

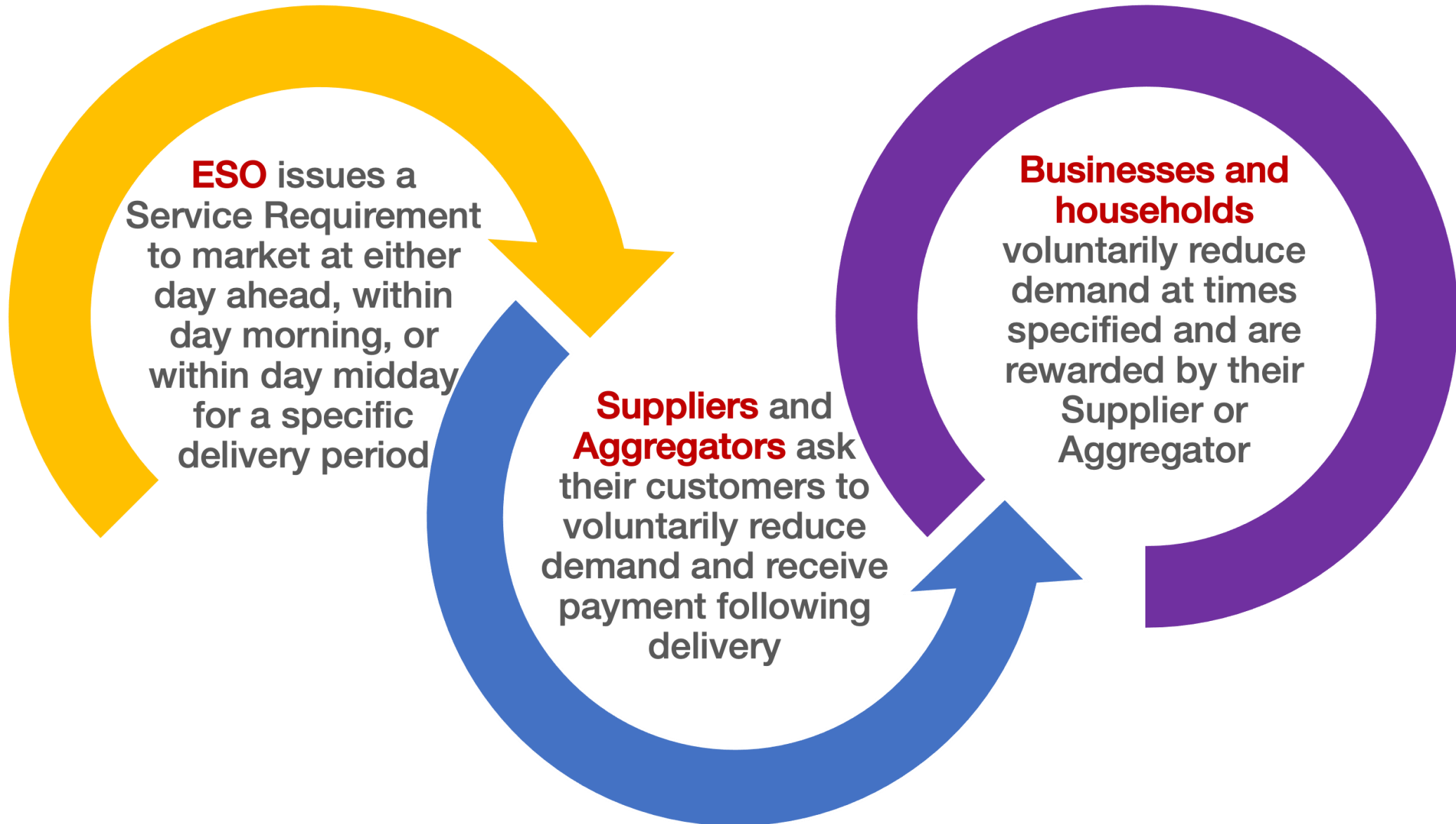


Demand Flexibility Service

EMEX 2023

James Kerr, Power Responsive Engagement Lead, ESO

How does DFS work?



