Electricity Distribution

# DSO Electricity Futures Autumn Conference

## Unlocking the power of flexibility – a deep dive

14 October 2025


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# Charlotte Pirie

Stakeholder Experience Manager
Distribution System Operator

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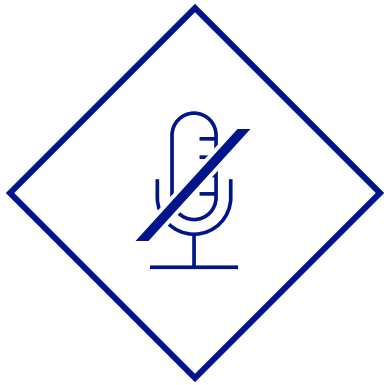
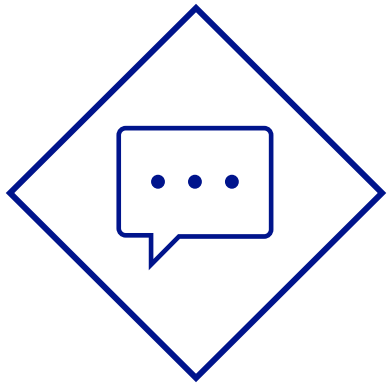
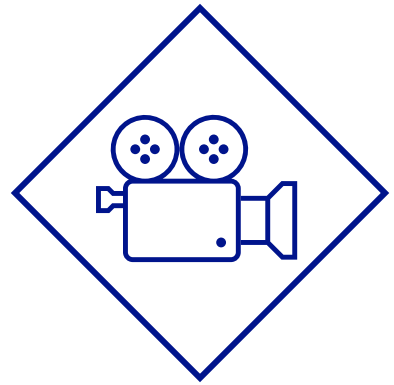
# Housekeeping



Please make sure your microphone is muted when not speaking



For questions or feedback, please raise your hand or use the Q&A/chat box



We are recording this session for sharing with our stakeholders

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# Agenda

**14.00 Welcome, housekeeping and session outline**

**14:10 Why Flexibility is needed, and defining our needs**
Products and dispatch decisions

**14:30 Performance Monitoring and Settlement**
Looking ahead – latest market insights

**10:45 Q&A**
Open forum

**10:55 Share your views**
Slido Poll

**Charlotte Pirie**
Stakeholder Experience Manager

**Helen Sawdon**
Head of DSO Operations

**Yingyi Wang**
Flexibility Commercial Manager

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# Getting to know you

It's important for us to understand your needs and how we support your involvement in flexibility.

**How familiar are you with Flexibility?**

**Have you participated in Flexibility before?**

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# Why Flexibility is needed


**Helen Sawdon**
Head of DSO Operations

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# Why we need Flexibility

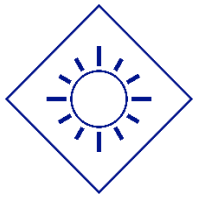
Five areas where Flexibility helps

## Keep the lights on reliably

Flexibility helps balance supply and demand, reducing the pressure on the network.


## Save money

By using existing capacity more efficiently, flexibility avoids costly and disruptive network upgrades.



## Support more renewable energy

Flexibility smooths out the peaks and troughs of wind and solar power, so we can rely less on fossil fuel backup.


## Cut carbon emissions

Shifting demand or exporting local generation, we can make better use of renewables and reduce emissions overall.

## Empower communities and customers

Flexibility turns consumers into active participants, giving people, businesses, and communities a chance to earn and contribute to Net Zero.

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# Defining our needs

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# How NGED forecasts and shapes needs (System Planning)

## Forecasting

The **Distribution Future Energy Scenarios (DFES)** identify how customers will use our energy in the future

## Network impact assessment

The **Network Development Plan (NDP)** uses forecasts to analyse and identify future network constraints

## Optioneering

The **Distribution Network Options Assessment (DNOA)** outlines how we plan to invest in our network to solve constraints

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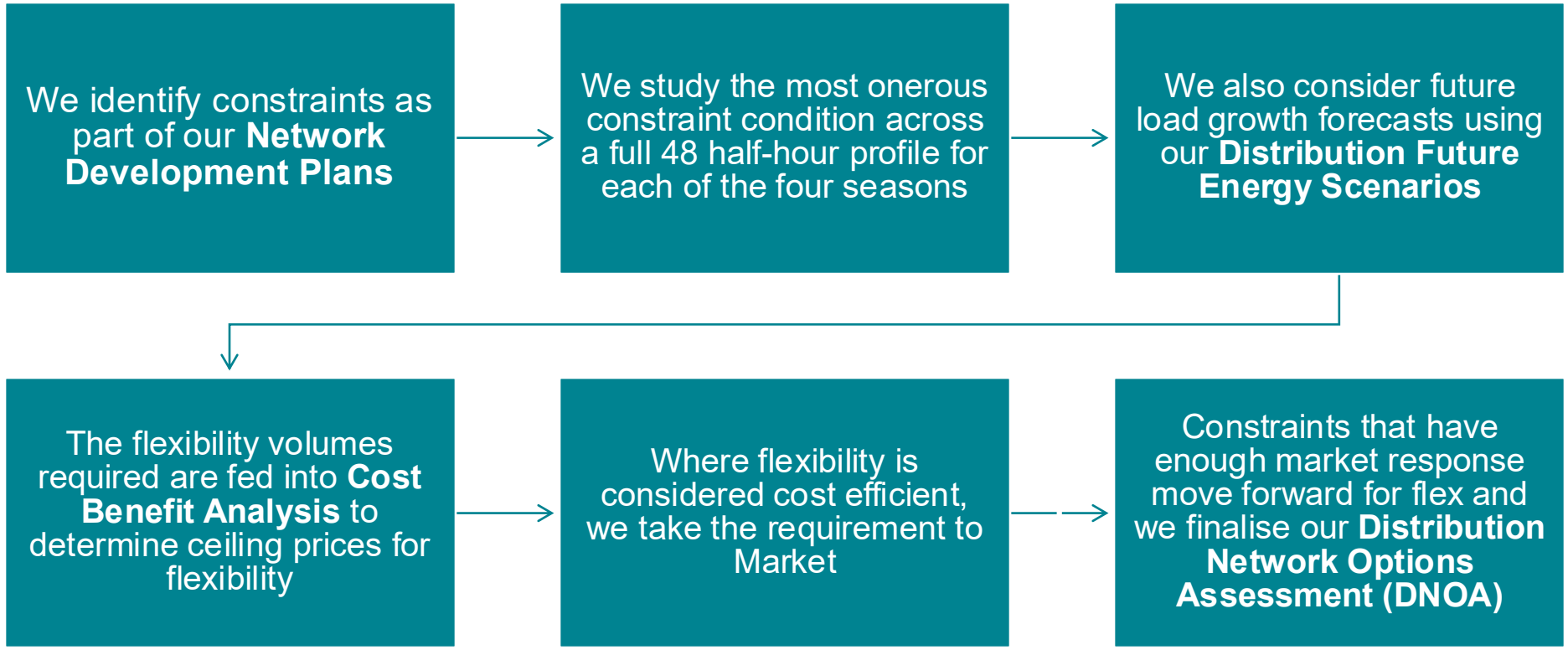
# How NGED forecasts and shapes needs (Flexibility Analysis)

