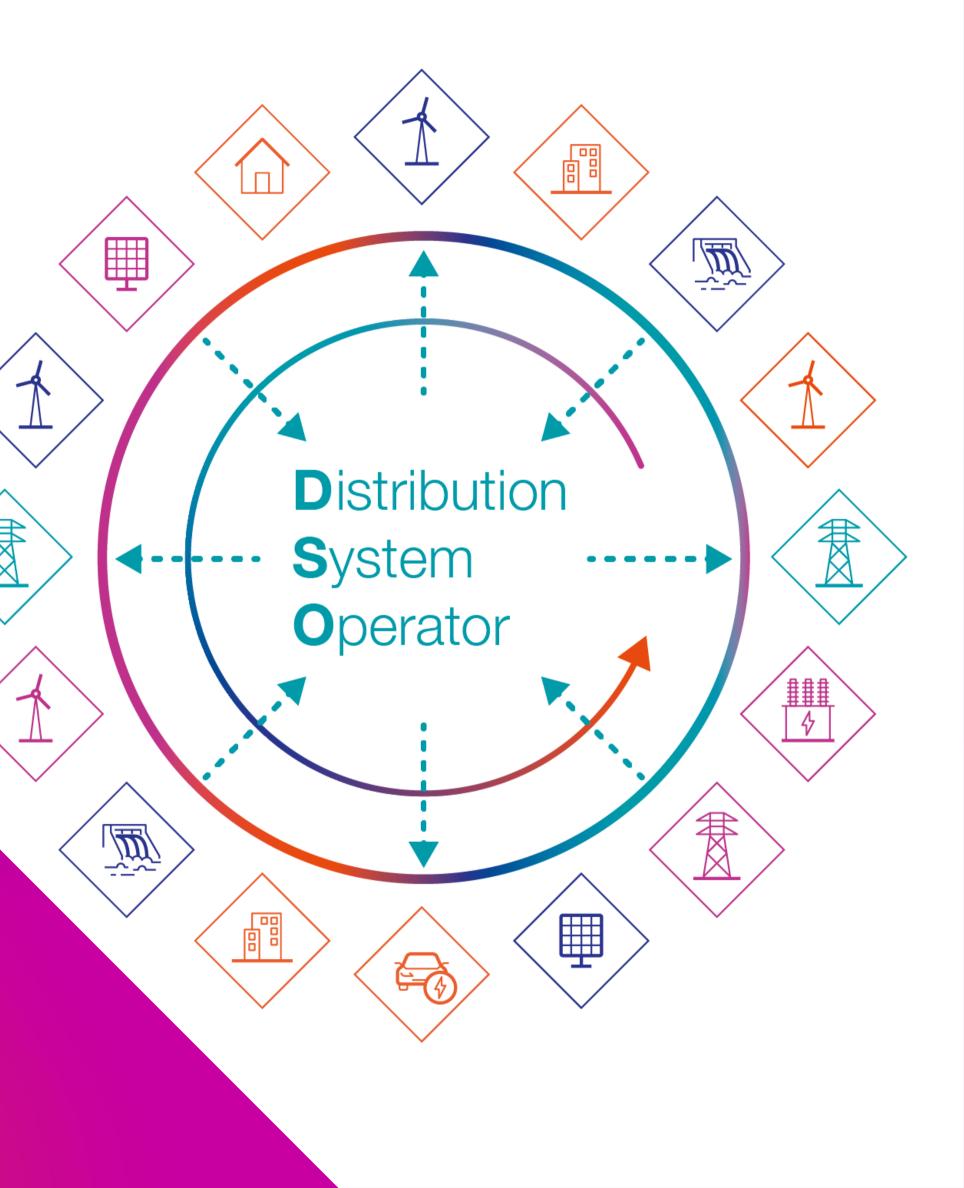
nationalgrid DSO

On Track To Trade

Short Term Trades

23rd June 2025



Flexibility Markets Team





Felix Peterken Market Gateway Business Owner



Alex Daramola Flexibility Markets Engineer



Lewis Davies Flexibility Markets Engineer



Reuben Veal Flexibility Markets Analyst



Doerte Schneemann Head of Flexibility Markets

> Yingyi Wang Flexibility Commercial Manager

> > **Daria Wosko** Commercial Officer

> > Luke Boucher Commercial Officer

Sarah Manning-Benson Team support

Agen

| Agenda | | Timings (approx) |
|-------------------------------|---|---------------------|
| Welcome | Doerte Schneemann, Head of Flexibility Markets | 10.00am |
| Flexibility Services Overview | Luke Boucher, Commercial Officer | 10.10am |
| Published Datasets | Felix Peterken, Flexibility Markets Engineer | 10.15am |
| Steps to Participation | Felix Peterken, Flexibility Markets Engineer Ediri Ewhrudjakpo – Piclo, Commercial Associate | 10.20am |
| Continued Engagement | Luke Boucher, Commercial Officer | 10.45am |
| Q&A | Doerte Schneemann, Head of Flexibility Markets | 10.50am |
| Wrap up and close | Doerte Schneemann | 10.55am |

national**grid > DSO**

Housekeeping





Questions can be submitted via the Q&A function at any time or via email nged.flexiblepower@nationalgrid.co.uk



The slides and recording from today will be available on our website www.flexiblepower.co.uk



We also welcome feedback offline

national**grid**

Markets Insights Report - our year in numbers

National Grid | June 2025

Flexibility Market Insights Report

Our year in numbers

19.8GWh Of flexibility procured across our four

license areas.

