

Constraint Collaboration Project Webinar

14 October 2026



CCP Webinar: Introduction

Agenda

Timings

Speaker

Introduction and House Keeping	13.00 – 13.10 (10 mins)	Alifa Starlika
Topic 1: Storage Behind Constraints	13.10 – 13.15 (5 mins)	Saskia Barker
Topic 2: Short-term Constraint Management Market	13.15 – 14.00 (45 mins)	Saskia Barker
Topic 3: Extended Intertrip Scheme	14.00 – 14.10 (10 mins)	Steve Kelly
Q&A and Next Steps	14.10 – 14.30 (20 mins)	Alifa Starlika

Join at
slido.com
#CCP





Housekeeping

Key asks for the session



Today's webinar focusses on the **Constraint Collaboration Project**. Please submit questions through Slido (code: #CCP) and state your name. You can find the QR code in the chat and on each page of the PPT.



For questions related to Storage Behind Constraints, please submit via box.SkipRates@neso.energy, and box.market.dev@neso.energy for any other topics.



Please be mindful that we may not have all the answers but will take things away if needed and publish later the Q&A along with the slides and recording.



Please ensure cameras & microphones are disabled to protect the bandwidth quality.

Webinar Norms

*Listen to
each other*

*Engage in
the
process*

*Know what
to let go*

*Every
question is
welcome*

*Defer
judgement*

*Seek
clarity*



Overview of Constraints Collaboration Project

1. Constraints Management Markets (CMM)

1A. Demand for Constraints / Long-term CMM

amp CLEAN ENERGY
Increasing demand for power in constrained areas for electrification of heat

TEL the energy landscape
Constraints management markets (CMMs)

eneus energy
Flex PtX to produce green H₂ and related derivatives

SCOTTISH FUTURES TRUST
Long-term contract to manage a portion of the forecast constraint volumes

Statkraft
Demand signal product

sse | Business Energy
Competitively allocated season ahead constraint management availability contracts

ScottishPower
Incentivising new discretionary demand (H₂ production and electricity storage)

edf
Long-term auction of excess wind

Flextricity
'COOLER HEATING' – commercial heat loads as responsive assets

sse | Business Energy
Long-term constraint management contracts (incentivising new demand)

1B. Short-term Constraints Management Markets

ZENOBE
Pre gate closure constraint management product using schedule 7 trade

sse | Business Energy
Competitively allocated short-term constraint management contracts (D-7)

edf
Discounted demand turn up

edf
Weekly generation turn down market

Flextricity
The 'Big Friendly Battery' for ~8 hours duration

2. Increasing how much can flow over boundaries

2A. Extended intertrip scheme 2B. Grid booster (post fault)

FIELD
Extended intertrip scheme

FIELD
Grid booster

ZENOBE
Intertrip scheme utilisation

sse | Business Energy
Enhance utilisation of transmission network

Eku
Battery for constraints: Reducing the line rating from 10 to 3 mins

2C. Boundary flow smoothing: Pre-fault

ZENOBE
Transfer booster

Kona Energy DELIVERING THE ZERO CARBON FUTURE
Paired storage systems across key boundaries

ZENOBE
Flexibility for Active Network Management (ANM) zones and Generation Export Management (GEMS)



Overview of Constraints Collaboration Project

1. Constraints Management Markets (CMM)

1A. Demand for Constraints / Long-term CMM

1B. Short-term
Constraints
Management Markets



Constraints management markets (CMMs)

2. Increasing how much can flow over boundaries

2A. Extended intertrip scheme
2B. Grid booster (post fault)

2C. Boundary flow
smoothing: Pre-fault



Extended intertrip scheme



Grid booster



Transfer booster

• Demand for constraints (DfC) service – material is available [here](#):

- This new service seeks to procure additional, flexible demand in constrained areas, helping to reduce network constraints and support a more efficient and reliable electricity system
- Upcoming webinar scheduled for 20 October 2026. To participate, register [here](#)
- Moving forward, please direct any queries or thoughts on Demand for Constraints via the official channel: box.demandforconstraints@neso.energy
- Commercial design webinar delivered on 24 June 2026
- Technical and dispatch design webinar delivered on 5 March 2026