**Our analysis determines whether flexibility is a viable option to resolves a constraint.**

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# SAOU

## Scheduled availability, Operational Utilisation

This service has been developed to support the network in the event of specific fault conditions, such as during maintenance work.

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# What we procure

| Service Required | Demand Turn Down/Generation Turn Up<br>Demand Turn Up/Generation Turn Down |
|---|---|
| Constraint Voltage Level | HV |
| Procurement Frequency | Yearly |
| Pricing Mechanic | Pay-as-clear |
| Payment Structure | Availability + Utilisation |
| Service Window | DSO defined |
| Metering Requirement | Minute by minute<br>or Half-hourly |
| Dispatch Instruction | Day ahead<br>or 15mins ahead of delivery start |

# SU

## Scheduled Utilisation

A scheduled constraint management service with fixed delivery periods.

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# What we procure

| | |
|---|---|
| Service Required | Demand Turn Down<br>Demand Turn Up |
| Constraint Voltage Level | HV+LV |
| Procurement Frequency | Yearly and Weekly |
| Pricing Mechanic | Pay-as-clear |
| Payment Structure | Utilisation only |
| Service Window | Utilisation; 4 x 4-hour windows;<br>Night: 00:00-04:00<br>Morning: 08:00-12:00<br>Afternoon: 12:00-16:00<br>Evening: 16:00-20:00 |
| Metering Requirement | Minute by minute<br>or Half-hourly |
| Dispatch Instruction | Day ahead<br>or 15mins ahead of delivery start |

# OU

## Operational Utilisation

This service supports power restoration following rare fault conditions.

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# What we procure

| | |
|---|---|
| Service Required | Demand Turn Down/ Generation Turn Up |
| Constraint Voltage Level | HV |
| Procurement Frequency | Yearly |
| Pricing Mechanic | Fixed premium price |
| Payment Structure | Utilisation only |
| Service Window | Availability; 3 x 8- hour windows: 00:00-08:00<br>08:00-16:00<br>16:00-24:00 |
| Metering Requirement | Minute by minute<br>or Half-hourly |
| Dispatch Instruction | 15min ahead of delivery |

# Operating Flexibility

We procure flexibility services across two main timeframes: our Long-Term flexibility market and our Short-Term flexibility market. These timeframes influence the operational decisions required to optimise the network;

**Long-Term Flexibility** – Year Ahead; Baseline needs, ensures certainty

**Short-Term Flexibility** – Week Ahead; Supplements Long-Term, responsive to real-time forecasts

| Product | Attributes | Procured | Utilisation Dispatch Decision |
|---|---|---|---|
| **SAOU**<br>Scheduled Availability, Operational Utilisation | Scheduled Availability, Utilisation Instructed day ahead | Long Term – Year Ahead | Day Ahead Notice<br>With optional 15minute API dispatch signal |
| **SU**<br>Scheduled Utilisation | Utilisation Only | LV Long Term – Year Ahead<br>HV Short Term – Week Ahead | Locked-in Year Ahead<br>Week Ahead Notice<br>With optional 15minute API dispatch signal |
| **OU**<br>Operational Utilisation | Utilisation Only | Long Term – Year Ahead | In real time<br>Mandatory 15minute API dispatch signal |

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# How we decide which flex to dispatch

## Guiding Principles

The following principles form the foundation of our dispatch methodology:

| Principle | Description |
|---|---|
| **Security** | Flexibility will be dispatched in a way that maintains the security of supply. |
| **Cost** | System needs will be met at the minimum level of cost. |
| **Operability** | Services will be selected based on their compatibility with operational requirements. |
| **Competition** | Transparency will be provided in all dispatch decisions and activities. |
| **Fairness** | Equal opportunities to participate will be ensured, supported by a fair dispatch methodology. |