Demand Flexibility Service 2022/23

2

Live events

20

onboarding
& regular
Tests

c.350

MW
contracted
capacity

>3.3

GWh
delivered

31

DFS
approved
providers

Over

1.6

million
reach

83%

likely or
extremely
likely to take
part again



Demand Flexibility Service 2023/24

- The ESO expects to run 11 more test events between November 2023 and March 2024.
- The Guaranteed Acceptance Price (GAP) for the first 6 tests will be set at £3,000/MWh.
- DFS test events will be competitive from January 2024 onwards if total de-rated Indicative Forecast Volumes surpass a 1.25GW threshold.
- Should the 1.25GW threshold not be surpassed, tests will continue to be underpinned by a GAP of £3,000/MWh

Guaranteed
Acceptance Price
(GAP)
£3,000/MWh
for at least 5
more test events

For further information please visit the DFS section of our [website](#).

We want to understand more about your ability to participate in balancing services



Power Responsive
Industrial & Commercial
Survey 2023



FlexiGrid

DFS with SMS

Demand Flexibility Service (DFS) – Structure



FlexiGrid DFS Service

How it works

We collect consented data from users' smart meters who are opted-in to the scheme via our data platform, **n3rgy**. Using this consumption data, we then utilise our intelligent aggregation software, **FlexiGrid**, to calculate actual demand reduction during DFS events, allowing you to pass on rewards to your customers.

Settlement

Data provided in a timely manner at aggregated and individual levels.

Baselining

Ongoing calculations to determine available volumes for forecasting, bidding and settlement purposes.

Bidding

SMS pricing models based on market analysis and proxy data points.

Forecasting

Indicative forecasts weekly and day ahead for volumes and pricing.



Recruitment Email (Sent by Client)



EnergyCo
To: Jane Doe <jane.doe@gmail.com>
From: EnergyCo <DFS@energyco.co.uk>



Register now to take part in our Demand Flexibility Service

Hello!

The Demand Flexibility Service (DFS) is a new scheme delivered in partnership with National Grid ESO to encourage homes and businesses to reduce their electricity demand at peak times of the day. By taking part, you'll not only help support the stability and security of our national electricity system, but you'll also have the chance to earn rewards, and lower your carbon footprint, too.

Have a look at our [Frequently Asked Questions](#) page to see how much you could benefit by taking part in DFS.

[Register for the Demand Flexibility Service](#)

Thanks!

SMS provides
"magic link"
per customer

Customer Sign-Up

Customised URL – www.name.demandflexibility.co.uk

New Tab
www.energyco.demandflexibility.co.uk

EnergyCo Client Logo Here

Ready to reduce your electricity demand and earn rewards?

