DSO Electricity Futures
Autumn Conference

**DSO Data In Focus** 

22 October 2025



# **Charlotte Pirie**

Stakeholder Experience Manager Distribution System Operator

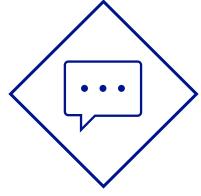
**Electricity Distribution** 



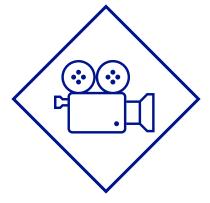
## Housekeeping



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



Œ		11.00 Welcome -	Housekeeping and session outline	Charlotte Pirie Stakeholder Experience Manager
PU		11:05 Open Data – 11:10 Accessing Data – 11:20 Uses of our data -	Introduction to data, principles and provisions Connected Data Portal and open data tools Exploring possible use cases for data sets	<b>Vaughan Pyne</b> Stakeholder Engagement Officer
<b>6</b>		11:25 Opportunity Map -	Exploring the functionality of the interactive map	Henry Walker DSO Models & Data Team Leader
D	III	11:35 Evolving Data -	Future data sets and the evolving data interface	Will Topping Curtailment Team Leader
		· 10:45 Q&A - Share Your \	Views- Open Forum and Slido Poll	DSO Data Specialist Panel

#### Getting to know you

It is important for us to understand your needs and how we support your interaction with our data.

How familiar are you with open data tools?

How regularly do you use our data tools & platforms (eg Connected Data Portal)?





# **Open Data**

**Data Principles & Quality** 



Vaughan Pyne

Strategic Engagement Officer South West Licence Area



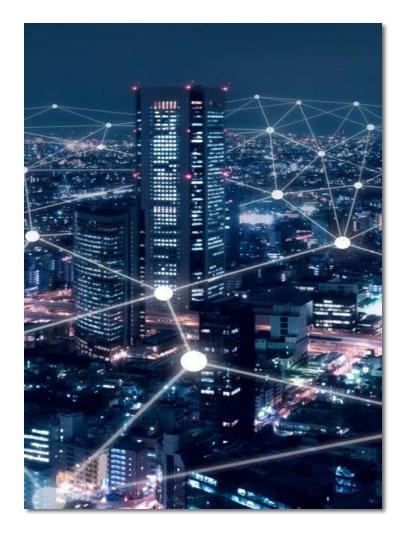
#### **Data - Our Mission**

We aim to empower users with detailed and accurate data on electricity distribution networks across the South-West, South Wales and the Midlands.



Our goal is to enhance understanding and support informed decision-making through the provision of accessible, high-quality data.

#### Data principles and quality



- Our approach is set out in our <u>Digitalisation Strategy</u>, aligning with:
  - Energy Data Task Force recommendations
  - Ofgem's Data Best Practice Guidance
- This supports external:

- challenges to dataaccuracy of data
- data custodian approach to improving data quality
   (as detailed in Ofgem's Data Best Practice Guidance)
- Upcoming, industry recognised Data Assurance
  - Submitting data to external, 3rd party Level 1 assurance accreditation



#### **Our Data Architecture**

Data is a 'golden thread' that runs across all our strategies.

- Network Visibility Strategies
- DSO Strategic Action Plan
- <u>Digitalisation Strategy</u>

- Improved data management;
- Increased network insight and operation;
- Delivering for Stakeholders

Focussing on the foundations for tangible & valuable outcomes for all current and future data and system users.



# Accessing our Data

**Connected Data Portal** 



#### **Connected Data Portal (CDP)**

 Comprehensive source for real-time and historical data

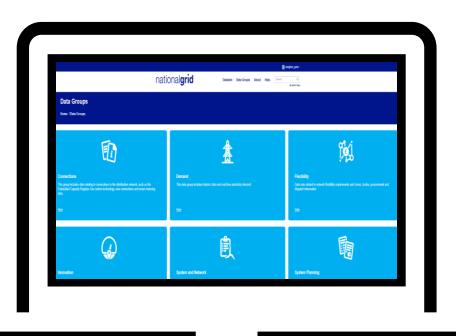
- Centralised location to access all externally available datasets
- Data available under NGED Open Data Licence