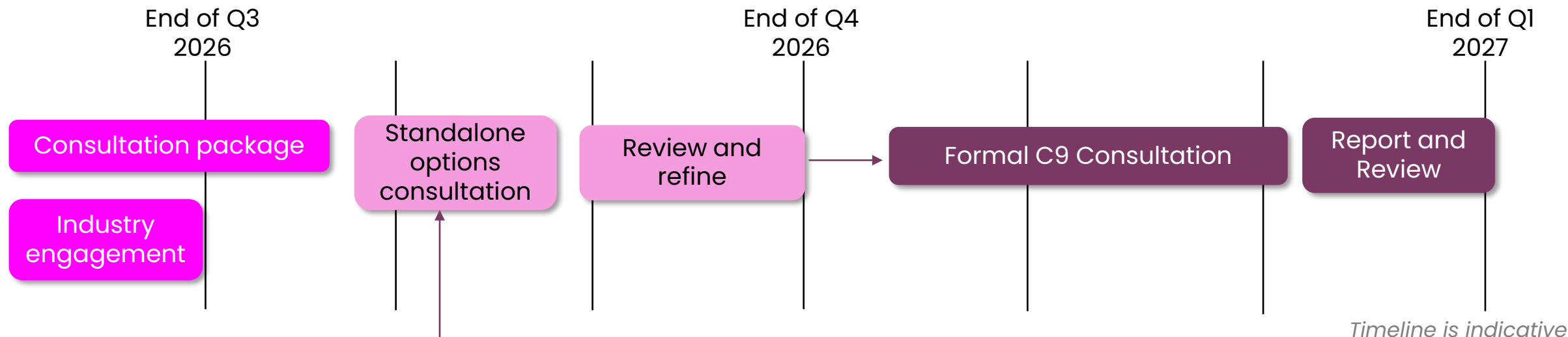
• Boundary Flow Smoothing:

- The innovation project has been concluded and the Boundary Flow Smoothing Feasibility Report, along with its appendices, has now been published – you can access the materials on [the CCP website](#)
- Presentation of the final report delivered via the [CCP webinar](#) on 25 June 2026

Storage Behind Constraints



Storage Behind Constraints: What's Happening?



OPTIONS

1. Prioritise non-storage actions over storage actions.
2. Apply the same approach but retain storage charging in the usual cost order.
3. Apply the first approach but allow storage charging where it is unlikely to increase constraint costs.

The third approach reflects feedback from industry on retaining beneficial charging.

HOW TO CONTRIBUTE

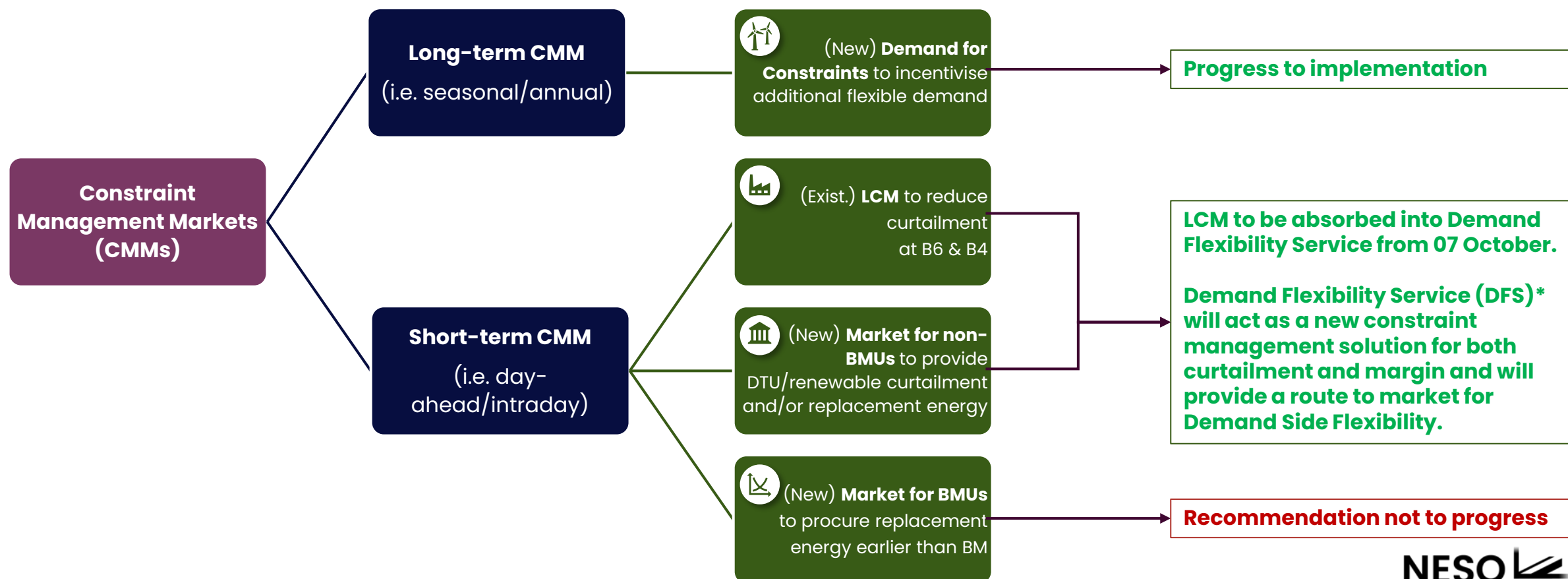
The options consultation document will be published on a dedicated Storage Behind Constraints Page. For now, if you wish to participate, please register your interest via our mailing list at box.SkipRates@neso.energy and you can find information on SBC on our [Skips Rate Page](#). The formal consultation will be published on the [C9 Page](#).