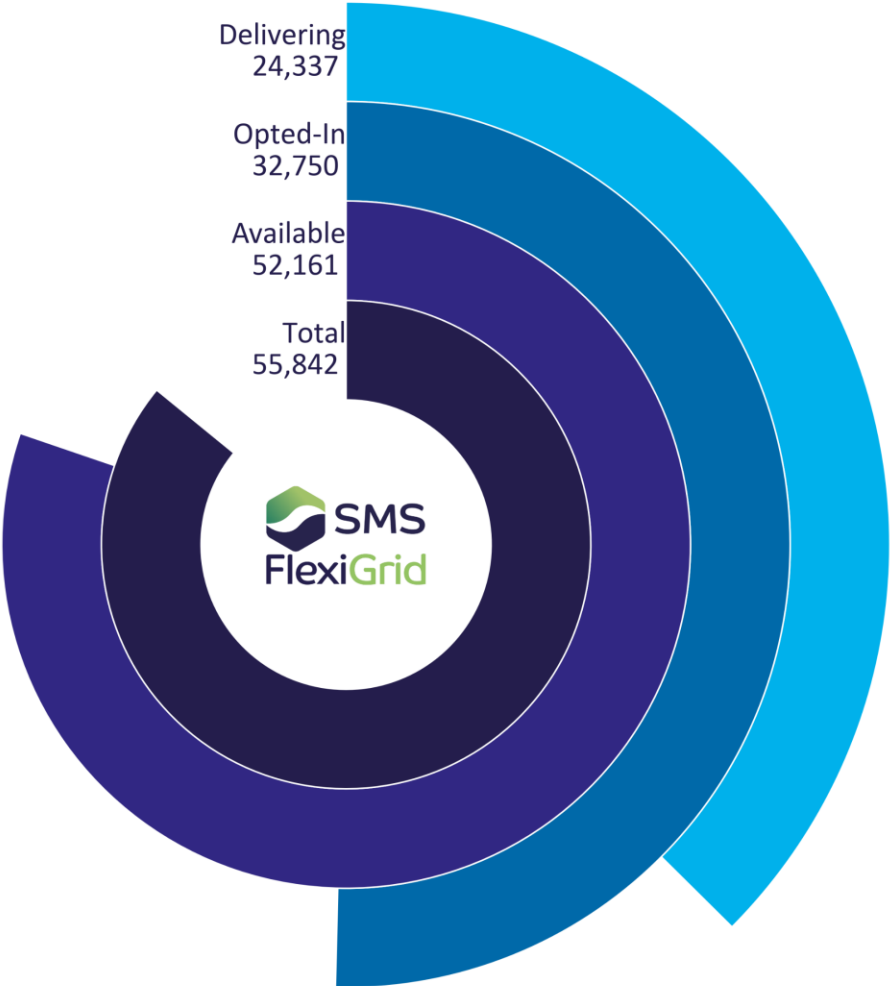
By taking part, you'll not only help support the stability of the national electricity system, but you will also have the chance to earn rewards, and lower your carbon footprint, too!

Sign me up to the Demand Flexibility Service

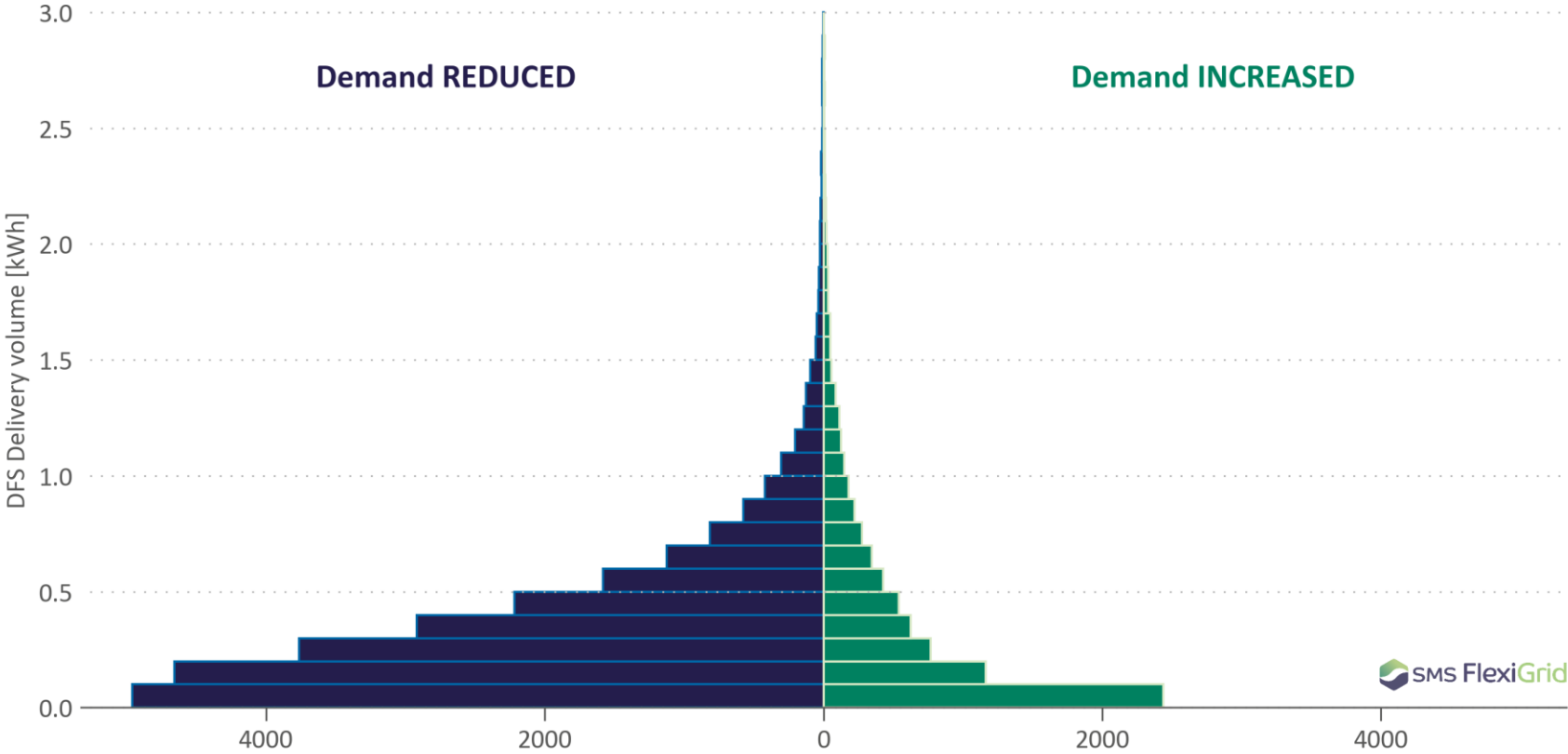
Sign-up needs to be completed within two hours.
Any questions? Have a look at our [Frequently Asked Questions](#).