(based on Open Government Licence (OGL) v3.0)

https://commercial.nationalgrid.co.uk/open-data-licence

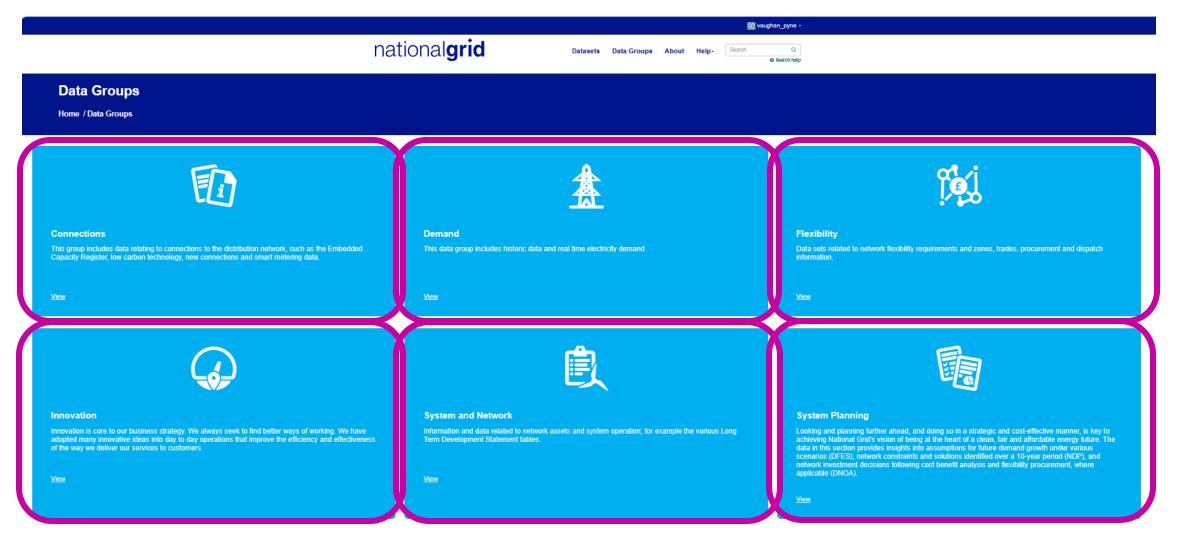
CDP is built on CKAN

https://connecteddata.nationalgrid.co.uk



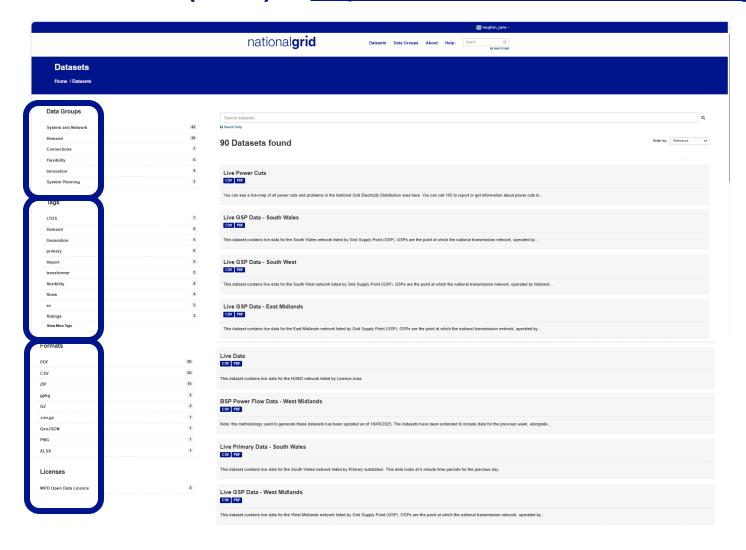


#### Connected Data Portal (CDP) - <a href="https://connecteddata.nationalgrid.co.uk">https://connecteddata.nationalgrid.co.uk</a>





#### Connected Data Portal (CDP) - <a href="https://connecteddata.nationalgrid.co.uk">https://connecteddata.nationalgrid.co.uk</a>





#### **Accessing our Data sets**

- Approximately 1/3 of users access the Connected Data Portal though the front-end of the website, navigating manually to access & navigate to data sets, & clicking to download.
- The remaining 2/3 of interactions to our open data is through the back-end of the potral, via API Tokens
- APIs (Application Programming Interface) provide stakeholders with the ability to build custom interfaces to our published data sets and consume our data in an automated & scalable way
- In making 60% of NGED's network data available via an interactive API:
  - ✓ Meeting a core RIIO-ED2 Business Plan commitment
  - ✓ Supporting the requirements of Ofgem's *Data Best Practice Guidance*).



