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Demand Flexibility Service (DFS)

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Contents

Foreword	3
Executive Summary.....	3
What is DFS	4
Key Statistics – Winter 24/25 Summary	5
Core Changes & Developments	6
Delivery Summary – Procured vs Delivered Volumes.....	9
Delivery Insights.....	12
Financial Summary	16
Estimated Carbon Savings.....	19
Audit	20
Get in touch.....	21

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Foreword

This report provides insights into the Demand Flexibility Service (DFS) for the winter 2024/2025 period. Analysis covers the timeframe from Ofgem's approval on 21 November 2024 to 28 March 2025. This document has been produced to assist industry in understanding the uptake, performance, and lessons learned from the transition of DFS from a winter contingency enhanced action service to a merit-based margin tool.

Executive Summary

This year saw the transition of the Demand Flexibility Service from a winter-only enhanced action contingency service to an all-year-round merit-based margin tool and continues to be recognised as a world leading service for the promotion, access and growth of consumer led flexibility.

The evolved service design went live on 27 November 2024 following approval from Ofgem. The service quickly gained momentum, with 28 providers registering 1.98m MPANs by the end of March 2025.

During this winter period NESO received 10,983.5MWh of bids, with 5,449.6MWh accepted. This equates to a total of £1,223,312 tenders accepted. We paid out £943,983 for delivered volume. The forecasted savings of the DFS over winter through alternative balancing actions are £483,000. Overall, the DFS has proven to be an effective and competitive tool, setting the stage for continued growth of consumer led flexibility in the future.

Throughout the winter (27.11.24 – 28.03.25), 56 Service Requirements were published, covering 306 settlement periods (SP), with volume procured on 44 events covering 236 settlement periods. The 8 January saw both the highest cumulative volume procured (746.6MW) and the highest accepted bid price (£1,290/MWh). The highest volume for a single settlement period was 196 MW on 12 March 2025.

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Alongside economic value the DFS provides a low carbon approach during delivery periods which typically experience higher carbon intensity. Calculated against the NESO Carbon Intensity dashboard DFS has contributed to an estimated 627 tonnes of CO₂ saved over winter against alternative actions during the times of delivery.

What is DFS

DFS was introduced during the winter of 2022/2023 as part of our winter contingency toolkit. The initial objective was to function as an enhanced action, in addition to the normal balancing services, accessing additional megawatts (MW) during times of high national demand, particularly on days when the system could foresee challenging margin conditions.

DFS has been viewed as a pioneering initiative around the world, enabling households and businesses to join a flexibility market with more accessible parameters than established markets. The service received industry recognition, winning the Whole Energy System Innovation category at the Green Energy Awards and the Net Zero Engagement category at the Utility Week Awards in 2023.

Our Winter Outlook report in 2024 highlighted forecasted system conditions were adequate and there was no longer a requirement for DFS as an exclusively enhanced action service. To maintain a route to market for the volume grown in DFS, particularly manual flexibility, NESO completed a European Balancing Regulations (EBR) Article 18 consultation to update the DFS contract terms and evolve it from an enhanced action service to a merit-based margin tool. DFS has continued to be utilised in supporting positive margin actions, increasing market access for consumer led flexibility whilst reducing balancing spend. As part of this approval process Ofgem also granted a derogation allowing the service to be utilised all year round until 31 March 2027.