Colour customised to client brand

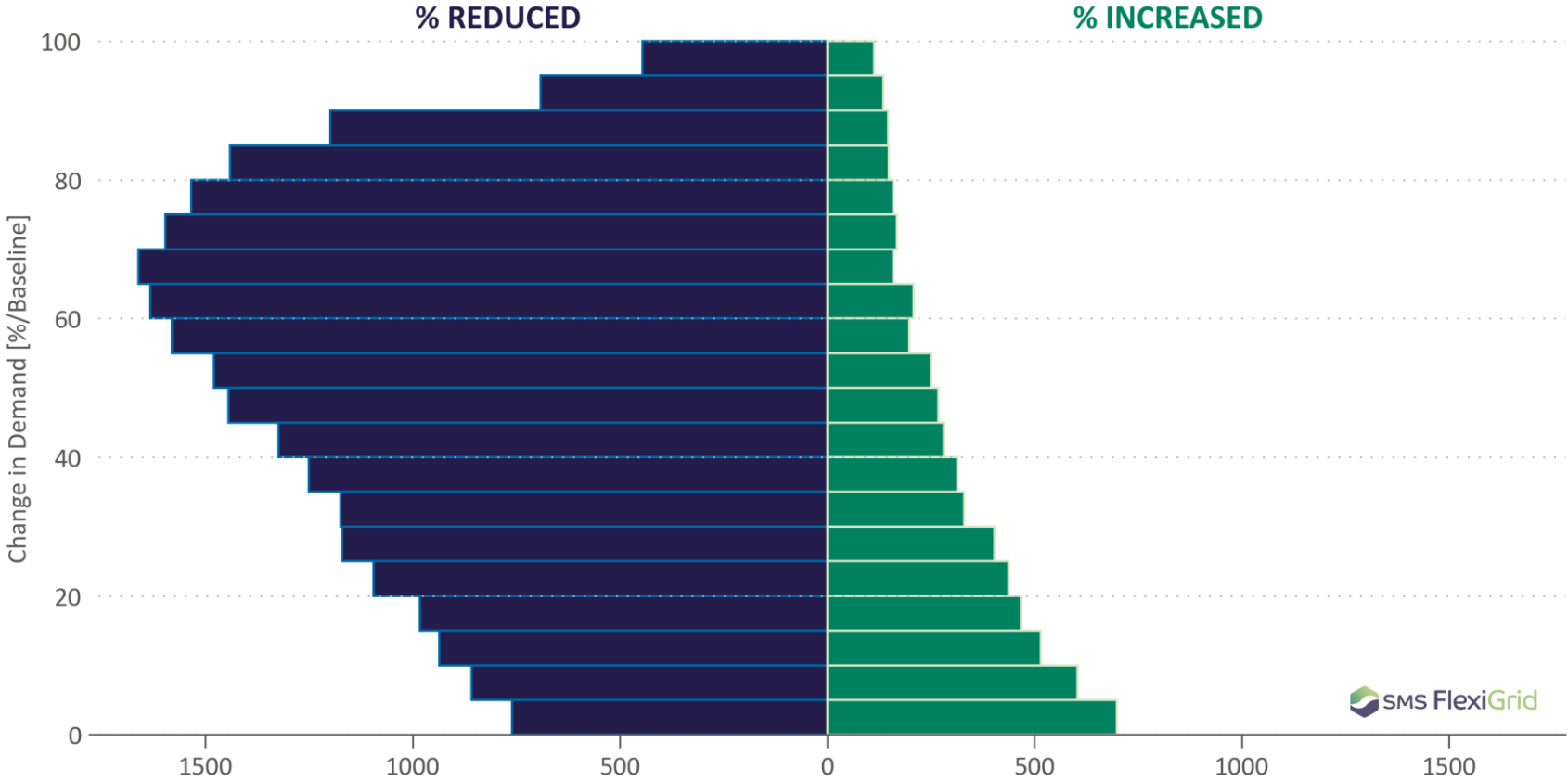
MPANs participating in DFS - 16 Nov 2023