#### **APIs**

 You need to register to set up an API Token in order to set up automated data extraction





- API extracted data can then be integrated into your own systems for analysis
- Frequency of data extraction can be set to your own timescales, or automatically extracted whenever data is updated by NGED





# Data in Focus

Uses of our Data Sets



#### **Uses of our Data – Academic study**



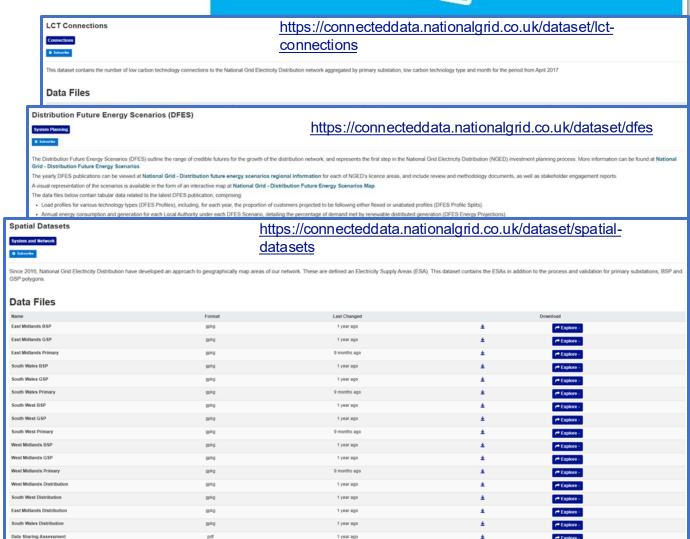
Low Carbon Technologies (LCT)



 Distribution Future Energy Scenarios (DFES)



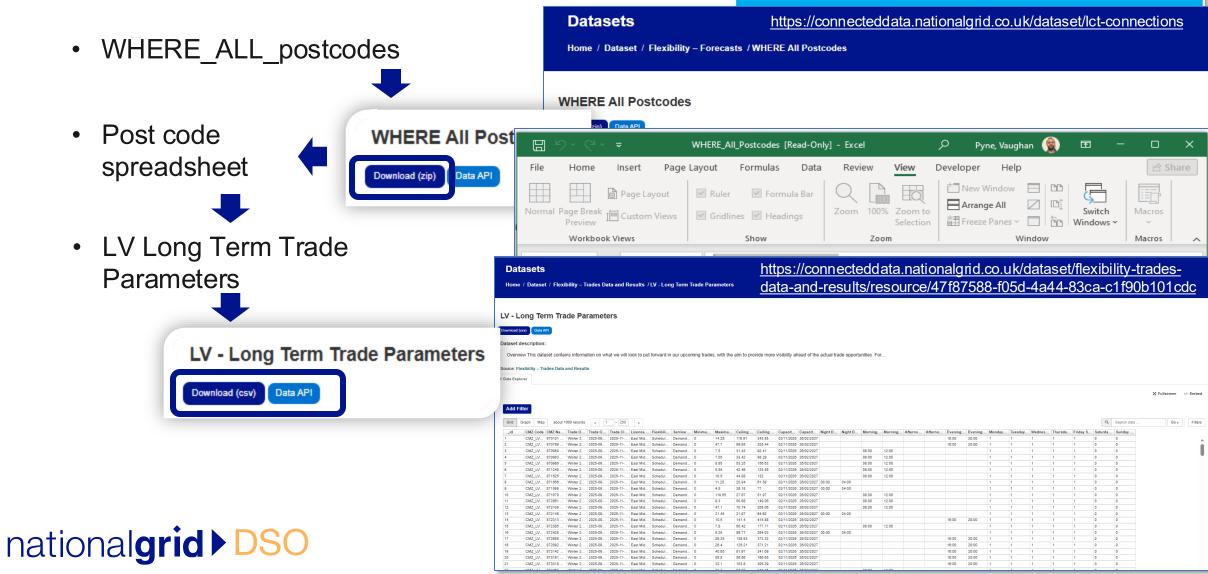
 Primary / Secondary ESA data (Electricity Supply Area)





#### **Uses of our Data – Flexibility Markets...**

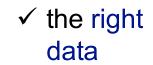




#### **Visualising our Data Sets**

Our stakeholders tell us of their different needs and expectations in engaging with our data.