You can find out more in our Operational Decision Making Framework

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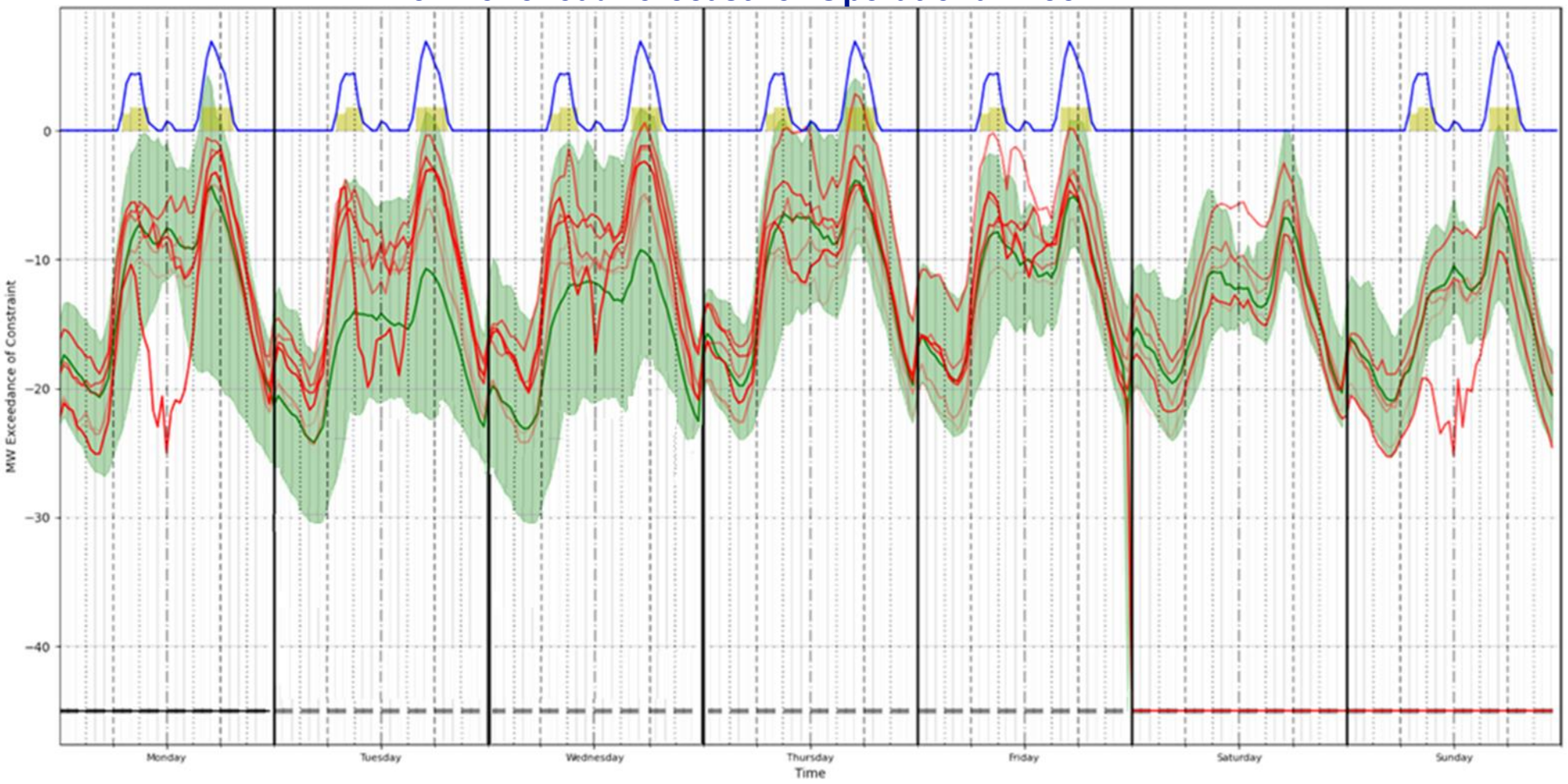
## Prioritised Service Selection Principles

Within National Grid DSO, we have developed a prioritisation service selection framework which is our practical implementation of the ENA guiding principles. This prioritisation ensures consistency and clarity in decision-making and supports both immediate service selection and the ongoing development of rules for implementing an automated rule-based approach to dispatch.

| Priority | Name | Description | Corresponding Open Networks Principle |
|---|---|---|---|
| 1 | **Technical Integrity** | Network and system frequency integrity requirements must be met, supported by appropriate flexibility services. | Security |
| 2 | **Customer Security** | The ability to meet customer demand and accept customer export under both normal and outage network conditions. | Security |
| 3 | **Value** | Flexibility services will be procured and operated to deliver cost-effective outcomes. | Operability & Cost |
| 4 | **Market Resilience** | Where multiple suitable services are available at similar costs, dispatch will be shared among providers. | Competition & Fairness |

# How we decide when to dispatch

## Flex Zone load forecast for Operational Week




**Key**

- Long Range Planning Forecast of Maximum Flexibility Need
- Recent network loading
- Historic network loading
- Available Flexibility