90%

Of registered assets are from domestic households

63 HV and 744 LV zones

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

0

nationalgrid

This is enough energy to power 392,000 homes for a day.

Flexibility **Market Insights** Report

June 2025

Electricity

Distribution

nationalgrid DSO

nationalgrid DSO

221GWh

Of flexibility sought in our long-term flexibility market.

70,000

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

3

162,800

Flexibility assets

signed up to our

market platform.

we had last year.

This is more than

double the amount

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.

2.9GWh Of flexibility dispatched.

Ve're driv

nationalgrid > DSO

Flexibility Services

Luke Boucher Commercial Officer

National Grid Electricity Distribution



Short Term Requirements

| R R R R R | We procure in the Short Term m we'll publish Winter n |
|-----------------------|---|
| | Forecasted needs of 650MWh Value to market o |
| | Ceiling pricing is set per zone and v |
| | Highest zonal ceiling price thi Average zonal ceiling price th |
| | 11 HV Zones – including 3 |

nationalgrid DSO

narket throughout the year needs in Sep'25.

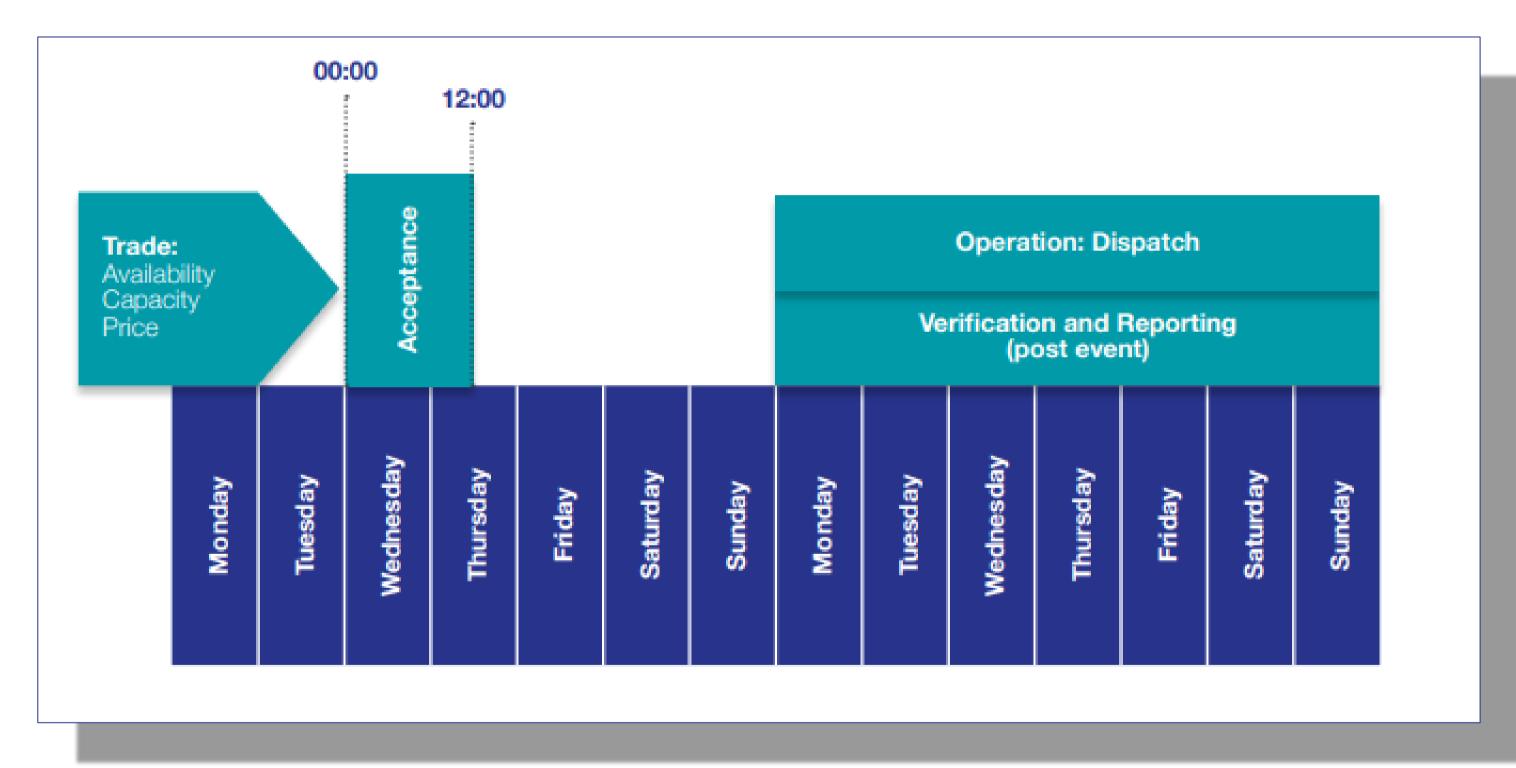
from July – Sept 2025 of £530,000

varies dependant on the need

is Summer; £663/MW/h his Summer; £82/MW/h

B Demand Turn Up

Short Term Trades Procurement Timeline



national**grid > DSO**

Overview of our flexibility services

<u>Scheduled</u> <u>Utilisation</u>

This service is a scheduled constraint management service with fixed delivery periods. It offers a utilisation only payment. <u>Scheduled Availability,</u> <u>Operational Utilisation</u>