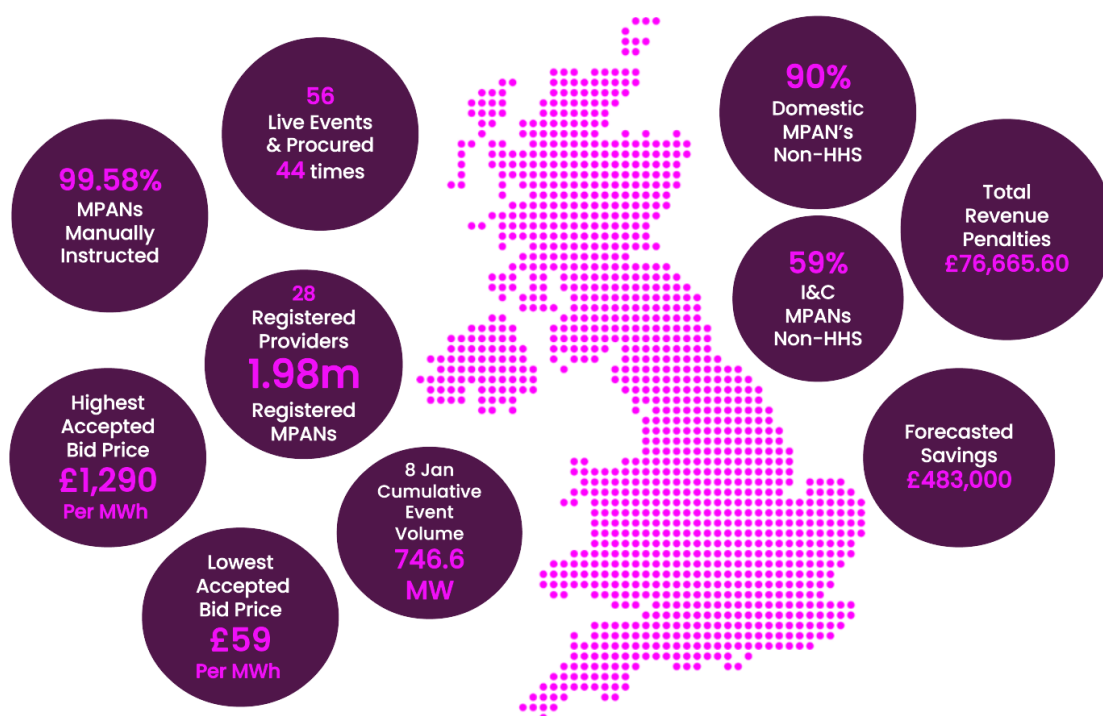
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Key Statistics – Winter 24/25 Summary

£1,233,312 Total Accepted Bids

Total MW Accepted **10,899.1MW**

196MW Peak SP volume



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Core Changes & Developments

As part of our service evolution NESO undertook significant engagement with the market. Through industry webinars, workshops, 1-2-1 meetings and calls for input NESO were able to successfully accommodate several of the key issues prioritised by industry in evolving the service. The formal EBR Article 18 Consultation saw over 110 pages of feedback from industry on the proposed changes highlighting the level of engagement and interest from the market around the service and its role in supporting flexibility moving forward. Below outlines the core changes which were made to the service alongside some insights into their uptake and impact.

Stacking:

Stacking was identified as one of the top ranked priorities for NESO to address in developing the service. NESO were pleased to be able to facilitate stacking with all the core DNO Flexibility Services in addition to the Capacity Market (CM), Local Constraints Market (LCM) and several other trial areas such as Crowdflex. The full list of services is updated [here](#).

The new stacking rules have successfully boosted additional revenue streams for consumer propositions, with 10 providers now stacking MPANs with both the CM (11,936) and LCM (3,114). It has been challenging to determine the level of uptake with regards to stacking explicitly with DNO markets, but we anticipate as data sharing and DNO co-ordination develops, this should improve. There is a strong and optimistic expectation that stacking will continue to flourish as the service matures and providers integrate their assets into additional services compatible with the DFS.

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Bidding Process & Rules:

NESO removed the day ahead procurement option to support our ambition to move as close to real time procurement as possible aligning to a compliant product. This change has been successful from an operational perspective as we have much greater certainty when publishing Service Requirements within day than the previous option of day ahead. We have not issued any Anticipated Service Requirement Notices throughout the winter, and this has not had any impact on bids or participation and has simplified the process.

The updated Service Terms and Procurement Rules maintained the minimum bid requirement of 1MW but introduced the flexibility to allow bid volumes in MWs to one decimal place. This change has been heavily adopted by the market, and we have seen a considerable number of bids utilise the decimal bidding capability.

NESO introduced enhanced API capabilities to support those providers who sought to further automate their processes around bidding and data sharing. The API enhancements have been very well received, with 8 providers now successfully utilising the capability. Although there were some initial challenges with a couple of providers, the feedback has been overwhelmingly positive, particularly regarding the team's prompt availability to address any issues. From a technical standpoint increasing the refresh times from 3 seconds to 30 seconds has effectively eliminated any further file submission issues.