Short-term Constraint Management Market



Constraint Management Markets Overview

CMMs can exist in various forms and potentially fulfil different roles. At the last CCP webinar we shared an update on one type of short-term CMM for BMUs but wanted to provide further clarity on the shortlisted range of CMM options that are being considered.





Reformed National Pricing and CCP

Summer '25 update: Reformed National Pricing

Decision to retain a single national GB-wide wholesale market and introduce an ambitious package of reforms to improve the efficiency of our future power system

Stronger locational investment signals...

...to influence efficient siting of new assets

SSEP and associated levers
Network charging reform

Reform balancing, settlement and dispatch arrangements...

...to improve operational efficiency

Better self-balancing ahead of gate closure
Give NESO greater visibility of market positions
Increase volume of flexible capacity available for redispatch
Give NESO more control before gate closure

Improve constraint management...

...to reduce volume and cost of handling constraints in BM

Constraint collaboration project
Explore improvements of interconnector flows
Further options not directly mentioned in REMA Update

CCP forms part of the Reformed National Pricing (RNP) workstream, which aims to reduce consumer constraint management costs before 2030. More details on NESO's work in RNP can be found on [our website](#)

Short-term CMM for demand-side flexibility

Constraint management market – demand side

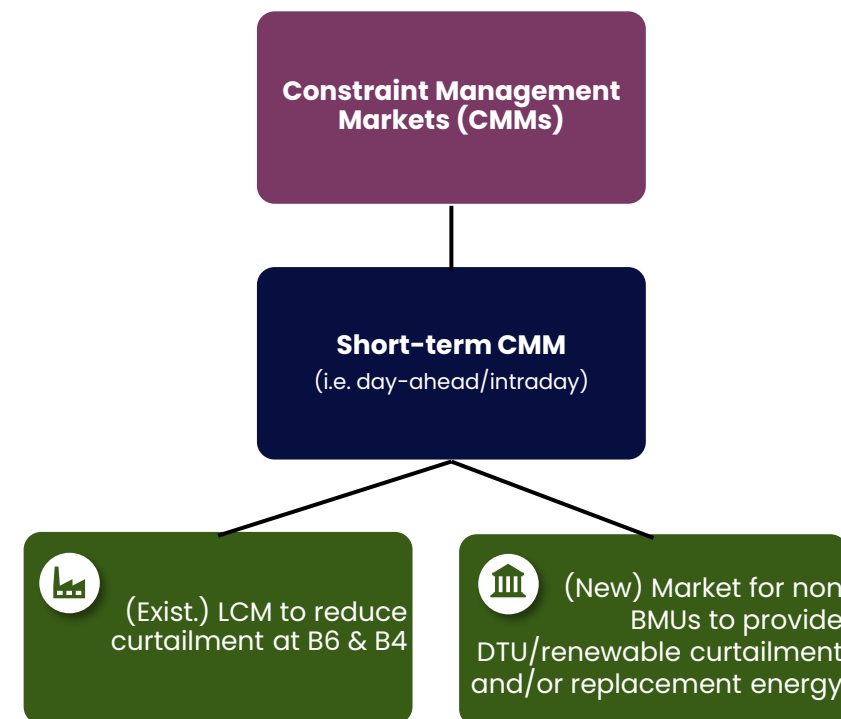




Short-term CMMs for demand-side flexibility



- We are committed to enabling demand-side flexibility to participate in markets for managing constraints.
- Taken learnings from the Local Constraints Market and Demand Flexibility Service, we have evolved the DFS into a combined constraint management and margin tool which went live on 07 October 2026.
- This development aligns with new milestones in the Clean Flexibility Roadmap to set out the future direction for DFS and LCM.
- We also acknowledge the additional milestone to assess the proposal for Regional Flexibility Markets alongside Dispatch Reform, and we will ensure these workstreams work closely together.
- We are grateful to ADE for recently hosting a workshop to discuss the routes to market for demand-side flexibility to manage constraints and resolve system issues on a locational basis.
- The group agreed to identify and develop options for DFS continue to drive improvements and unlock capability in the short-term, and translate findings into the options developed for Dispatch Reform in the longer-term.
- We will continue to work with industry to improve participation and performance in DFS.





Recap of the new Demand Flexibility Service (DFS)



What is it?

The Demand Flexibility Service (DFS) can now deliver value for flexibility for both margin and constraint actions.

On 7th October, DFS launched the capability to procure constraint management actions, replacing the Local Constraint Market (LCM).

This allows consumers to be rewarded for reducing or increasing their electricity use during specific periods.