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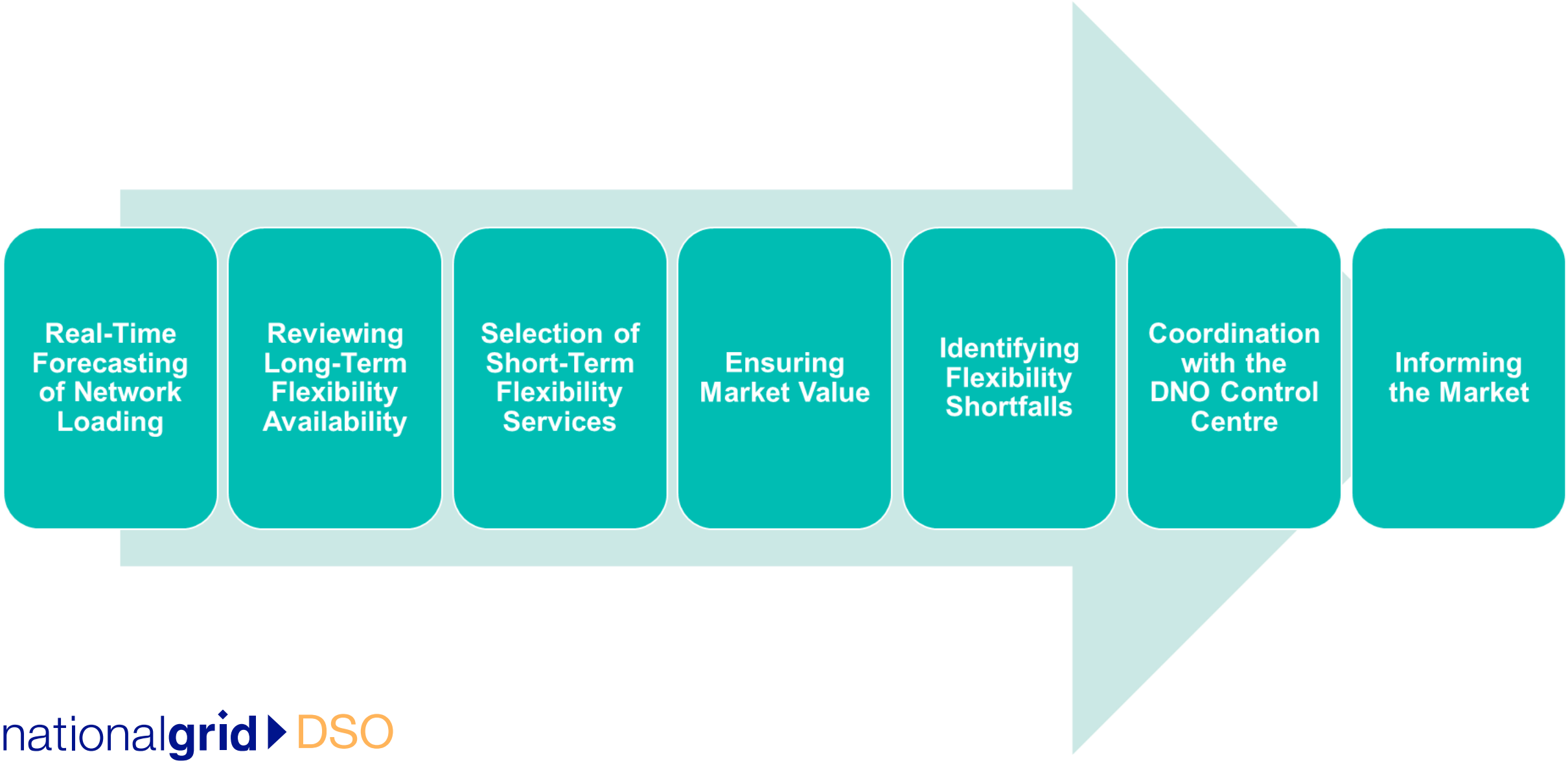
# Weekly Dispatch Activity

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# Performance Monitoring & Settlement

**Yingyi Wang**
Flexibility Commercial Manager

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# Baseline Methodology

Baseline refers to a level of energy consumption or generation of energy resources which is used to measure the change they deliver when flexibility services are activated.

4 types of baseline are currently used:

1. Zero
2. Asset Capacity
3. Nomination
4. Fixed Reference

The chosen of baseline methodology strikes a balance between [standardising practices across DNOs] and ensuring consistency with our DFES planning assumptions.

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| Asset Scale | Metering Arrangement | Technology Type | DTD / GTU | DTU / GTD | |
|---|---|---|---|---|---|
| | | Schedulable Generation | Zero | Asset Capacity (no de-rating) NGED only | Nomination All other DNOs |
| | | Intermittent | | | |
| Asset Scale | Metering Arrangement | Technology Type | DTD / GTU | DTU / GTD | |
| Domestic | Asset Level | Schedulable Generation | Zero | Asset Capacity (no de-rating) | Nomination |
| | | Intermittent Generation | | | |
| | | Storage | | | |
| | | Heat Pump | (Asset Level) Fixed Reference | | |
| | | EV Charger DSR | | | |
| | | EV Charger V2G | | | |
| | | Flexible Site Demand | | | |
| | Point of Connection | Schedulable Generation | Zero | Asset Capacity (no de-rating) | |
| | | Intermittent Generation | | | |
| | | Storage | | | |
| | | Heat Pump | (Asset Level) Fixed Reference + (Flexible Site Demand) Fixed Reference | | |
| | | EV Charger DSR | | | |
| | | EV Charger V2G | | | |
| | | Flexible Site Demand | | | |

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# Baseline Value

A Baseline Value Table is published annually, from which the baseline value of an asset can be looked up based on the four factors below:

- Season (winter or summer)
- Technology type of the asset
- Metering location (asset metering or point of connection)
- Product/ Market the asset is participating in

The unit's baseline equals the sum of the baseline value of each asset

**Example:** For a unit ( comprising 2 domestic EV charger, metered at asset level ), the baseline for providing SU_HV in winter is calculated as :
1.28 * 2= 2.56 (KW)

Season

Product

| Current Product + Season | Winter (Between week 39-12) | | | | |
|---|---|---|---|---|---|
| | **SU** Scheduled Utilisation - HV | **SU** (DTU/GTD ONLY) Scheduled Utilisation - HV | **SAOU_DA** Scheduled Availability, Operational Utilisation – Day Ahead Notice | **SAOU_DA** (DTU/GTD ONLY) Scheduled Availability, Operational Utilisation – Day Ahead Notice | **OU_15** Operational Utilisation – 15min Instruction |
| **Market Gateway Product Code** | SU_HV | SU_HV_DTUGTD | SAOU_DA | SAOU_DA_DTUGTD | OU_15 |
| | | | | | |
| | 1.28 | Zero | 1.28 | Zero | 1.28 |
| | 2.06 | 0.54 | 2.06 | 0.54 | 2.06 |

Tech type

(kW)

| Value Key | Metering Point |
|---|---|
| BL_EVCP | Asset Level |
| BL_EVCP | Point of |