This year's rule change, allowing only one MPAN per unit, has been highly effective in reducing MPAN duplication queries. As a result, NESO have had no direct consumer queries regarding the registration of their MPAN, showcasing the success of this change.

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An additional obligation on providers under the updated rules was to share increased data granularity with NESO. This has been particularly beneficial in supporting NESO analysis of both provider behaviour and offering greater insights into the operational mechanics of delivering the service. NESO having default submission of all opt in MPANs per event has allowed us alongside provider 1-2-1 calls to have a much greater level of insight into the challenges experienced where delivery has varied from bid values.

NESO have been working with providers who initially faced challenges with their volume deliveries. These challenges were due to a combination of understanding the asset portfolio against their forecasts and the manual nature of the assets. The frequent use of DFS during winter made it challenging for some parties to establish an accurate baseline early in the season. However, forecasts have since improved, and many asset portfolios have adjusted their volume forecasts dynamically as they learn more about their performance.

The Service Terms and Procurement Rules retained the concept of test events and Guaranteed Acceptance Price, but neither were issued during the winter period.

The removal of the requirement for an asset meter to be associated with a HHS boundary meter led to a significant increase in asset meter registrations, from 72 last winter to 5,894 this year. NESO are pleased to see this rule change has supported parties' ambition to utilise asset meter participation.

Performance Incentives:

NESO introduced a new set of performance bounds which sought to ensure the service had the right performance incentives and controls to demonstrate value for money and drive the correct provider behaviour. These were broadly well received by industry, and

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NESO have had regular positive feedback on their intentions and impact to those parties when performance has slipped.

Overall, NESO have applied £76,665.60 worth of penalties from the new performance structure through the winter period. NESO has seen cases where units delivered under 25% of contracted value and above 120% of contracted value. In both cases the new payment structure has come into force impacting payment values. All accepted units have had the performance calculations applied to their delivery.

Delivery Summary – Procured vs Delivered Volumes

In total NESO published 56 Service Requirements across the winter period. This presented over 306 SP's for the market to secure volume. Of the 56 Service Requirements NESO secured volume for 44 of these events. The total volume bid during the winter period was 21,677 MW with roughly 50% being accepted totalling 10,842 MW.

Overall, delivered volumes have continued to grow throughout the winter season aligning with the continued increase in the number of MPAN's being registered across the provider base.

Of the top 15 Service Requirements by volume secured; bid vs delivery was at an 81% accuracy rate. In contrast across our 15 Service Requirements where the lowest volumes were secured the delivery rate reduced to 60%. The 15 highest events accounted for a total of 74% of the total delivered volume over winter. Overall, NESO can see that where we have greater participation and successful bids there is a positive correlation to the improved performance of the service. This indicates that the service has greater resilience when a larger number of MPANs successfully participate showing the benefits

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of lots of small actions participating under the service with regards to its resilience around performance. NESO will continue to monitor this trend and further analysis into performance is being carried out through our ongoing audit process for the winter delivery period.