The Opportunity in DFS

~£50m

potential value across all service requirements

Since 7 October, 4 system tagged (constraint) events with potential value of **£929K**

**Potential opportunity data for 14 April 26 – 13 October period*

Market Design Summary



Procures demand turn up and demand turn down (bi-directional)



Procured across 12 geographical zones



Minimum volume requirement of 100kW (per unit)



Utilisation payment



Stack with DNO markets and CM



API or Sharepoint capability for file exchanges



Tender 2-4 hours before the delivery window



Dispatch notification issued hours ahead of delivery window

Pre-gate actions on gas.BMUs for managing constraint costs

Constraint management market – generation side





Summary

RNP Constraints Workstream: proposal to address the consumer cost of constraints pre-2030.

Outcome of assessment

Analysis shows that BM and CfD savings are outweighed by an increase in wholesale costs, leaving **consumers worse off by £1.27bn** over 2025–2035.

These proposals **do not meet workstream objectives**

Options considered:

Short-term pre-gate CMM aimed at gas replacement energy

Expanded schedule 7A trades aimed at gas replacement energy

Not in scope of this assessment:

Operability: there may be a case for these proposals to spread control room workload

Other technologies: Separately, we are also assessing consumer led flex versions of these proposals (Demand side specific proposals)

This assessment tested the hypothesis that, given replacement energy actions on gas units make up the majority of constraints costs (and that there are no alternative actions/assets of an equivalent scale), that setting up a market to target procuring these gas actions at lower cost would reduce the cost of managing constraints



Hypothesis we tested

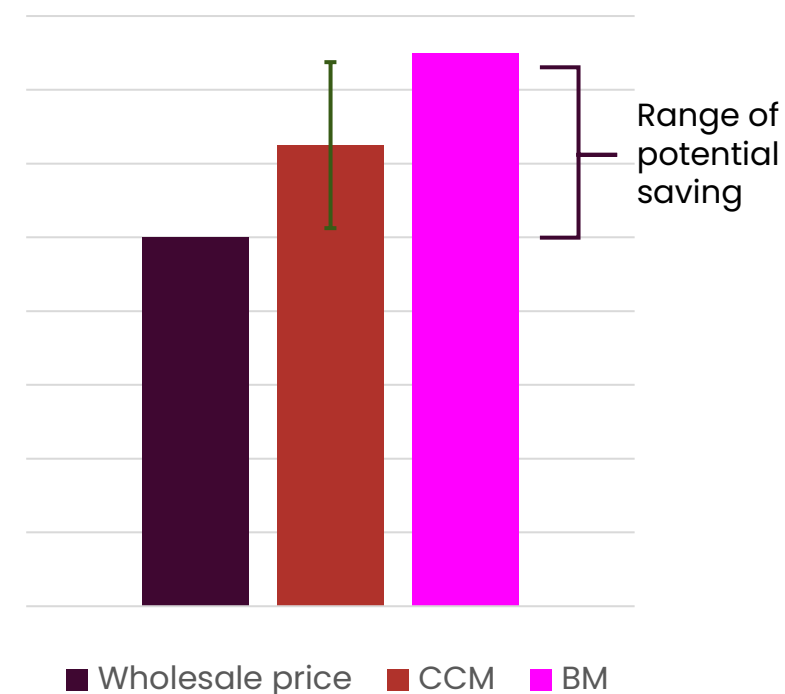
Analysis

- The cost of replacing energy represents the majority of thermal constraint costs in 2025, accounting for 51% of the total. This is primarily driven by actions taken to instruct additional replacement energy – often gas plants – in front of the constraints to rebalance the system.
- Gas generators value certainty more than other types of generator, therefore they may be able to offer lower prices in the within-day timeframe than in the BM
 - Wholesale prices when gas sets the price are about 1/3 lower than gas offers in the BM¹
 - Therefore, a CMM that is expected to clear/trades would be taken at prices between this wholesale price and the BM prices (e.g. a maximum 33% saving relative to the alternative BM offer)
- We tested whether NESO procuring gas volumes in the timeframe between the day-ahead market and the BM through a new short-term CMM or expanded use of Schedule 7A trades would reduce the overall consumer cost of managing constraints.

¹ Based on [NESO Markets Roadmap](#). The cost of replacing energy in the future is uncertain due to rising geopolitical risks

² Based on comparing DA wholesale prices to accepted BM offers in the period Summer '24 to Summer '25

Illustrative gas clearing prices



NESO is evaluating cost-effective ways to unlock greater demand-side flexibility and reduce the unavoidable replacement energy costs incurred in managing network constraints