This service has been developed to support the network in the event of specific fault conditions, such as during maintenance work. It offers an availability and utilisation payment.

Short Term

Long Term

national**grid > DSO**

Operational Utilisation

service supports power restoration following rare fault conditions. No availability payment, instead it offers a premium utilisation payment.

nationalgrid > DSO

2

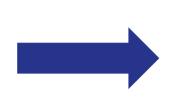
Published Datasets Felix Peterken Flexibility Markets Engineer

National Grid Electricity Distribution



Connected Data Portal – Zone Information





Flexibility – Forecasts

Latest analysis tranche reference: T9A Overview We are looking to mitigate a range of constraints across multiple voltage levels on the network. As they involve different...

https://connecteddata.nationalgrid.co.uk/group/flexibility

Flexibility

Data sets related to network flexibility requirements and zones, trades, procurement and dispatch information.

https://connecteddata.nationalgrid.co.uk/

| WHERE All Polygons | gpkg |
|------------------------|------|
| WHERE All Postcodes | CSV |

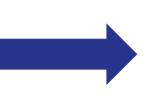
nationalgrid DSO



| 3 months ago | <u>≁</u> | ← Explore - |
|--------------|----------|-------------|
| 3 months ago | ⊻ | ← Explore - |

Connected Data Portal – Trades Information





Flexibility – Trade

Overview This dataset contains information on what we will look to put forward in our upcoming trades, with the aim to provide more visibility ahead of the actual trade...

https://connecteddata.nationalgrid.co.uk/group/flexibility

Flexibility

Data sets related to network flexibility requirements and zones, trades, procurement and dispatch information.