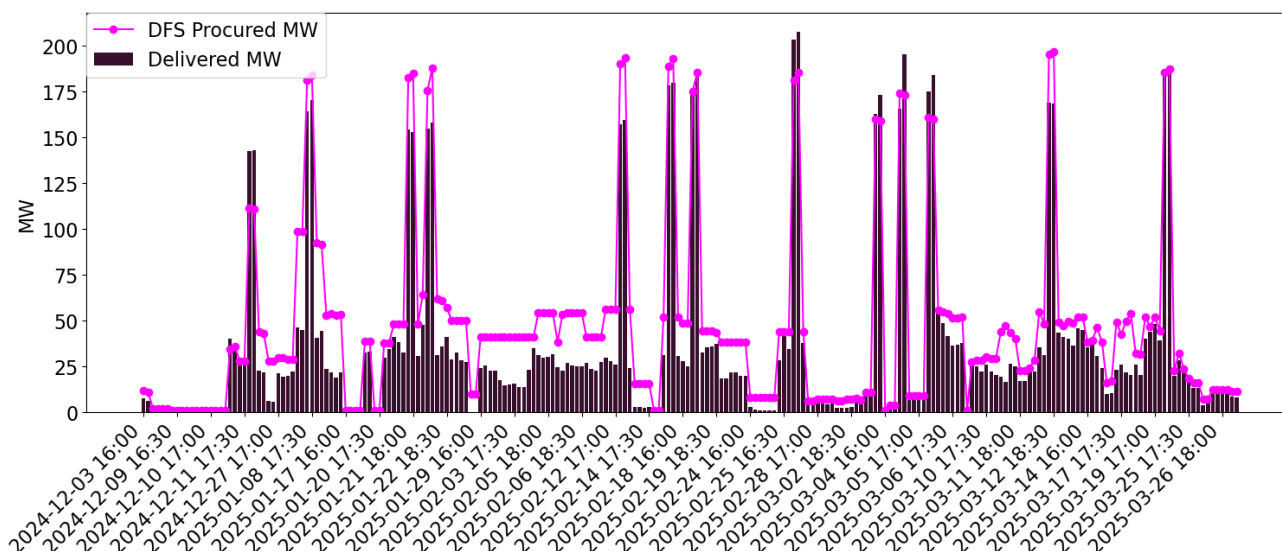
The below table provides a total summary of all delivery for each month of operation.

Month	Number of Events	Bid Volume MWh	Delivered Volume MWh	Accuracy % of delivered vs bid volume
December	6	326.5	244.8	66.69%
January	8	1335.6	865.6	64.81%
February	13	1839	1206.9	65.63%
March	17	1948.6	1600.5	82.14%
Total	44	5449.6	3917.7	71.90%

Whilst NESO do not publish individual unit performance data for DFS, NESO have conducted detailed discussions with providers who have impacted overall delivery accuracy of the service. Whilst it is not possible to share the provider specific circumstances NESO do have a greater appreciation around the challenges for providers as they evolve their capabilities around forecasting for bidding purposes and the logistical challenges both physically and from a software perspective around manually initiated flexibility. Overall, NESO are encouraged by the additional measures and preventative steps introduced by the provider base as they continue to learn and improve operating flexibility under the DFS. DFS continues to be dominated by manual flexibility with over 99% of the registered MPANs being categorised as manually initiated.

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The chart below shows the percentage of delivered volume for all events over the winter period.



Non-working days Service Requirements:

Over winter NESO issued 6 Service Requirements on non-working days, all of which fell on a Sunday. Participation was low for all events, 3 providers bid into 3 events, 2 providers bid into 1 event and only 1 provider bid into the other 2 events. Total volume bid for the 6 events was 436.4MW and NESO only procured 27.2MW for one of the events. Feedback from providers have mentioned resource and additional costs in standing up a team being the main factors in not participating on non-working days. As we look to expand the capability of the service to bi-directional this is something we will need to engage further with industry.

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Delivery Insights

This winter NESO have seen roughly a 60/40 split in delivery volumes between domestic and industrial and commercial (I&C) consumers. Overall, I&C units have secured the most regular acceptances across all events. The majority of I&C volumes have come from low carbon generation in the Energy From Waste sector. For domestic participation small manual actions continue to dominate delivery. The charts below show the average MPAN delivering (kW) each month over winter for domestic and industrial & commercial participants.