Illustrative Example: Impact on the wholesale market price

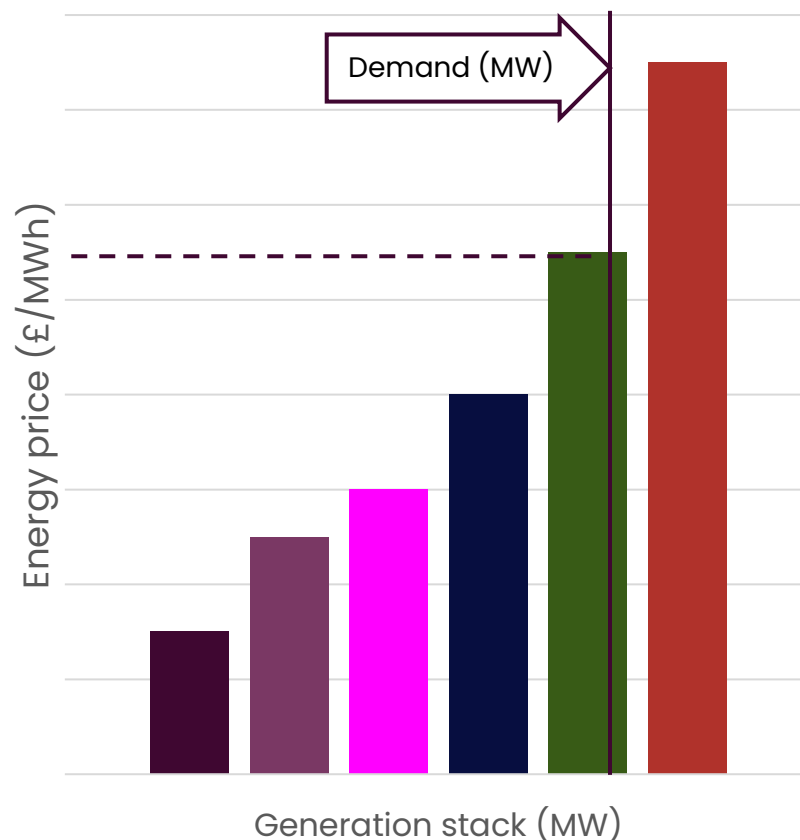
Mechanism for price impact

A voluntary CMM will attract units that would otherwise clear in the wholesale market. Removing volume from the sell stack raises clearing prices.

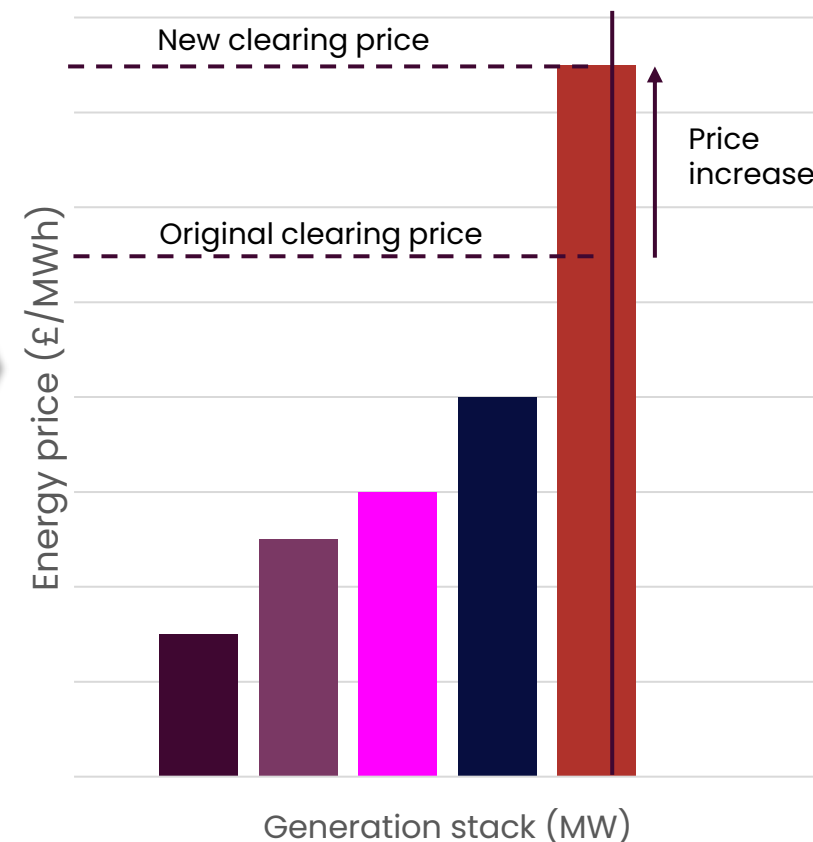
Scale matters

Consumer bills are more exposed to wholesale costs than balancing costs, so even small wholesale price changes can outweigh balancing savings.