Meter Location

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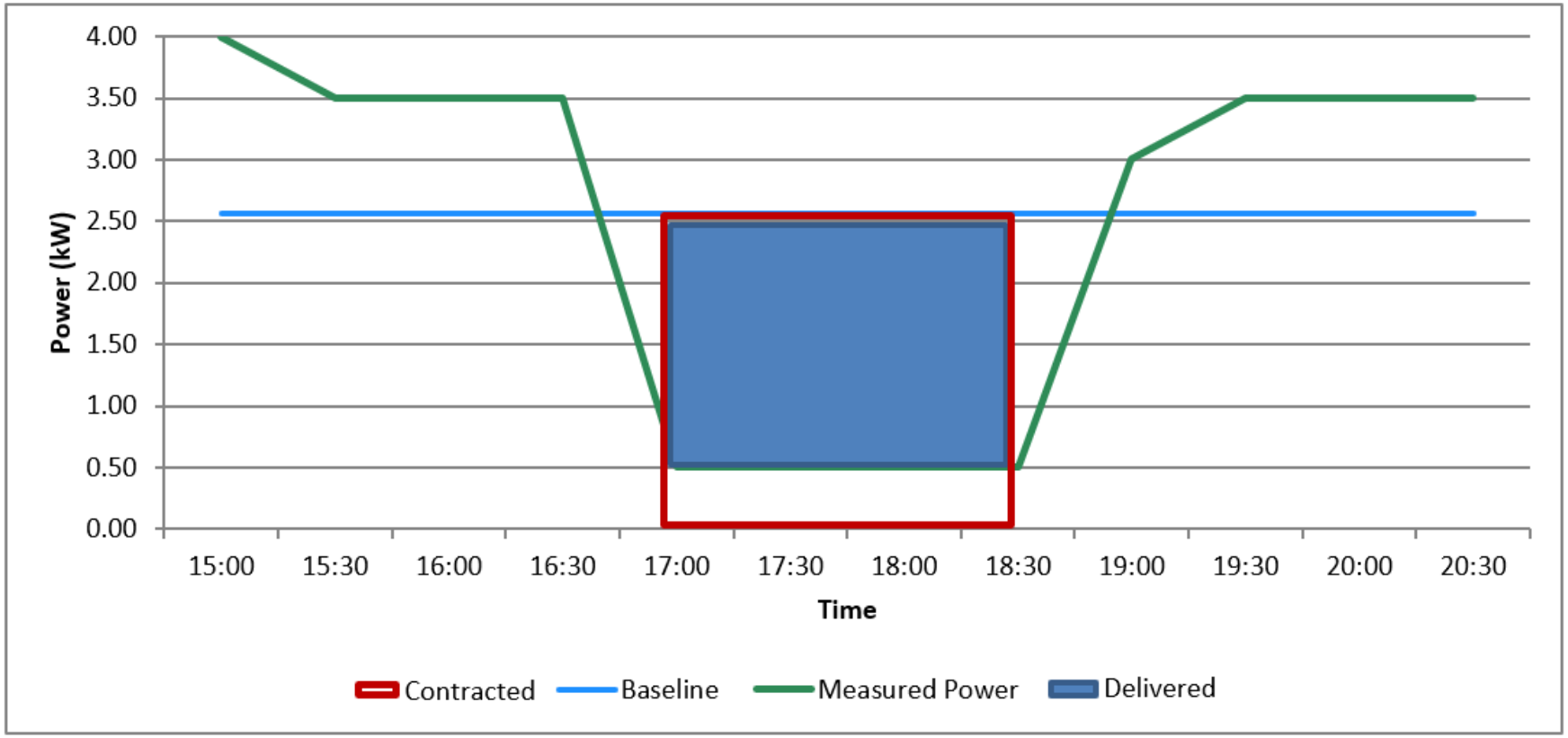
# Delivered Volume




**Example:**

- This unit wins a contract to provide 2.5 KW/h, SU_HV ( a Demand Turn Down service) between 17:00-18:30
- Baseline: 2.56 KW
- Measured Power: 0.56KW
- Delivered volume: 2.56-0.56= 2 KW/h