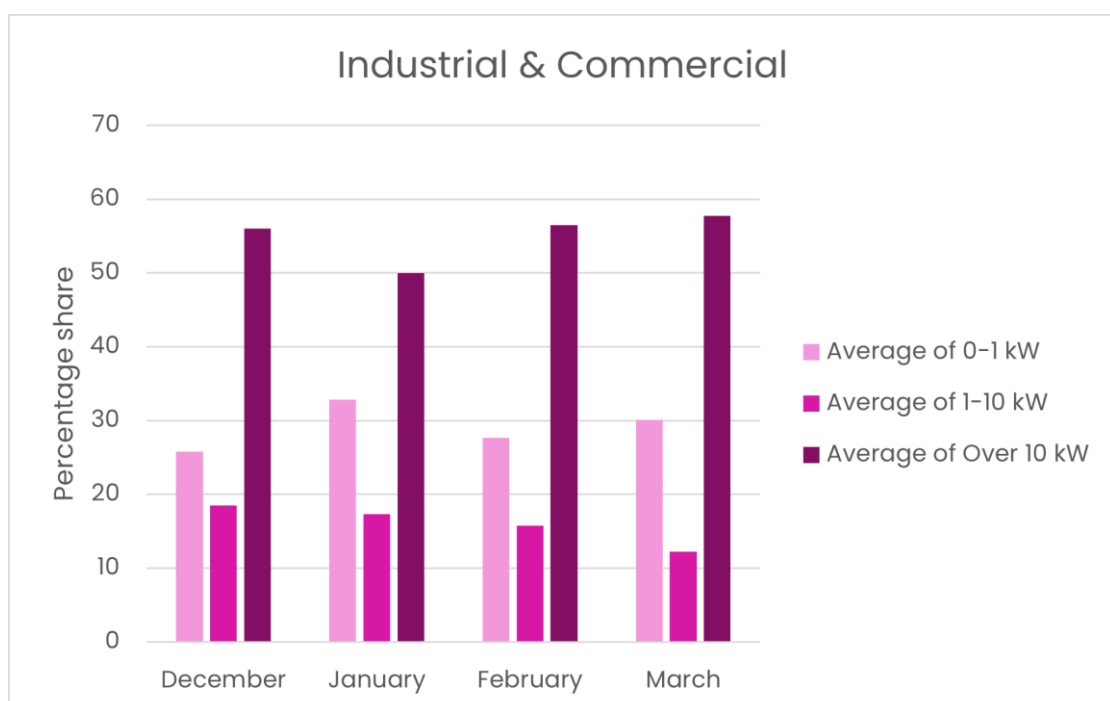
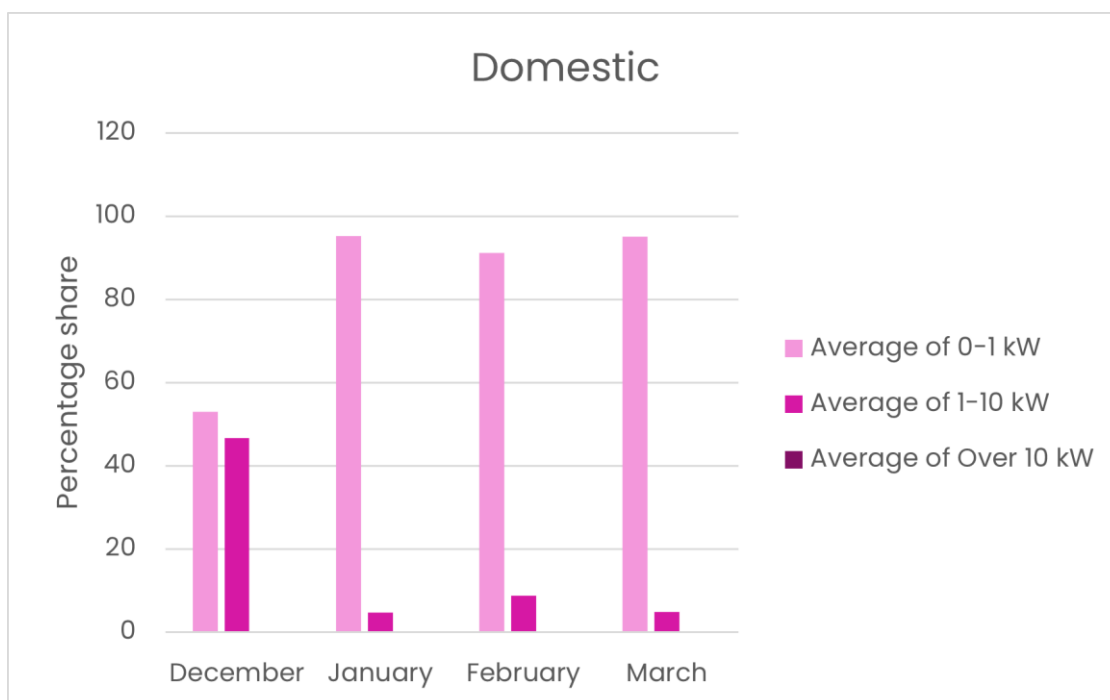
Domestic Delivery:

- 91% of delivery was below 1kW, and 9% between 1kW and 10kW. These figures are consistent with previous winters.