DFS ACTIONS - 16 Nov 2023: No. of Customers kWh Change in Demand relative to Baseline Demand



DFS ACTIONS - 16 Nov 2023: No. of Customers % Change in Demand relative to Baseline Demand





FLEXITRICITY & FLEXIBILITY

23rd November 2023

PRESENTED BY
Matt Cooper – Head of Business Development

About Flexitricity

- First **demand response aggregator in GB**
- First energy supplier to bring a DSR asset into the **Balancing Mechanism; first VLP trade**
- **Tens of thousands** of demand response events; over 950MW of capacity contracted
- **24-hour** operations
- Fully **automated**
- <1 s to 30m response
- Flexible load, CHP, hydro, energy storage, UPS, standby
- **Positive and negative reserve**
- Industrial, commercial, public sector, utilities, heat networks, investors and developers



Market Participation

- Licensed Power & Gas supplier
 - Day-ahead (N2EX and EPEX)
 - Intraday (N2EX and EPEX)
 - M7 Continuous
- Balancing Mechanism (BM), as both an Energy Supplier and a Virtual Lead Party (VLP)
- Frequency Response, including month-ahead Firm Frequency Response (FFR) and the day-ahead Dynamic Containment (DC), Dynamic Moderation (DR) and Dynamic Regulation (DR) products
- DNO/DSO services
- Triad management
- Capacity Market management, if required, and
- NIV-chasing.

Dynamic Flexibility Service

Findings

- Negatives
 - ...to be honest it's been a bit of a mixed bag!
 - Very manual process
 - Capacity Market was a major blocker to I&C participation
- Positives
 - Straight forward and relatively simple
 - Did bring in some new participants
 - Increased awareness of Flexibility

An enduring service?

Opportunities for I&C flexibility

NOW

- Winter Demand Flexibility Service
 - Runs to March 2023
 - Reduce load/increase generation for ~1 hr over the evening peak on day-ahead notification
 - Utilisation payment of at least £3/kWh (£3,000/MWh)
- Capacity Market
 - Underpins GB security of supply, Availability payment set by annual auctions
 - Reduce load/increase generation in response to (rare!) system stress events
 - Demonstrate capacity over three separate half hours during winter
- Balancing Mechanism Wider Access
 - Real-time balancing of supply and demand by NGESO
 - Increase or decrease load or generation in response to balancing requirements (through registered VLP)
 - Utilisation payment can be optimised

COMING...

