to establish common and robust headroom indicators that will enable efficient access to assets in constrained distribution areas.	• We are seeking to introduce a common methodology and processes with DNOs in the short term for markets where DTU can participate, in advance of Primacy and other DNO coordination activities coming online in the coming years. • We are starting the detailed design phase for implementation of Primacy rules across our IT estate.	- Common methodology – Q4 '25
Registration & onboarding of assets	B16	All	• We have migrated BM registration to the Single Markets Platform (SMP)during Q1 • We have updated the Aggregator Impact Matrix(AIM) form and processes, to improve how we utilise information within our forecasting processes.	• We will be making a number of changes to our registration processes to better enable high volumes of aggregated assets • We will support the Market Facilitator in the development of the Flexibility Market Asset Registration (FMAR) solution and processes	
Procurement in EFA blocks	B14	Static FFR and DC, DM, DR	• We have initiated our static response reform activities, including analysis and industry engagement.	• The static response reform IT impact assessment will be started in Q3 '25.	- Static response reform Impact assessment – Q4 '25
1HZ performance metering	B4	Static FFR			

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Barriers in Options Assessment

Barrier	Number	Relevant Services	Recent progress	Upcoming activity	Milestones
Access to smart meter data for 3rd parties	B2	DFS	• Initiation of legal review of Public Task basis for accessing smart meter data • Scoping out as part of wider NESO use cases for smart meter data as part of the Transformation to Integrate Distributed Energy(TIDE) • Discussions with DCC & Elexon in relation to smart meter data access	• Conclusion of options assessment for short term DFS solution • TIDE programme scoping of smart meter data uses cases, and solutions to access and process this data.	- DFS options assessment – Q3 '25
Cross service baselining	B7.2	All	• Within ENA Open Networks, NESO is working alongside the DNOs to produce a report which provides recommendations for the DNOs to standardise their baseline methodologies and align with NESO.	• Upon the completion of the draft report the ENA Baseline Technical Working Group will host a webinar with the industry seeking final feedback before finalising and publishing the report.	- ENA Baseline Standardisation Report Q3 25
Dispatch flexibility rules (1MW/1 min)	B18	Balancing Reserve	• A review of Dispatch flexibility rules is currently being undertaken with the aim of identifying the costs and benefits of altering these roles to enable greater participation. • A questionnaire has been shared to get industry input on possible relaxed parameters.	• Consultation on Balancing Reserve reforms	- Consultation - Q2 '25

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Barriers in Detailed Design

Barrier	Number	Relevant Services	Recent progress	Upcoming activity	Milestones
Operational Metering	B1.1, B1.2	BM (BR, QR phase 1 as BM linked services)	• DNV have been completing the final work packages and analysis as part of the independent review into operational metering standards for the BM. • Please refer to the Operational Metering working group webpages for more detailed information.	• The DNV independent review of operational metering will conclude in May on this year, with recommendations to NESO for changes to operational metering requirements for the BM	- Independent Review & recommendations – Q2 '25 - Decision – Q3 '25 - Implementation plan published - q4 '25
Skip Rates	B12	BM	• Identification of gaps in skip rates programme activity relating to demand side flexibility • Scoping of activities to fil gaps • More information on the wider Skip Rates programme can be found on the webpage.	• DSR will be included in our transparency data and reporting from end of Q3 • DSR will be considered alongside all fuel types within the wider skip rate programme workstreams such as the Route Cause Analysis workstream	- DSR skip rate reporting – Q3 '25