Status quo sell stack



Alternative: Reduced Liquidity





Analytical approach and assumptions

Modelling approach:

Used PLEXOS to simulate NESO taking actions in the within day timeframe

*Time frame: 2025-2035
FES24 Holistic Transition Pathway*

1. Run a status quo scenario (do nothing)
2. Then a run where we assumed a certain percentage of CCGT volumes would be withheld from the wholesale market (some of these units would have been in merit in the wholesale market, others would not have been). This simulates the liquidity impact. NESO would then have access to all the CCGTs in the new market at a discounted rate.
3. We carried out sensitivity analysis on:
 - The % discount in the within day market relative to the BM
 - The % of volumes withheld from the wholesale market

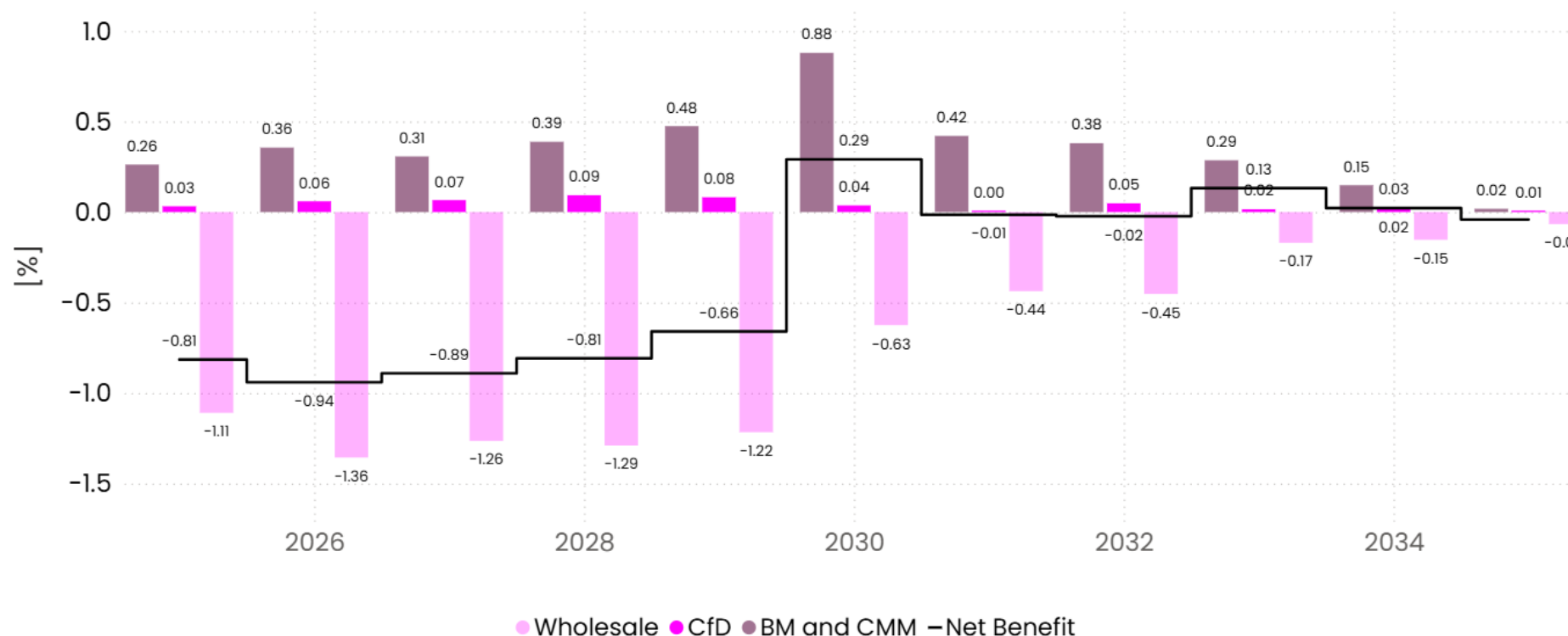
GENERAL ASSUMPTIONS:

- **Gaming** behaviours (for example, inc-dec gaming) are not **fully** considered.
- We assumed **perfect forecasting** of constraints (the volume of bid/offers required around binding boundaries are the same between status quo – resolved in the BM – and the alternative – resolved via CMM/trades).
- We have **not accounted for implementation** costs



The proposal increases costs in most years

Volume Weighted Percentage Prices change



Modelling Scenario	Cost saving relative to BM offers	Pre-gate contracted volume	Consumer saving
FES '24 (HT)	13.5% reduction	8-14 TWh pa	0.34% cost increase to consumers



We have run sensitivity tests and shared findings

Key Findings



The proposals deliver a net consumer benefit only if gas units can **offer discounts of around 25% or more** below current BM accepted bids (eg close to the 33% offered in the wholesale market)



The **larger the volume** NESO would aim to procure through this market, **the larger the wholesale market price increases**. While the savings also increase; they do not increase at the same rate as wholesale price impact:

- For example, in the scenario where NESO aimed to procure all of our replacement energy need through this market, the cost of the wholesale market price increase outweighs the balancing saving in every year of the simulation



In our central case **only ~10% of the volume** in the new market comes from CCGTs **that cleared in the wholesale market** in the counterfactual

- Only a small number of units need to successfully employ this strategy to negate the consumer benefit



Mitigations considered

We have considered 3 main risks associated with these proposals:

Modelled

Wholesale liquidity diversion

Potential mitigation considered:

Requiring wholesale market participation before participating in the CMM/trades, so NESO would only instruct units genuinely outside the wholesale stack.