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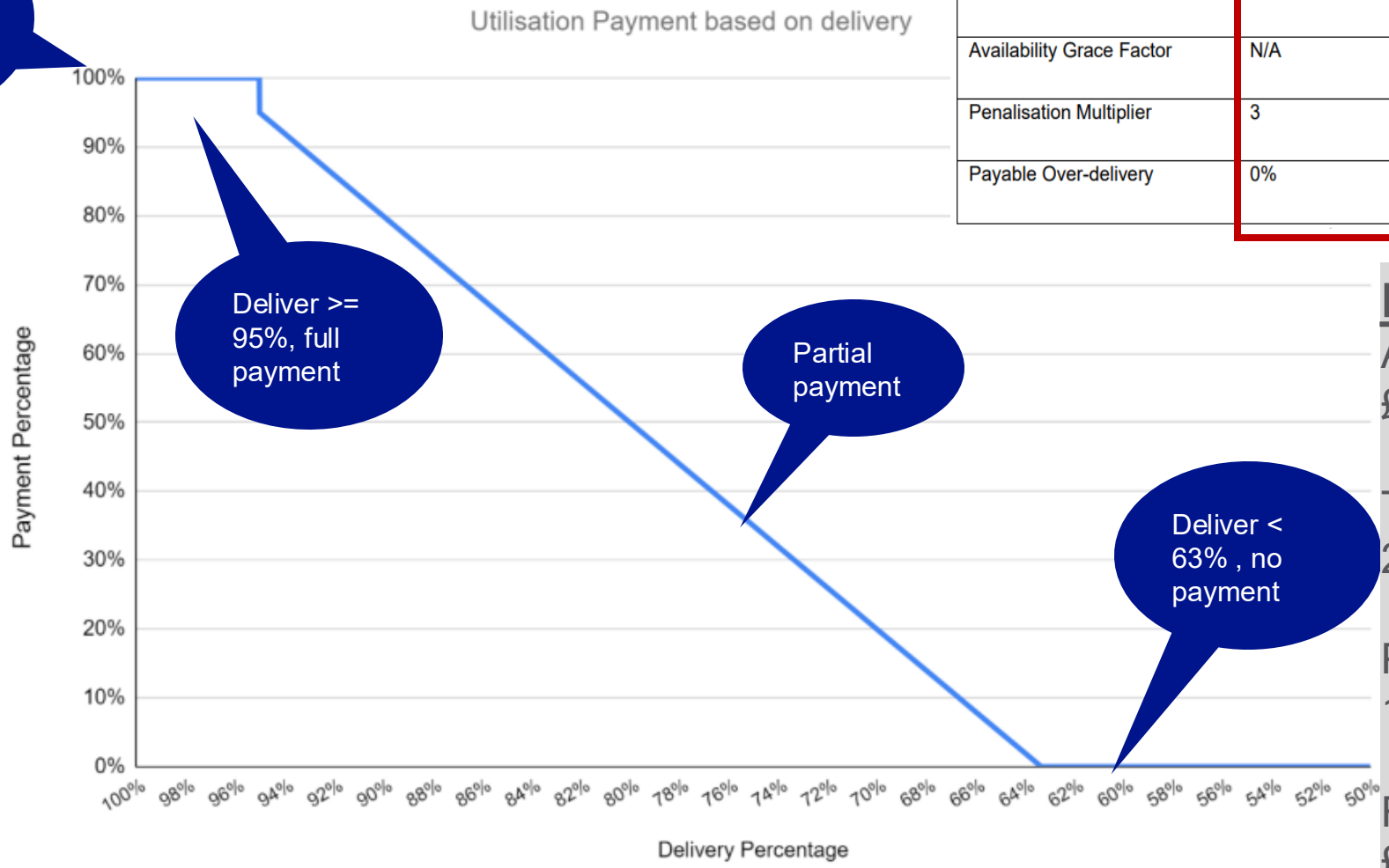
# Payment Mechanics

| Attribute | Scheduled Utilisation | Scheduled Availability, Operational Utilisation | Operational Utilisation |
|---|---|---|---|
| Utilisation Grace Factor | 5% | 5% | 0% |
| Availability Grace Factor | N/A | 5% | N/A |
| Penalisation Multiplier | 3 | 3 | 2 |
| Payable Over-delivery | 0% | 0% | 0% |




**Example:**

Accepted Utilisation Price : £10/KWh

This unit's delivery rate: 2/ 2.5 = 80%

Payment rate: 100%- (95%-80%)*3=55%

Final utilisation payment: £10/KWh*2.5KW/h*1.5h*55% =£20.625

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# Latest market insights

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# Our year in numbers

**19.8GWh**

Of **flexibility procured** across our four license areas.

**90%**

Of registered assets are from **domestic households**.

**221GWh**

Of **flexibility sought** in our long-term flexibility market.

**162,800**

**Flexibility assets** signed up to our market platform. This is **more than double** the amount we had last year.

**63 HV and 744 LV zones**

**Were launched** for flexibility procurement, signalling market value upwards of £5m.

**2.9GWh**

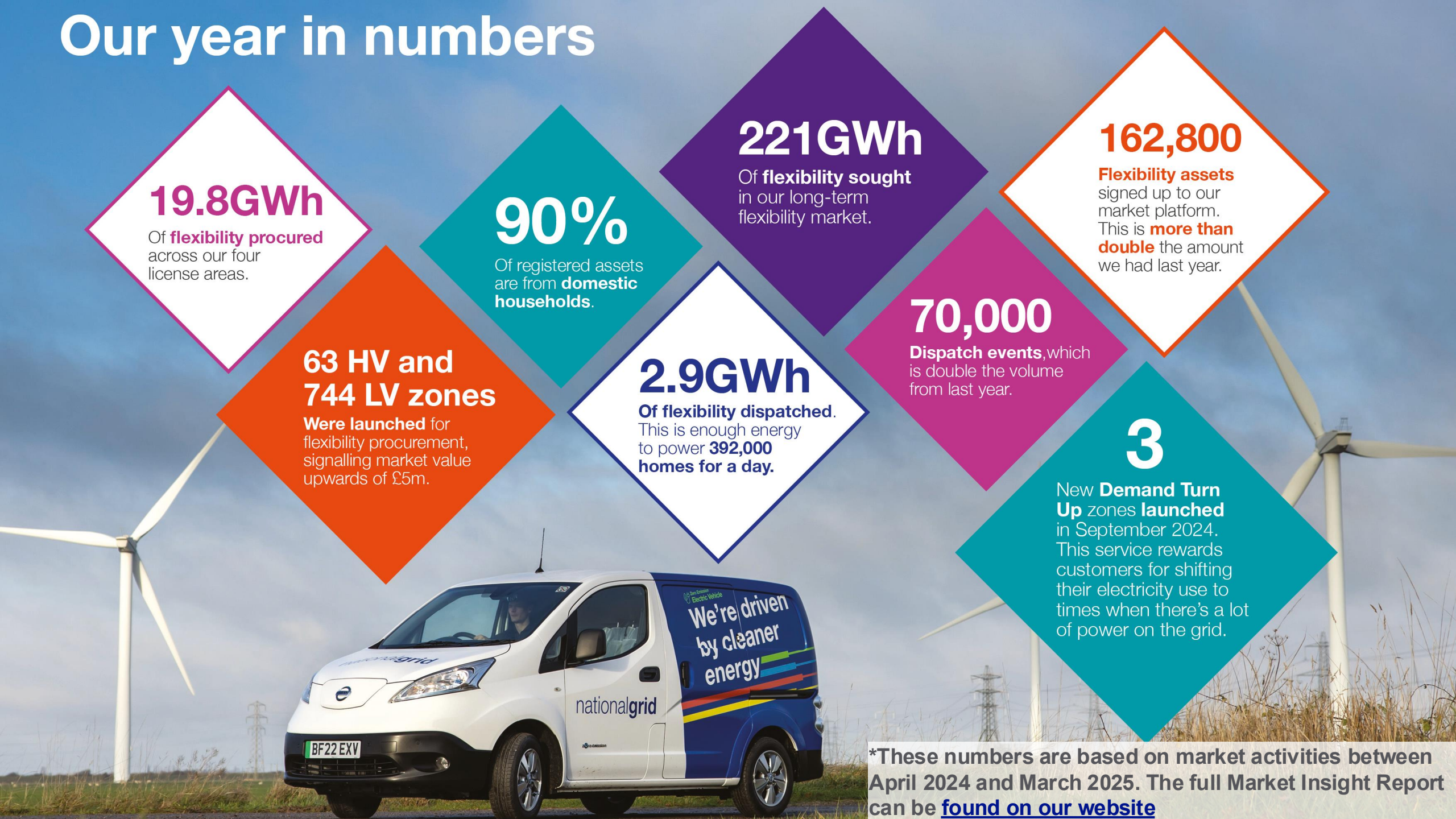
**Of flexibility dispatched**. This is enough energy to power **392,000 homes for a day.**