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Barriers in the Backlog

Barrier	Number	Priority[1]	Relevant Services	Recent progress	Upcoming activity	Milestones
Flexible connections & Active Network Management	B11.2	1	All	• Scoping of gaps and requirements	• Developing a common methodology for sites and assets with ANM and flexible connections • Development of a policy and publication on the NESO website	Currently expected around Q2 '26
Visibility and accessibility of NESO service information, standards and policies	B15	2	All	• We are working with DNOs and the ENA to improve how we present information in a coordinated manner, including publication of all NESO and DNO Flexibility Product Requirements https://www.energynetworks.org/publications/ena-on-all-flexibility-product-technical-requirements	• Continue working with the ENA, Market Facilitator and DNOs to improve how we communicate with industry	
Delivery certainty risk & penalties for not meeting 100%/no tolerances	B17	3	All	• DFS has introduced lenient tolerances and penalties to encourage accurate delivery in a proportional manner for flexibility providers participating in the service. • No specific actions to date as this barrier sits in our barrier backlog	• Review of penalties & tolerances across NESO services & recommendations for follow on activity • Review of international best practice	TBC

Barriers in the backlog are prioritised, and will be taken forward to "options assessment" and later process stages, in line with wider market change request prioritisation, or as part of service reform initiatives. Market change backlog prioritisation is undertaken regularly in line with new drivers for change emerging from government policy and regulation, market participant proposals and control room requirements. The projects in the barriers backlog will not be progressed until they are prioritised as part of our wider market change prioritisation process.

[1] Based on the prioritisation scorecard from the Stage 2 report

Barriers Outside of NESO Control- Collaborating for Change

These barriers require industry-wide actions. We are collaborating closely with relevant parties.

Barrier	Number	Relevant Services	NESO activity	External activity status	Estimated resolution
Imbalance adjustments and compensation mechanisms	B9	All	• we are supporting the BSC Issue Group 114 • LCM has introduced an ABSVD opt out and price adjustment mechanism, that can feed learnings into Issue Group 114.	• Elexon have initiated Issue group 114. • Ofgem have approved the "direct compensation" approach for P444. • Ofgem have indicated that they, NESO and government need to provide clear direction to industry on our long-term vision for how the relationship between suppliers and VLPs should work and how market arrangements need to develop.	- P444 implementation - Nov. '25 - Issue 114 leading to code modifications in 2025
Half Hourly Settlement required for meters	B3	BM, BR, Phase 1 QR & SR	• We have removed HHS requirements from all services where we have the ability to do so (DFS and LCM)	• A BSC code modification(P483) has been raised to resolve this issue.	- P483 – Q3 '25
Measuring Instruments Regulations	B5	All	• We have been engaging with Government and Industry, building on insight from the Operational Metering working group.	• The Governments' Clean Power Action Plan indicated that the Department for Business and Trade(DBT) will consult on options to amend the existing requirements during the first quarter of 2025.	
Final consumption levies	B8	All with DTU	• We are engaging with DESNZ and Ofgem on the final consumption levies challenge for DTU in balancing and ancillary services markets, through the Low Carbon Flexibility Roadmap development process.	• The Governments' Clean Power Action Plan indicated that DESNZ and Ofgem will review the options available to remove final consumption levies for home batteries and vehicle-to-grid EV batteries and set out next steps in the 2025 Low Carbon Flexibility Roadmap.	

Looking Ahead

As we continue our journey to remove barriers for demand side flexibility, it is essential that we stay accountable, transparent, and responsive to stakeholders. This sections outlines how we are tracking progress through key performance indicators, and engaging regularly with stakeholders to deliver meaningful, lasting change.

How We're Measuring Performance in Removing Barriers

Tracking our Key Performance Indicators(KPIs) over the coming years will be a key determination of success of removing barriers for demand side flexibility in NESO markets. We propose to track and publish the following indicators to ensure transparency in our delivery:

Indicator	Reporting frequency
NESO Service Barrier Summary for Demand Side Flexibility (see RAG table in appendix), and associated change log	Quarterly
Barrier removal programme status dashboard update, including progress updates, timelines and delays	Quarterly
Demand side flexibility registered & dispatched in NESO markets	Quarterly

We will also be tracking and reporting KPIs as part of the DESNZ, Ofgem and NESO Low Carbon Flexibility Roadmap monitoring framework.