Considerations:

This would be difficult to enforce in GB because the majority of wholesale trading is bilateral; would require fundamental market-structure change.

Not modelled

Strategic positioning to exacerbate constraints

Potential mitigation considered:

Whole-portfolio unit-level visibility, monitoring and enforcement to detect positioning that exacerbates constraints.

Considerations:

Scale of data/resource required is large; similar visibility proposals sit within RNP reforms.

Not modelled

Unwinding NESO actions

Mitigation considered:

Create financial penalties similar to S7A delivery requirements to ensure unit PNs at gate closures align with NESO actions

Considerations:

This works for the unit that participated in the CMM or trade. It does not prevent the market participant from unwinding NESO's action within their portfolio



We are minded to proceed with option 3

Options 1 & 2

Unlikely to meet workstream objectives

Short-term CMM or expanded schedule 7A trades for gas BMUs

CBA shows a £1.27bn net cost to consumers from increased wholesale costs therefore is not expected to meet the objective of reducing the cost of managing constraints pre-2030.

Option 3

Better aligned with workstream objectives

Do not pursue gas BMU pre-gate action for cost reduction

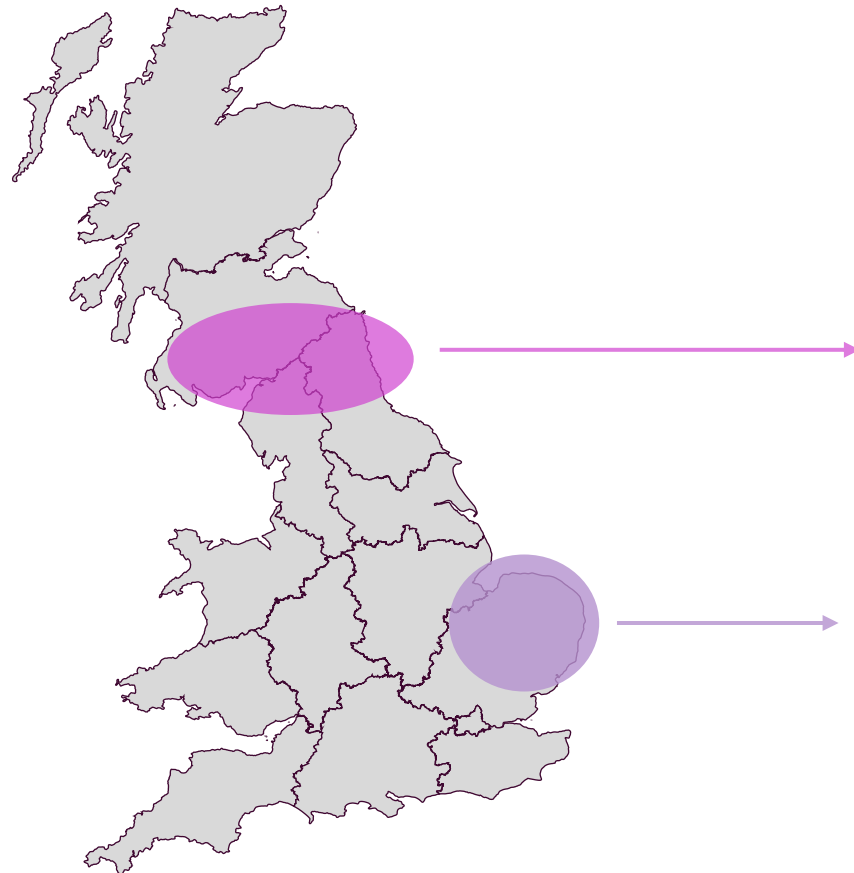
The analysis suggests these proposals do not reduce consumer costs from managing constraints before 2030 and introduce consumer cost and gaming risks.

We will continue to assess pre-gate actions for non-BMUs, including actions to incentivise more demand-side flexibility and improve Demand Flexibility Service (DFS) as a market-based option to reduce constraint management costs for consumers before 2030.