https://connecteddata.nationalgrid.co.uk/

Short Term Trade Parameters CSV

national**grid > DSO**

Flexibility – Trades Data and Results



2 weeks ago

 $\overline{\mathbf{\Lambda}}$



nationalgrid DSO

3

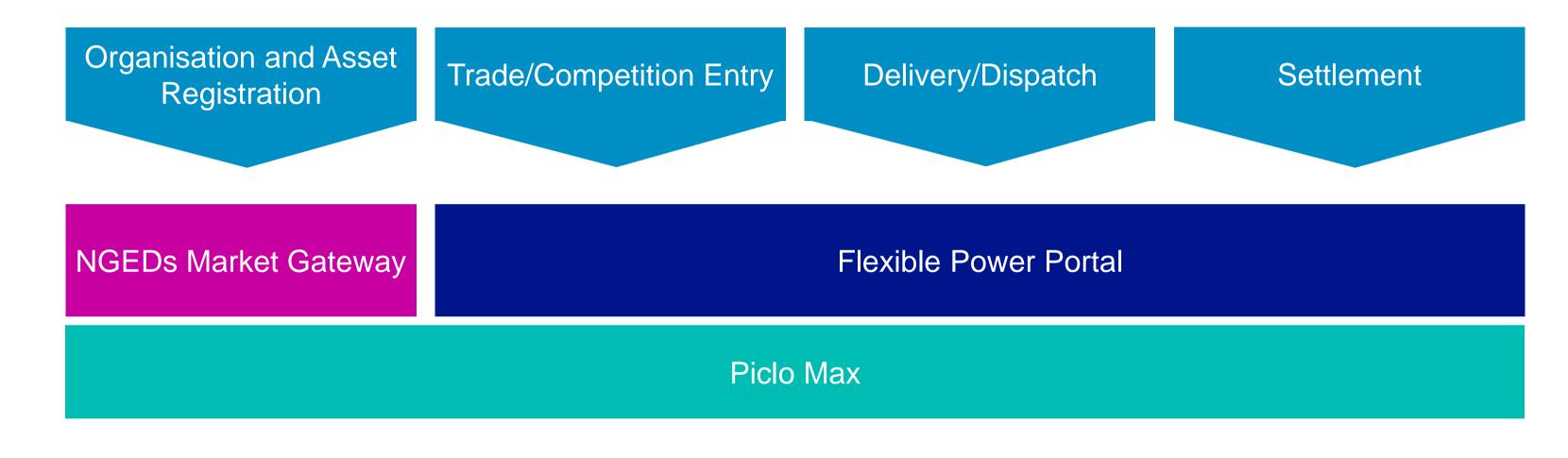
Steps to Participation

Flexibility Markets Engineer

National Grid Electricity Distribution



Flex Market Participation



Access to NGED markets available directly or through **Piclo Flex**



national**grid > DSO**

nationalgrid

Market Gateway - Commercial Qualification

Entry through Market Gateway

https://marketgateway.nationalgrid.co.uk/

| national grid | | | | | | |
|--|--|--|--|--|--|--|
| Home Commercial Qualification Contact Us Glossary | | | | | | |
| Commercial Qualification | | | | | | |
| $\diamond \longrightarrow \qquad \diamond \qquad \qquad \qquad \qquad $ | - Introduction | | | | | |
| PIN Response PQQ Qualification tender Contract | Step 1 of 2: Confirm company account Information | | | | | |
| Commercial Qualification Home - Step 2 of 2: Declaration to Respond to PIN | | | | | | |
| For its electricity distribution flexibility programme, National Grid award qualifying Flexibility Service Providers with an Overarching Contract, enabling further participation in flexibility Trades. | Thank you | | | | | |
| Please complete the steps the required commercial qualification steps, starting with the PIN response. | | | | | | |
| Commence | | | | | | |
| | | | | | | |
| national grid | | | | | | |

nationalgrid DSO

One Account per Organisation

Multiple Users per Organisation

Account requests generally approved within 1 working day

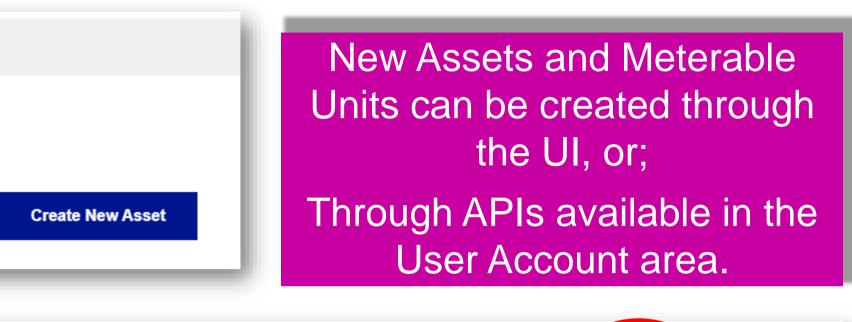
Market Gateway - Overarching Contract

| Nationalgrid Home Commercial Qualification Contact Us Glossary | After download of the billing form |
|--|---|
| Commercial Qualifications PIN Response PQQ Qualification tender Step 5 of 5: Supplier details form Please download and complete the banking information form below. | Contract Cualification Tender Step 1 of 5: Confirm company account information Step 2 of 5: Complete T&C Clause Groups Step 3 of 5: Complete T&C Schedules |
| Once done, please email or post the completed form to: dsobilling.nged@nationalgrid.co.uk DSO BIlling Pegasus Business Park Castle Donington | Step 3 of 5: Self billing agreement Step 5 of 5: Supplier details form |
| DE74 2TU SUPPLIER REQUEST FORM | Home Commercial Qualification Contact Us Glossary Commercial Qualifications Image: Commercial Qualification State S |
| | Image: Pix Response PQQ Qualification tender Contract → Contract Award |
| | Contract Award Thank you for completing the Commercial Qualification process. |
| | Following receipt of your billing form, National Grid will email you with your executed Contract Documents. From receipt of your Contract Documents a 10 day standstill period will apply, after which you will be able to enter Trade Opportunities provided Technical Qualification is complete. |

nationalgrid DSO

Market Gateway - Asset Registration Meterable Units Dashboard Assets nationalgrid Manage Assets Commercial Qualification Contact Us Help & Guidance Home Dashboard Meterable Units Assets nationalgrid Latest Updates Assets **Your Account** Search: Q Edit Organisation Search Name or ID Filter: Manage Users CMZ Status ^ ^ Market Gateway API Action Asset ID Name Version MPAN / MSID CMZ Last Updated Status Change Password Log out

nationalgrid DSO



| Market Gateway API | Credentials Documentation Support API Access Token E Create a new token the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked, meaning any existing API integrations will immediate the previous one will be revoked. | Credentials Documentation Support API Access Token Image: Create a new to provide the second secon | | | Hello, Felix F | PTEST View Account | Logout |
|--|--|--|------------------|------------------------------|---------------------------|--------------------------------|------------------|
| Credentials Documentation Support | API Access Token Create a new token the previous one will be revoked, meaning any existing API integrations will immed | API Access Token Create a new token the previous one will be revoked, meaning any existing API integrations will immed | Market | Gateway | API | | |
| oredentials Documentation Support | Please Note: if you create a new token the previous one will be revoked, meaning any existing API integrations will immed | Please Note: if you create a new token the previous one will be revoked, meaning any existing API integrations will immed | Credentials | Documentation | Support | | |
| | Please Note: if you create a new token the previous one will be revoked, meaning any existing API integrations will immed | Please Note: if you create a new token the previous one will be revoked, meaning any existing API integrations will immed | API Access Token | | | | |
| API Access Token | | | | | | Cre | ate a new tol |
| | | Stop working. | | ate a new token the previous | s one will be revoked, me | aning any existing API integra | tions will immed |
| Please Note: if you create a new token the previous one will be revoked, meaning any existing API integrations will immediately a set of the previous one will be revoked. | | | | | | | |
| Please Note: if you create a new token the previous one will be revoked, meaning any existing API integrations will immediately a set of the previous one will be revoked. | | | | | | | |

Market Gateway - Asset Registration

Once submitted, we will approve assets and match them with a CMZ within 2 working days.