- Reserve Reform
 - Current Short Term Operating Reserve requires availability commitment for morning and evening peak
 - New Reserve products, Quick and Slow reserve, could be procured every two hours
- P415: Wholesale Market
 - Code mod raised by Enel X
 - Allows VLPs to trade behind-the-meter flexibility in wholesale markets
 - P375 raised by Flexitricity allows behind-the-meter assets to be metered for settlement

Participation checklist

- What assets do I have and how can they be flexible?
- What availability do those assets have for turn up / turn down?
- Standby generation must comply with emissions limits set out in Medium Combustion Plant Directive
- Revenue and metering requirements – it depends on the assets, it depends on the service... speak to an aggregator
- Is the aggregator a member of the Flex Assure scheme?



**Thank you for
your time!**



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The Flexible Energy Experts



Demand Flexibility Service as a Key Enabler of a Flexible Future.

Flo Silver – DSO transition lead

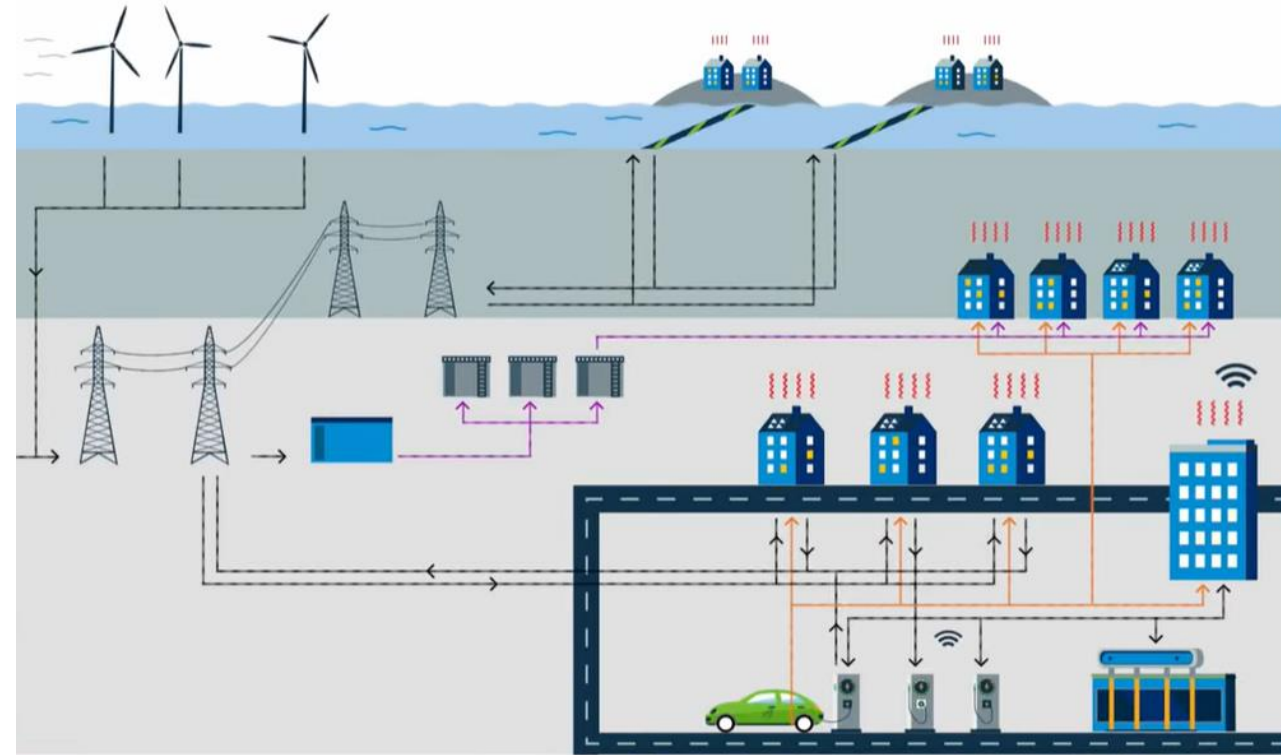
Experience of DFS Participation

- › Smarter Grid Solutions registered to take part in last winter's DFS.
- › The aim was to use Mitsubishi heat pumps.
- › Communication with National Grid ESO was quick and straight forward and getting registered to receive service requests was simple.
- › Settlement data was a challenge for us.
- › Responses stayed strong throughout the trials.