**70,000**

**Dispatch events**, which is double the volume from last year.

**3**

New **Demand Turn Up** zones **launched** in September 2024. This service rewards customers for shifting their electricity use to times when there's a lot of power on the grid.




***These numbers are based on market activities between April 2024 and March 2025. The full Market Insight Report can be found on our website**

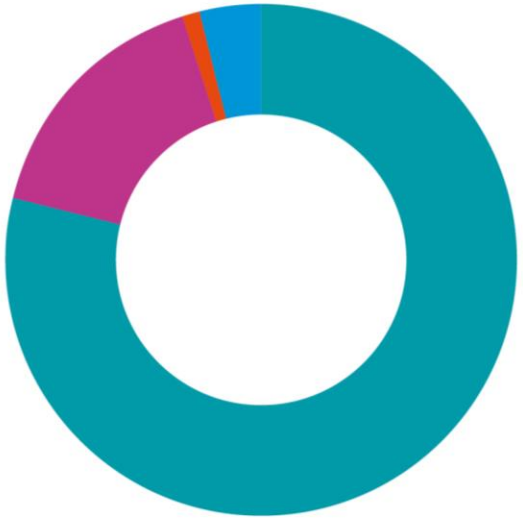
# From Growth to Value

- NGED sources flexibility from a range of technologies, with Electric Vehicle Charge Points making up the largest share by number of assets.

- Benefiting from the increased participation, in our 2024 long-term procurement, we awarded flexibility in HV zones at prices 34% lower than our ceiling prices, and in LV zones at 18% lower. This resulted in savings of approximately £75,000 which we pass directly to our customers.

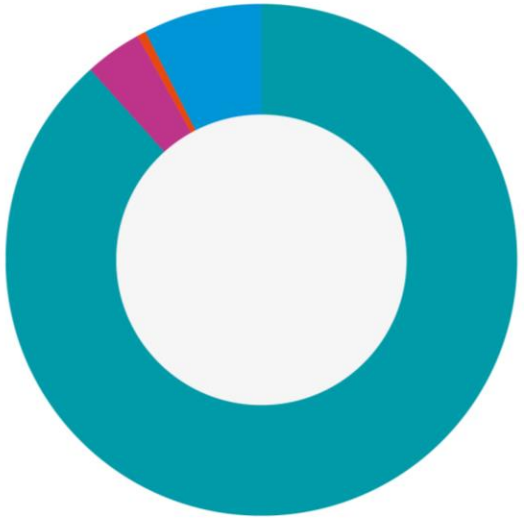
Technology demographic of assets in Market Gateway as of March 2025

**Breakdown of Accepted HV Trades by Technology Type**



- 80% EV charge point
- 16% Air source heat pump
- 1% Other
- 3% Household demand

**Breakdown of Accepted LV Trades by Technology Type**



- 88% EV charge point
- 4% Air source heat pump
- 1% Hybrid Heat Pump
- 7% Household demand

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# 2025 Long Term Requirements

| | |
|---|---|
|  | Procurement is for delivery between April 2026 and March 2027 |
|  | HV– 67 Demand Turn Down, 5 Demand Turn Up and 24 Flex Up Zones<br>LV – 1144 Demand Turn Down Zones |
|  | 4.5 million customer in open zones |
|  | Highest HV zonal ceiling price; £5000/MWh<br>Average HV zonal ceiling price; £430/MWh |
|  | Highest LV zonal ceiling price; £888.44/MW/h<br>Average LV zonal ceiling price; £238.63/MW/h |