Once matched, assets can be grouped into Meterable Units – the level at which you will provide metering for the assets. Once an MU is submitted, we allocate it a MUID within 2 working days.

The MUID is used for the Flexible Power Portal communication.

For each MU, we will detect metering data and update the MU status to 'Ready for Trades'.

nationalgrid DSC

Latest Updates

| Search: | | | |
|----------|--------------------|---------|-----------|
| Searc | h Name or ID | | |
| Filter: | | | |
| cmz_3 | | | ^ |
| Asset ID | Name | Version | MPAN / MS |
| 35 | Domestic House 2 | 1 | 112233445 |
| 39 | Hydro Power Site 1 | 1 | 115687653 |
| 43 | EV Fast Charger 4 | 1 | 110201398 |
| 47 | PV Site 1 | 1 | 112563247 |
| 51 | Domestic House 3 | 1 | 111122556 |
| 55 | Domestic House 7 | 1 | 112548986 |

| | | Dashbo | ard | Assets | Meterable Units |
|-------|-------|------------------|----------|-----------------|-----------------|
| | | Create a | New Met | erable Unit Req | uest |
| × | Appro | oved | | ~ × | |
| SID | CMZ | Last Updated | Status | Action | |
| 55667 | cmz_3 | Wed, 10 May 2023 | Approved | View / Edit | |
| 32010 | cmz_3 | Wed, 10 May 2023 | Approved | View / Edit | |
| 9875 | cmz_3 | Wed, 10 May 2023 | Approved | View / Edit | |
| 78964 | cmz_3 | Wed, 10 May 2023 | Approved | View / Edit | |
| 9870 | cmz_3 | Wed, 10 May 2023 | Approved | View / Edit | |
| 63000 | cmz_3 | Wed, 10 May 2023 | Approved | View / Edit | |

Market Gateway - Asset Management

|)ashboard | Assets Meterabl | e Units | | | | | | |
|--------------|-----------------|----------------|----------|----------|-------------|------------------------|----------|-----------|
| View | Asset Hi | story | | | | | | |
| | | | | | | ۵ | ecommiss | ion Asset |
| Asset ID: 16 |) | | | | | | | |
| Version | Asset Name | Active Version | Status | CMZ Code | Operational | From | То | Action |
| 1 | House-562 | Is Active | Approved | - | Yes | Mon, 18 Mar 2024 | - | Edit |
| | | | | | | | | |
| Back | | | | | | | | |

national**grid > DSO**

Your Asset Portfolio can be managed by decommissioning assets. Assets must be removed from Meterable Units first



Are you sure you want to decommission this Asset?

An Asset should be decommissioned once you are no longer able to provide flexibility with it or if you are no longer the owner of this Asset. This action cannot be undone, but a record will remain for auditing purposes.

Yes No

NGED Sandbox

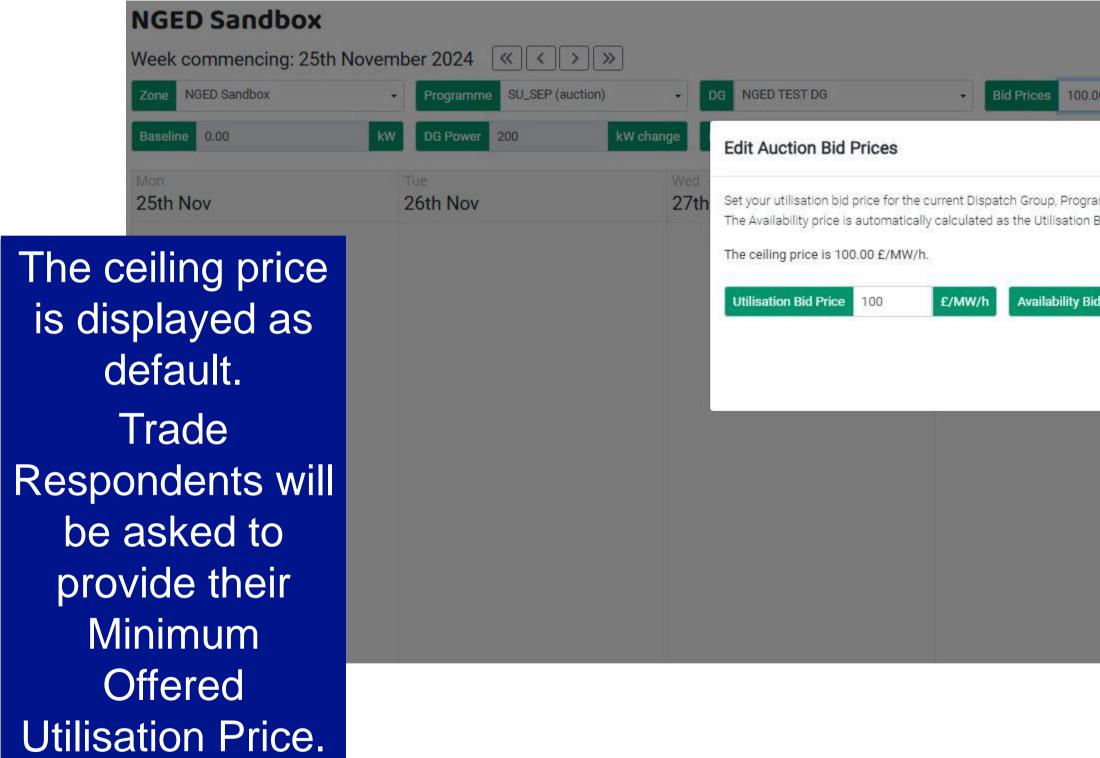
| Week commencing: 18th No | vember 2024 (<>>>> | | | |
|--------------------------|----------------------------|-----------------------------------|----------------------------|------------|
| Zone NGED Sandbox | Programme SU_SEP (auction) | ← DG NGED TEST DG | Awarded Prices 0.00 / 0.00 | £/MW |
| Baseline 0.00 | kW DG Power 200 k | W change Event runtime 30 / 960 / | none min Bulk Edit | |
| Mon 18th Nov | Tue 19th Nov | Wed 20th Nov | Thu 21st Nov | Fri 22n |
| 05:30 200 kW | 07:30 200 kW | 13:30 | 05:00 100 kW | 11:00 |
| | 19:00 | | 1 | 7:00 |