I&C Delivery:

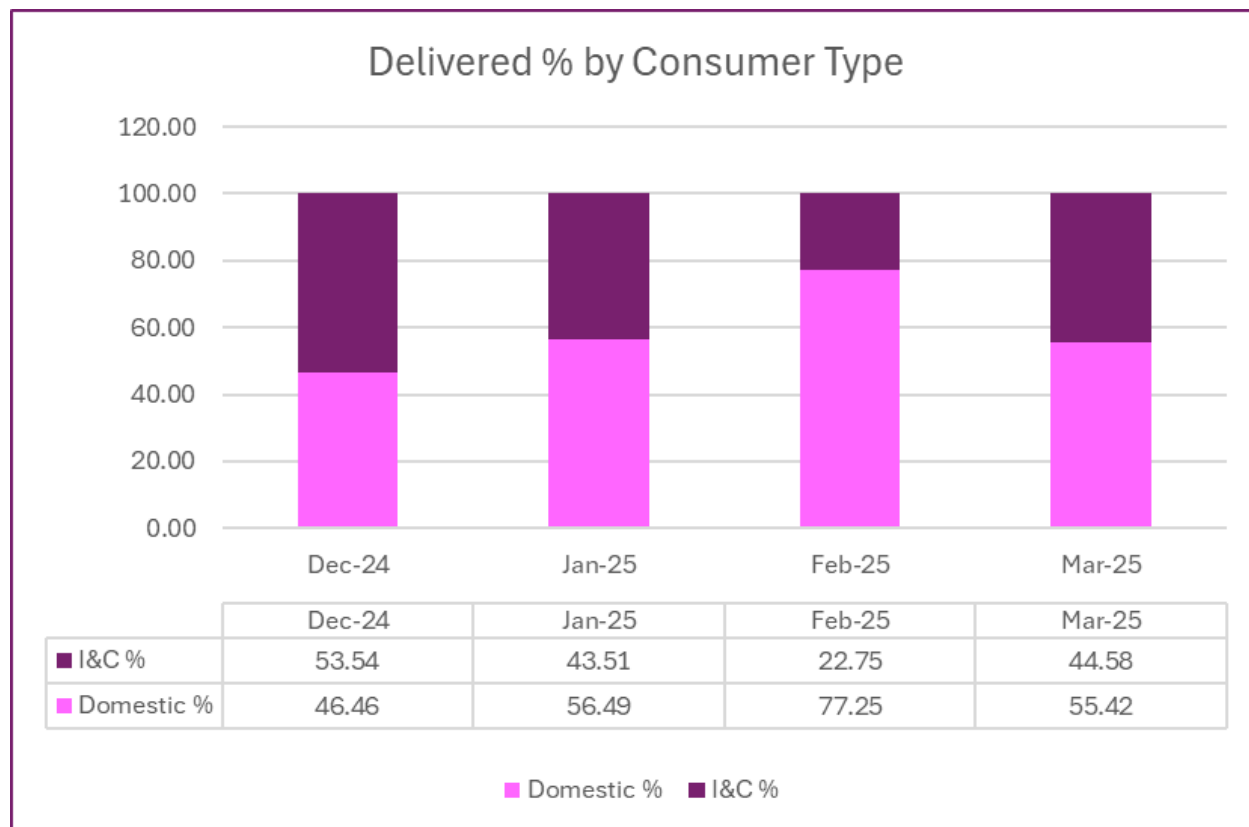
- 29% of delivery was below 1kW, compared to 38% last winter.
- 15% of delivery was between 1kW and 10kW, down from 35% last winter.
- 56% of delivery was over 10kW, significantly up from 27% last winter. We believe this to be a combination of attracting new volume from the rule changes and parties becoming more confident and adding additional sites and volumes to their portfolio.

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The below chart shows the split between I&C and domestic consumers from overall delivered volumes by month. Delivery from domestic consumers peaked at 77% in February 2025, while maintaining around 47–57% in other months, last winter it averaged 70% with a peak also in February of 90%.