The NESO Service Barrier Summary V2 is on Page 17. The programme dashboard and market metrics will be published as part of the next quarterly update.

Keeping Stakeholders at the Heart of the Journey

Ongoing engagement and collaboration are critical to success. Here is how we're keeping stakeholders informed and involved.

Quarterly updates & webinar

We will be holding quarterly update webinars that will include:
- Overall progress update on projects & programme
- New barrier identification & prioritisation
- Specific barrier/project focus updates – stakeholder feedback & input, topical activity updates etc.

We will also provide updated plans and status information via the Markets Roadmap webpage

Working Groups

Specific working groups will be set up to support stakeholder involvement and engagement in specific projects where appropriate. The scope of working groups will be dependent on the needs of the projects. The Operational Metering working group is an example of such a group.

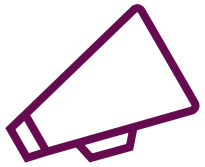
DESNZ, Ofgem & NESO Low Carbon Flexibility Roadmap

The Government set a commitment in the Clean Power Action Plan, that DESNZ will publish a joint Low Carbon Flexibility Roadmap in 2025 with Ofgem and NESO. The Low Carbon Flexibility Roadmap will set out clear short and long-duration flexibility milestones and measures required for clean power in 2030. We will include monitoring and evaluation of barrier removal progress for Demand Side Flexibility in NESO markets via the Low Carbon Flexibility Roadmap process.

Reporting

We will continue to be open and transparent on barrier removal progress and status.

Next Steps



We will be holding a Webinar on **12th May**, from 1 – 3pm, to present this report and hold a Q&A, as well as provide updates on some key barriers projects. This will give you an opportunity to provide feedback on this stage 3 report, as well as kick off the regular quarterly programme review and barrier identification and prioritisation activities. Please Register here Demand Side Flexibility Routes to Market Review - update and Q&A

We welcome 1 to 1 discussions and written feedback so please reach out to the team at flexibilitystrategy@nationalenergyso.com

We will also be including commitments to remove barriers for demand side flexibility in NESO markets as part of the DESNZ, Ofgem and NESO Low Carbon Flexibility Roadmap, to be published this summer.

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Appendix

Glossary

- FMAR – Flexibility Market Asset Registration
- ANM – Active Network Management
- SMP – Single Markets Platform
- DTU – Demand Turn Up
- OBP – Open Balancing Platform
- BM – Balancing Mechanism
- GSP – Grid Supply Point

Service barriers summary V2

Services	Demand side flexibility[1]	DFS	LCM	Slow Reserve	Balancing Reserve	Quick Reserve	Static FFR	Dynamic Regulation	Dynamic Moderation	Dynamic Containment	Balancing Mechanism
Domestic consumer	Supplier	🟢	🟢	🟡	🟡	🔴	🟡	🔴	🔴	🔴	🟡
	Virtual Lead Party (VLP)	🟡	🟢	🟡	🟡	🔴	🟡	🔴	🔴	🔴	🟡
	Non VLP aggregator	🟡	🟢	🟡	⚫	🔴	🟡	🔴	🔴	🔴	⚫
Non Domestic consumer	Supplier	🟢	🟢	🟢	🟡	🔴	🟡	🔴	🔴	🔴	🟡
	Virtual Lead Party (VLP)	🟢	🟢	🟡	🟡	🔴	🟡	🔴	🔴	🔴	🟡
	Non VLP aggregator	🟢	🟢	🟡	⚫	🔴	🟡	🔴	🔴	🔴	⚫

🟢 Not aware of any insurmountable barriers

🟡 Barriers or design requirements are likely stopping some of the market

🔴 Barriers or design requirements are stopping all of the market

⚫ Not capable of participating in service

This V2 RAG table is the same one as published in the Stage 2 report, which includes the change log. We will update this table on a quarterly basis, in line with barrier progress and stakeholder feedback.

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