nationalgrid DSO

This week can be edited until 23:59 on Tuesday 12th November 2024

V/h

| nd Nov | Sat 23rd Nov | Sun 24th Nov |
|---|--------------------|--|
| 000000000000000000000000000000000000000 | Fac | ch week before |
| 200 kW 12:30 | midni FS ava | ight on Tuesday, P's can enter allability for the ng delivery week. |



nationalgrid DSO

This week can no longer be edited

| oo)/ 0.00 | £/MW/h | | | |
|-------------------------------|--------|-----------------|----------------|--|
| | × | | | |
| imme & Week. Bid Price × 0 | | sat 30th Nov | Sun 1st Dec | |
| | | | | |
| d Price 0.00 | £/MW/h | | | |
| | Cancel | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

NGED Sandbox

| Week commencing: 18th Novem | nber 2024 《〈〉》 | | | |
|-----------------------------|----------------------------|------------------------------------|----------------------------|-----------------|
| Zone NGED Sandbox | Programme SU_SEP (auction) | DG NGED TEST DG | Awarded Prices 0.00 / 0.00 | £/MW/h |
| Baseline 0.00 kW | DG Power 200 kW cha | ange Event runtime 30 / 960 / none | min | |
| Mon 18th Nov | Tue 19th Nov | Wed 20th Nov | Thu 21st Nov | Fri 22nd Nov |
| 05:30 | 7 | | 05:00 | 7 |
| | 07:30 | | 10:00 | |
| 11:30 200 kW Accepted | 12:00 200 kW Accepted 13:3 | 0 | 100 kW Accepted | 200 |
| 16:00 | | | 17:00 | |
| 19:00 | | | | |

national**grid > DSO**

This week can no longer be edited

opy Week

| | Sat 23rd Nov | Sun 24th Nov |
|----------------|-----------------|--|
| | | |
| 00 KW Accepted | | After Thurs midday FSPs car view which time windows have been accepted, and the awarded price. |
| | | |

Flexible Power

Availability - Meterable Units Reports API Testing Documentation

Trades Awards will include;

- The awarded MUs
- The awarded prices
- The awarded Utilisation windows

Acceptance Decisions

Week commencing: 18th November 2024

Download CSV containing all declarations for all programmes across all zones for this week. The declarations that have been accepted will have acceptance_start and acceptance_end columns populated. In addition, accepted auction programmes will have utilisation_bid_price and utilisation_awarded_price populated.

▲ Download Acceptance CSV

nationalgrid DSO





Access National Grid DSO Markets via Piclo



P

About Piclo

350+

DER owners & community groups

> **14+** System operators



Piclo is the leading independent marketplace for Distributed Energy Resources

Our mission is to decarbonize the world's grids

350,000 DER assets

3GW Flexibility procured

10 ktons

Carbon saving to-date



P

Our Mission

We are on a mission to decarbonise the grid.

As our energy systems become cleaner, more distributed and diversified in response to the climate crisis, our grids come under more stress and face challenges in maintaining the delicate balance of supply and demand.

Flexibility is **the key component** of enabling the transition to renewable energy and net zero.

Our partnership with National Grid DSO

- Piclo is fully integrated with Market Gateway and Flexible Power.
- Access short-term (week ahead) and longterm opportunities.
- Use the same Piclo processes, tools and APIs to navigate this market as well as dozens of other flex markets in the UK and globally.