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The below table shows the top 10 events by MPAN participation levels, which also coincided with the 10 highest volumes accepted. 7 out of the 10 events saw prices accepted at £161 or less indicating a strong appetite for consumer participation at competitive pricing. The average delivery across these 10 events was 81.93%, showcasing the benefit of having delivery from a large pool of small resources on a services reliability. It is interesting to observe that only 2 of the 5 highest accepted bid priced events featured in the highest participation ranked events. These high participation numbers appear to indicate that consumers appetite to participate and engage are not wholly financially driven.

Event Date	Total MPANs Participated	Lowest Accepted Bid	Highest Accepted Bid	Total MWs Bid
8 Jan 25	361,102	£300	£1,290	746.6
22 Jan 25	327,505	£340	£740	607.7
12 Feb 25	383,379	£120	£160	609.1
18 Feb 25	399,700	£110	£160	458.3
25 Feb 25	427,620	£104	£160	542.3
3 Mar 25	419,917	£105	£161	354.9
4 Mar 25	412,237	£115	£160	355.8
5 Mar 25	428,855	£130	£160	357.8
12 Mar 25	429,451	£100	£160	548.2
19 Mar 25	443,224	£101	£200	568.5

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Financial Summary

In total over the winter period 24/25 NESO accepted bids to a value of £1,233,312, with performance monitoring withholding payments to a value of £76,665. NESO total settled spend for the period was £943,983.

As part of the service development work in moving to a merit-based margin structure NESO were often asked about the forecasted opportunity cost of participating in the service or how many times we estimated we would be issuing requirements. Now that the first winter season has concluded NESO have been able to provide greater insights into the commercials of the service. In total we issued a Service Requirement on 56 days covering 306 settlement periods.

Through the assessment of tenders, we have calculated estimated savings of £483,000 for the winter period since go live on 21 November 2024. These savings are based against the forecasted alternative costs at the time of the assessment for each Service Requirement and corresponding bids.

With the DFS operating as a commercial market, we have seen a breadth of bid strategies from providers, and we are encouraged to see several providers continually adjust and update their bid prices to be reflective of market conditions. The highest accepted bid price was for £1,290/MWh on 8th January 2025 for the periods 18:00 – 19:00. Overall, the average accepted bid price across all accepted bids was £210/MWh. The lowest accepted bid price was £59 on 27 December 2024 for 1MW covering 1 SP.

The 5 highest prices cleared over separate winter days were £1,290, £750, £740, £575 and £572 per MWh. Over the 56 live events during winter, NESO procured volume for 236 settlement periods.

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NESO publish all accepted and rejected bids for all published Service Requirements. However, NESO recognise that this data can be a challenge to review for parties new to the flexibility space and therefore we have sought to present several revenue scenarios based on the winter 24/25 season out turned data. It is important to note that these have been created to act as a guide and are not indicative of future year revenue as these are based off the system and market conditions from the winter 24/25 period. Following the scenarios important caveats and assumptions have been flagged, but NESO hope this information is helpful in providing some indicative guidance around revenue for industries and parties considering entering the flexibility space.

The following scenarios assume a single DFS unit with **1 MW** of flexibility that meets the DFS service requirements. Data is based on the period 27 November 2024 – 28 March 2025. For each scenario there also ranges identified based on the accepted bid pricing for high, average and low.

Scenario 1:

Revenue from full participation across all DFS Service Requirements and for the full SP's published.

Scenario 2:

Revenue from participation in one hour per DFS Service Requirement.

Scenario 3:

Revenue from participation in the 40 highest accepted priced periods during DFS Service Requirements.

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	Scenario 1	Scenario 2	Scenario 3
Number of SPs	306	112	40
High (based on Breakpoints)	£ 33,560*	£ 12,477	£ 13,726
High (based on highest accepted Bid)	£ 25,609*	£ 10,166	£ 12,337
Average (based on mean accepted bid)	£ 21,009	£ 7,558	
Low (lowest accepted bid)	£ 17,918	£3,142	

In a fourth scenario where NESO were able to successfully secure the full published volume for all Service Requirements at NESO's cut off assessment values (breakpoints) it is estimated a theoretical total spend of £15.7m on the service for the winter period.