DFS: a Flexibility Key Enabler

- › Existing focus of flexibility has been for DNOs avoiding or deferring reinforcement of their network.
- › Important savings in the future come from:
 - › *Coupling demand to generation.*
 - › *Shifting demand peaks to avoid underutilised network being built.*
- › All these objectives build on domestic and LV asset participation in the energy system.



SGS View of Future Developments



More buyers of flex and more markets for domestic and LV assets. Suppliers becoming key buyers of flexibility, either directly from their customers or through aggregators.



Suppliers using domestic flexibility for profiling their positions in the BM and on other markets.



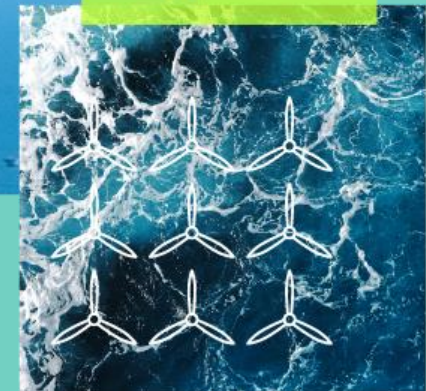
Social, physical and digital infrastructure of the energy system must be able to accommodate a far higher participation from domestic and LV assets.



Requirement to ensure space for those that want to actively engage, but also not to penalise those that do not want to actively take part.



Delivering Demand Flexibility Service



Ross Anderson

Control Room Engineer

Make a difference during peak demand

- DFS is open to any smart half-hourly metered energy consumer with an asset not in the balancing mechanism (BM) or capacity market.
- Any aggregator/supplier that is registered can be used by the customer.
- Any load size can be considered.