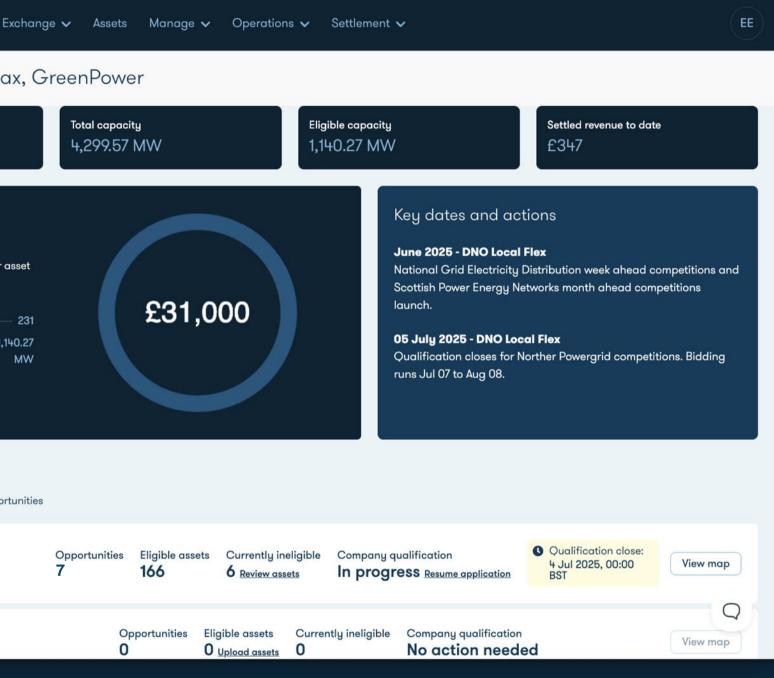
<complex-block>

national**grid > DSO**

Maximise your portfolio

- Get started: Sign up or log in to Piclo.
- ^{2.} Upload your entire asset portfolio.
- 3. Scan the home page to determine next steps and value.
- Stack opportunities across multiple markets.

| ρ | Home | Markets | E |
|-----------------------------|--|--------------------------|------|
| Welco | ome to | Piclo N | Иc |
| Assets 3591 | | | |
| Valuat Valuat data fe | ation 1 ion shown is or live oppor pportunities ligible | | |
| Sell yo | ur flexib Include visi | ility ibility-only or | opor |
| Nation | al Grid DSO | 1 | |
| NESO | | | |



The end-to-end journey

Pre-qualify

- 1. Complete and submit the company qualification form.
- Our customer support team will
 provide updates after submission.
- ^{3.} Flex providers are qualified following company and asset approval.



| Exchange 🗸 | Assets | s Manage 🗸 | Operations 🗸 | Settlement 🗸 | | | EE |
|-----------------|--------|------------------------------|---|--|--------------|--------|----|
| ectricity on | | Terms & c | conditions | | | | |
| | | NGED imple | ementation of | ENA Flexibility Service | ce Agreement | | |
| | | The NGED impler | mentation of ENA Flex | xibility Service Agreement <u>here</u> | | | |
| | | flexibility service | agreement and unde reement in order to fe | e NGED implementation of ENA erstand it will be a requirement orm any contract for the | | | |
| | | Declaration | n | | | | |
| | | application and l | hat you have the aut by confirming you de oformation in this form | eclare that to the best of your | | | |
| | | 0 | | | | | |
| | | Submission No submissions | history | | | | |
| | | | | | Previous | Submit | Q |
| | | | | | | | |

Submit your bids!

- Confirm bid offer and asset 1. availability.
- NG DSO evaluates the bids and 2. confirms the results.
- View competition results in the 3. dashboard.
- Successful bidders will receive auto-4. dispatch notifications via email.