Assumptions & Caveats:

- For days where no volume was procured, we have used our internal assessment values which were used for the tender and applied a % de rating to determine a median and low range for those events based off successful tenders where volume was secured. *
- The scenarios are for a reduced winter period as the service was approved by the regulator on 21 November 2024. We acknowledge Service Requirements during the shoulder season and after clock change, in advance of 21 November would likely have been present which may increase the opportunity periods in the future.
- The above values do not consider any additional stacked revenue streams. We recognise that stacking is vital to the industry and suggest considering additional availability payments through avenues like the Capacity Market, DNO services,

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TRIADs, or other revenue options when considering any commercial analysis. We have provided a table below of some of the latest CM data to further represent the stacking potential. CM figures assume perfect delivery and have not applied any associated performance adjustments for poor delivery.

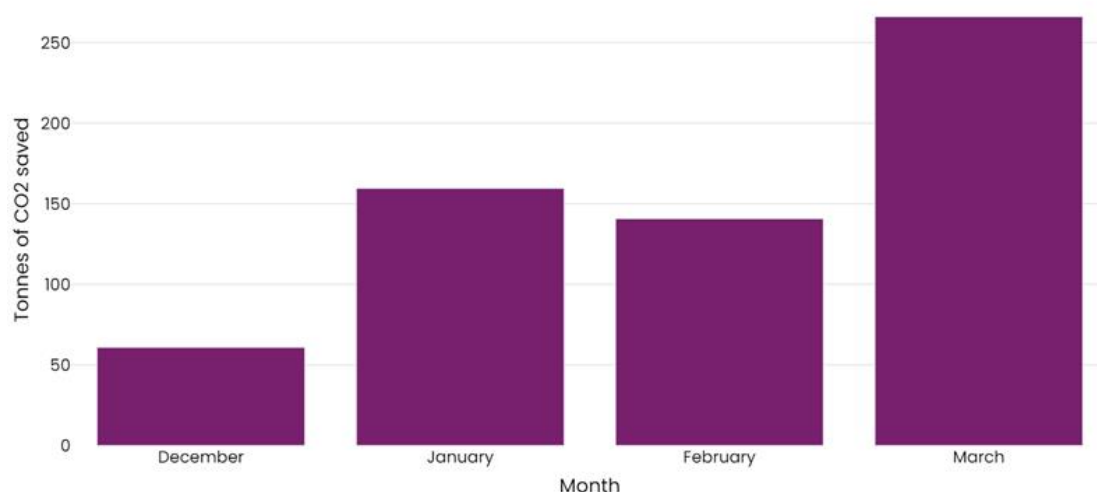
Recent Capacity Market (CM) Clearing Prices			
Year	Type	Cleared £/kW	1MW
2023/2024	T-1	£35.79	£35,790
2023/2024	T-4	£65.00	£65,000
2024/2025	T-1	£20.00	£20,000
2024/2025	T-4	£60.00	£60,000

Estimated Carbon Savings

A recognised advantage to consumer led flexibility is the benefits it can bring towards Net Zero ambitions and Clean Power 2030. DFS has predominantly been used during peak demand periods when the system is generally operating at a higher carbon intensity.

Utilising the NESO Carbon Intensity dashboard NESO have sought to provide an estimate for the associated tonnes of CO₂ saved against the carbon intensity values published for the Service Requirement delivery periods totalling 626.79* tonnes of CO₂ saved across the winter.

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** Carbon intensity is calculated in tonnes of CO2 per MWh generated and these are estimated volumes. We acknowledge that a large share of the I&C volume is currently delivering from Landfill Gas power plants currently classified as renewable, burning biomethane.*

Audit

In accordance with our Service Terms, NESO are currently conducting an audit for several delivery periods during the winter 24/25 season. This data will enable us to examine several topics more comprehensively and obtain additional insights regarding demand flexibility from both performance and effectiveness perspectives. We are currently requesting additional data from the registered providers for a selection of

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events. NESO will share any additional findings or improvement opportunities through our DFS webpage.

Get in touch

If you are interested in learning more about the Demand Flexibility Service or have any questions or queries, please contact the team: demandflexibility@neso.energy

Useful Links:

[DFS Website](#)

[DFS Data Portal](#)

[DFS Participation Guidance Document](#)