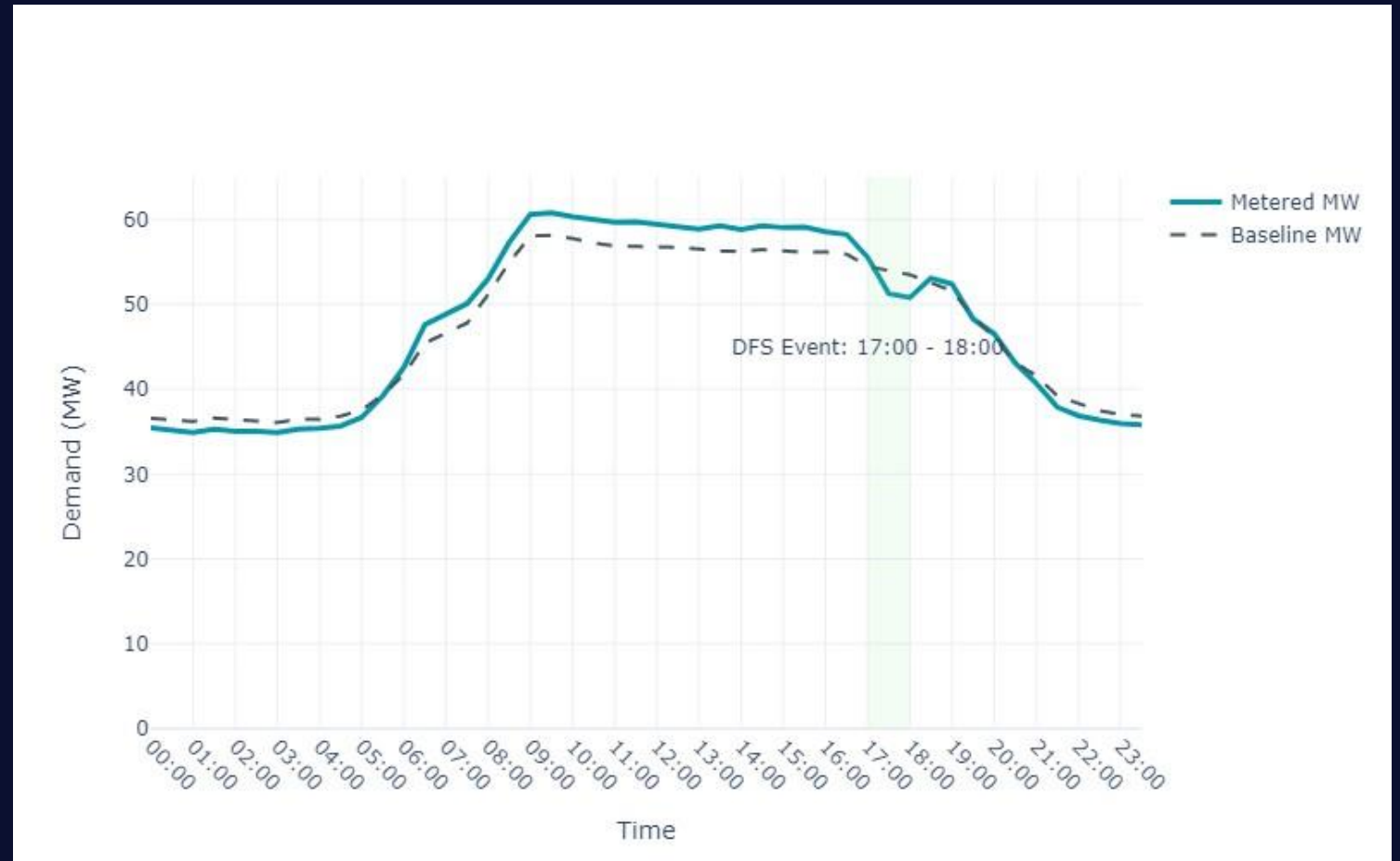
High demand at upmarket dept store

- Customer is able to deliver 1MW minimum load drop for a DFS event.
- They are a household name with one very large asset.
- Load drop is from the heating being turned off. There would be negligible differences in temperature over the hour so no detriment to customer experience.
- The customer had been carrying this out semi-regularly outside of DFS.
- 1.5MW actual load drop was measured. This will earn the customer £4,500 per hour at GAP of £3000/MWh.



Business as usual for high street supermarket

- Customer has 3x large assets that are able to deliver +1MW load drop by running on generators.
- 600 smaller sites could potentially deliver smaller load drops.
- Our Data and Analytics (DnA) team were able to determine the smaller load drops through test with the customer and found there to multiple MW drop.
- This has led to the customer developing a closer relationship with their energy usage and optimisation.



Battery powered estates

- Customer has multiple assets around the UK. Some of these assets had battery storage and solar panels on site.
- We confirmed that the batteries were non BMU/capacity market.
- The customer is able to charge the batteries using the solar panels and grid energy at low demand/cost times.
- They have effectively used low-cost electricity to make money through DFS.
- This has led to them investing further in batteries so they can optimise their energy costs throughout the year, and potentially provide larger load drops for DFS in subsequent years



Demand Flexibility Service Platform

- We had to develop a platform for DFS that had the needs of the customer first.
- The platform is easy to use, with the customer effectively only having to say “yes” to an opt-in notification then provide load drop at the stated time for DFS.
- The settlement process for DFS with ESO is easy to use and will allow money to be released to customers quickly.



Opportunity for growth

- DFS allows commercial and industrial energy consumers to make large amounts of money for their businesses.
- The system is easy to use for both suppliers/aggregators and customers.
- A side benefit of DFS is that it has helped some customers to look at their overall energy usage and optimisation throughout the year.
- Continuing the scheme in the future will allow additional businesses to realise their money-making potential through it and potentially invest in batteries, which will further help the grid during periods of high demand.