ρ

Monday - 18:00-18:30 0.072 MW, 0.5 hours available

Monday - 18:30-19:00

Monday - 19:00-19:30

Tuesday - 18:00-18:30 0.072 MW, 0.5 hours available

Tuesday - 18:30-19:00

Tuesday - 19:00-19:30 0.083 MW, 0.5 hours available

Wednesday - 18:00-18:30

Wednesday - 18:30-19:00

Wednesday - 19:00-19:30 0.083 MW, 0.5 hours available

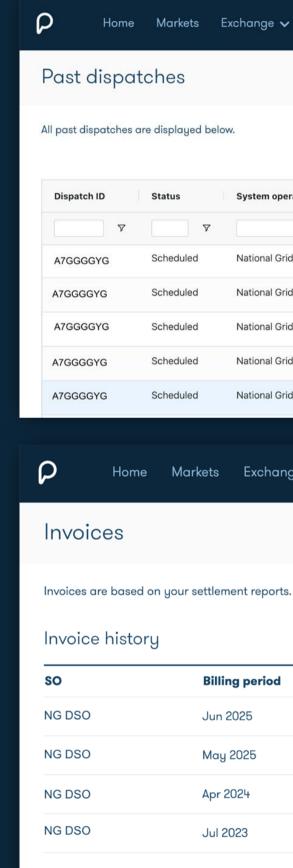
Thursday - 18:00-18:30

Thursday - 18:30-19:00 0.571 MW, 0.5 hours available

Home Markets Exchange 🗸 Assets Manage 🗸 Operations 🗸 Settlement 🗸 EE 18 Feb 2025, 12:00 GMT View bid results \sim closed Competition close Bid results are displayed after System Operators confirm them. Monday 24 February 2025 24 February 2025 18:00-18:30 0.072 MW \sim Contract start Total need Capacity Maximum runtime Utilisation offer D HH:MM:SS £/MWh MW \mathbf{v} 0:30:00 125 0.1 $\mathbf{\sim}$ 24 February 2025 24 February 2025 18:30-19:00 0.571 MW Contract start Total need \sim Capacity Maximum runtime Utilisation offer D HH:MM:SS MW £/MWh 0:30:00 125 0.1 Q 24 February 2025 24 February 2025 19:00-19:30 0.083 MW Total need \mathbf{v}

Dispatch and Settlement

- Easily manage upcoming and past 1. dispatches.
- Settle dispatches and confirm asset 2. performance.
- Manage payments and download 3. invoices from the dashboard.



| | | | | Download table data |
|----------|--|---|------------------------|------------------------|
| . | System operator | Competition | Start date/time | End date/time |
| Ÿ | 7 | 7 | dd/mm/yyyy | dd/mm/yyyy |
| luled | National Grid Electricity Distribution | W/C 16/06/2025 - SU_SPP - Loughborough | 20 Jun 2025, 07:30 BST | 20 Jun 2025, 23:00 BST |
| luled | National Grid Electricity Distribution | W/C 16/06/2025 - SU_SPP - Loughborough | 20 Jun 2025, 16:30 BST | 20 Jun 2025, 20:00 BST |
| luled | National Grid Electricity Distribution | W/C 16/06/2025 - SU_SPP - Loughborough | 20 Jun 2025, 08:30 BST | 20 Jun 2025, 15:00 BST |
| luled | National Grid Electricity Distribution | W/C 16/06/2025 - SU_SPP - Loughborough | 19 Jun 2025, 07:30 BST | 19 Jun 2025, 23:00 BST |
| luled | National Grid Electricity Distribution | W/C 16/06/2025 - SU_SPP - Checkerhouse to Tuxford | 19 Jun 2025, 07:00 BST | 19 Jun 2025, 14:00 BST |
| | | | | |
| larkets | Exchange 🗸 Assets M | anage 🗸 Operations 🗸 Settlement | t 🗸 | EE |
| | <u> </u> | | | |

| | | Sorted by: Billing period |
|-----------------------|-------------------|---------------------------|
| Billing period | Last updated | Action |
| Jun 2025 | 6 Jun 2025 10:56 | Download |
| May 2025 | 6 Jun 2025 10:56 | Download |
| Apr 2024 | 16 May 2024 17:04 | Download |
| Jul 2023 | 4 Dec 2023 18:10 | Download |



piclomax.com

To find out more, contact der@piclo.energy.

nationalgrid DSO

Continued Engagement Luke Boucher Commercial Officer

National Grid Electricity Distribution



Continued Engagement



nationalgrid DSO

Join <u>HERE</u> to keep up to date with all things Flex

Our report shares the outcomes of our activities between April 2024 and March 2025

New quarterly focus group launched. Get in touch <u>HERE</u> if you're interested in joining.

Useful Links

| Market Gateway Trades, Flexible Power Portal Trades, Flexible Power Website Flexible Power Website Connected Data Portal (CDP) Flexible Power Website Flex In Five A bit Piclo Data Hub Open m | | |
|---|------------------------------------|---------|
| Market Gateway Trades, Flexible Power Portal Trades, Flexible Power Website Flexible Power Website Connected Data Portal (CDP) Flexible Power Mebsite Flex In Five A bit Piclo Data Hub Open metodopen metodo | Link | |
| Flexible Power Portal Flexible Power Website Elexible Power Website Flexible Power Website Connected Data Portal (CDP) Flexible Power Website Flex In Five A bit Piclo Data Hub Open m Demon Demon | Market Gateway | Reg |
| Connected Data Portal (CDP) Flexit Flex In Five A bit Piclo Data Hub Open m Demon Demon | Flexible Power Portal | Trades, |
| Connected Data Portal (CDP) A bit Flex In Five A bit Piclo Data Hub Open m Demon Demon | Flexible Power Website | |
| Piclo Data Hub Demon | Connected Data Portal (CDP) | Flexi |
| PICIO Data Hub Demon | <u>Flex In Five</u> | A br |
| Piclo Guide Demon | Piclo Data Hub | Open ma |
| | Piclo Guide | Demon |

national**grid > DSO**

Description

gistration, Qualification, Contract and Asset Registration

, Operation and Settlement, API Documentation

Guidance Documents

ibility Requirements, Trade Results and Data

rief overview of Flexibility and procurement

arket data covering GB DSO markets (including week-ahead)

nstrates how to navigate the National Grid DSO markets via Piclo

nationalgrid DSO

Q&A Doerte Schneemann Head of Flexibility Markets

National Grid Electricity Distribution



nationalgrid DSO

Thank You

nged.flexiblepower@nationalgrid.co.uk

National Grid Electricity Distribution