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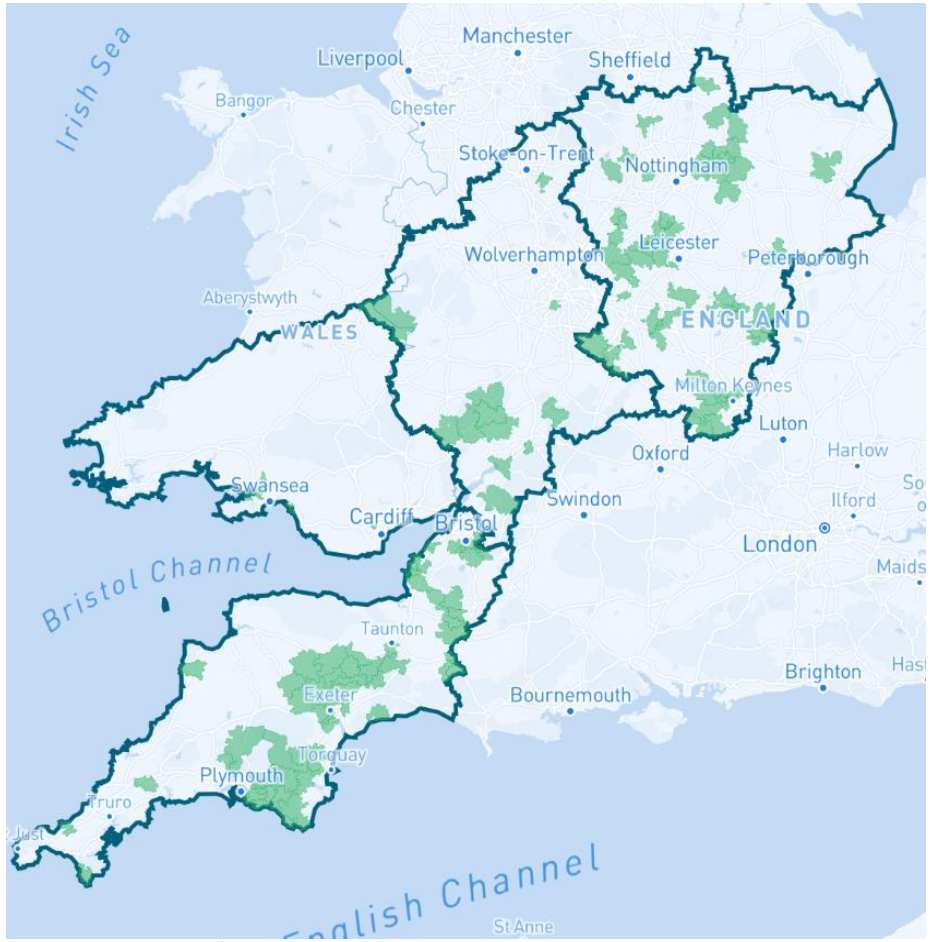
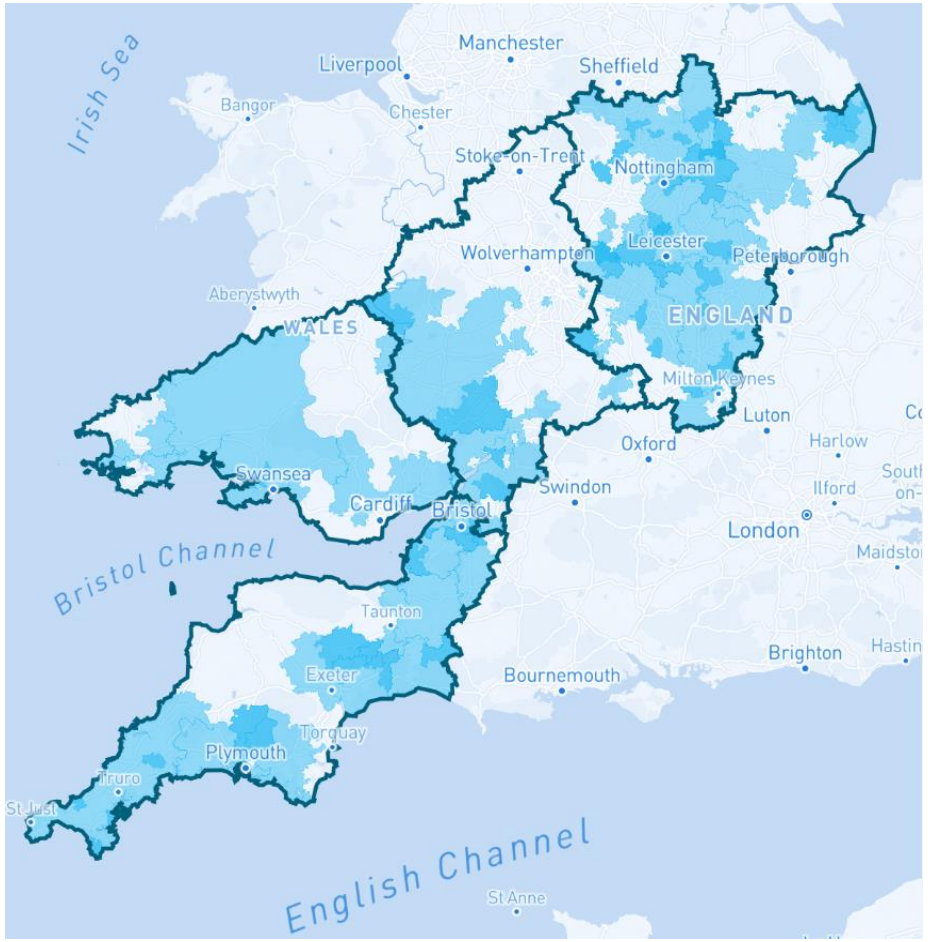
# 2024 VS 2025 Long-term Tender Comparison

## 2024




## 2025

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# Evolving Local Flexibility Market

**We want to operate liquid, competitive and coordinated markets to deliver maximum value for the GB consumer.**

| Simple | Scalable | Clear | Adaptable |
| --- | --- | --- | --- |
| • Straightforward & Standardised processes<br>• Removal of barriers | • Digitised processes<br>• Low transaction cost | • Transparent data on needs and usage | • Change to accommodate new products, timeframes, use cases |

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# Questions and Answers

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# We want to hear your views

It's important to us to make sure we are delivering your priorities.

**Has today improved your understanding of flexibility?**

**Has today made you more aware of how you can participate in flexibility?**

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