Extended Intertrip Scheme



Current state of CMIS



The intertrip schemes (owned and operated by the relevant Transmission Operator (TO)), enable the tripping/fast de-loading of generators in the event of a fault on the network to prevent circuits become overloaded

This reduces the amount of generation being curtailed pre-emptively to avoid thermal constraints

CMIS B6 (Anglo-Scottish OTS):

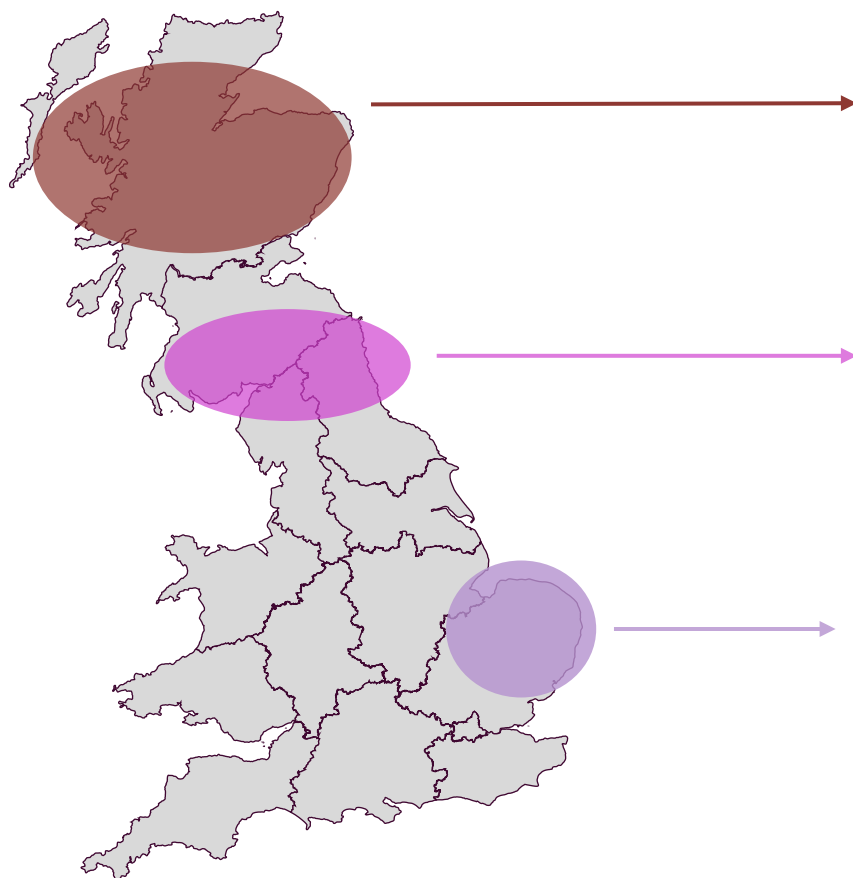
- Service live since Apr-22
- 150ms stability trip only
- Monitors circuits on east and west coast of Scotland
- Realised savings to-date vs BM: ~£150m

CMIS EC5-Interim (East Anglia OTS):

- Service live since Feb-24
- Limited to 10 sec thermal deload
- Monitors circuits in the East Anglia region
- Realised savings to-date vs BM : £7m



Future state of CMIS: What is upcoming



CMIS B2-B5 (Highland OTS)

- Tender for B2-B5 (only those that passed Expression of Interest (EOI)) – Due to launch in October 27
- New separate Operational Tripping Scheme (OTS) to Anglo-Scottish OTS
- Will have both Stability trip, & Thermal deload capability
- Monitor circuits across North & Central Scotland

CMIS B6 (Anglo-Scottish OTS)

- Tender for B6 (only those that passed EOI) – Due to launch in October 27
- Extension of circuit monitoring to B7a (north England)
- Stability trip capability

CMIS EC5-Enduring (East Anglia OTS)

- Enduring service go-live from Q4-26
- Additional 200ms stability trip capability
- Forecast savings vs. Balancing Mechanism (Dec 26 – End Sept 29): £170m*

*The successful parties will help to reduce network constraint costs across the EC5 boundary from July 2026 – September 2029, and the consumer savings during the service term are anticipated to be in the region of £170m (This figure is tentative and subject to change depending upon the generation background driving the constraint and system conditions).

Q&A and Next Steps



Next Steps

Storage Behind Constraints

- The options consultation document, which industry stakeholders will be able to contribute to, will be published on Storage Behind Constraints webpage. For now, information on SBC can be found on our [Skips Rate Page](#), and the formal consultation will be published on the C9 Page

Short Term Constraint Management Market

- NESO will continue to assess pre-gate actions for non-BMUs, including expansion of DFS, as a market-based option to reduce constraint management costs for consumers before 2030

Extended Intertrip Scheme

- Over the coming months, NESO will focus on launching the next phase of tenders for Highland and Anglo-Scottish OTS schemes, expanding monitoring and stability-trip capabilities across key network boundaries, and delivering the enduring East Anglia OTS service

What next for CCP

- Through the RNP programme, we will continue to work on possible measures to reduce constraint volumes and costs
- We will always keep the door open for stakeholder input – if anyone wishes to get in touch, please contact us through box.market.dev@neso.energy



Thank you!

Please reach to
box.market.dev@neso.energy
for further engagement.