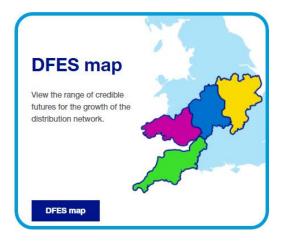
In serving the different users of data, we are committed to ensuring we share:



- ✓ in the right format
- ✓ at the right time









National Grid - Maps hub



## **Data in Focus**

Network Opportunity Map (NOM)

Henry Walker, DSO Models & Data Team Leader

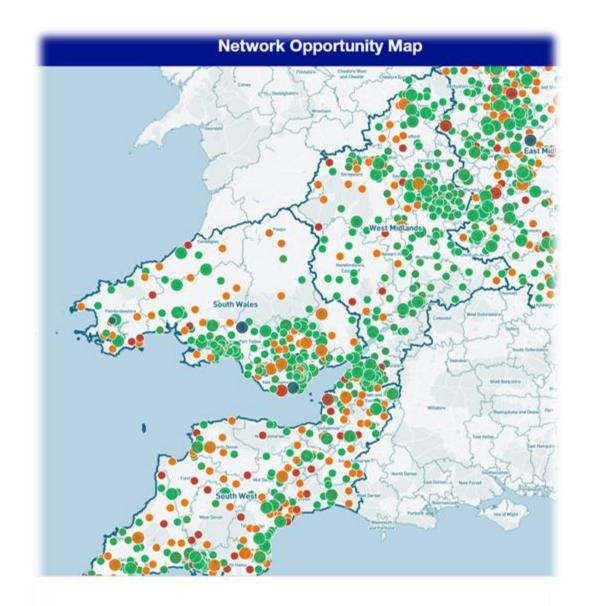


#### **Network Opportunity Map – Introduction**

Inaugural map published in February 2025 to provide an indicative view of headroom available for additional demand and generation on our network.

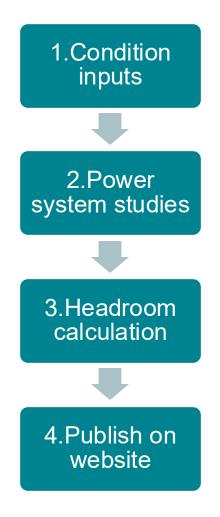
Supersedes the former previous Network Capacity and EV Maps with improved network analysis algorithm

We have completed an incremental data refresh this September (2025).





#### **Network Opportunity Map - Methodology**



Collation of master network models, connections pipeline information, operational and customer behaviour

Contingency and Sensitivity analysis to determine the impact of adding load at a specific node, to a specific branch

What is the minimum amount of load I could connect to this node until something on the wider network breaks?

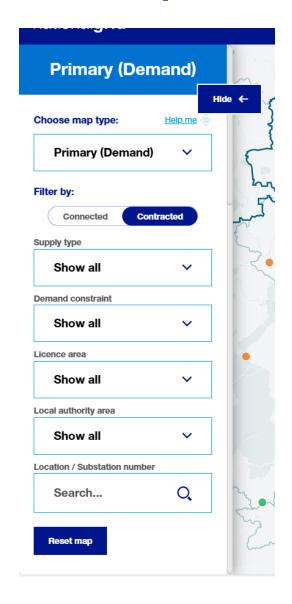
Demand and Generation headrooms published on our network opportunity map, with associated RAG Status

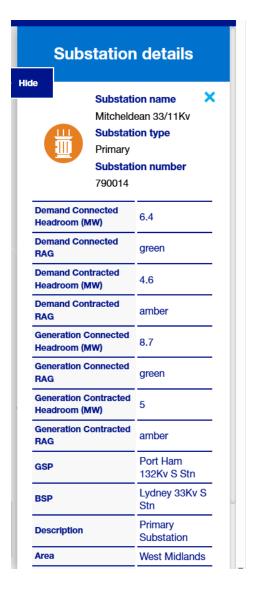


#### **Network Opportunity Map - Future Development**

We are looking to expand our methodology further alongside the upcoming Network Development Plan, subject to feedback. This could include:

- Making more data available for:
  - Consideration of certain outage conditions for headroom calculation
  - Consideration of upstream network constraints
  - Assumptions on behaviour for future connections
- Integration with curtailment data, where appropriate, to indicate possible curtailment at sites with low headroom







#### **Network Opportunity Map - Future Development**

- We acknowledge the wide stakeholder base who are utilising the NOM
- Our initial suggestions based on your feedback:
  - A further presentation on our website as to how a typical user would interact with the map
  - Streamlining the interface to DNO and DSO colleagues to help progress further conversations
- We want to hear from you
  - Feedback to: <a href="mailto:nged.netopmapfeedback@nationalgrid.co.uk">nged.netopmapfeedback@nationalgrid.co.uk</a>



#### Tell us your views

It is important for us to understand your needs and how we support your interaction with our data.

Have you used our Network Opportunity Map?

Do you have any feedback on our Network Opportunity Map?



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## **Future Data**

**Curtailment Data** 

Will Topping,
DSO Curtailment Team Leader



#### **Future Data Sets – Curtailment Data**

- Curtailment analysis goes hand in hand with the Connections Queue.
- We will be providing:

Raw curtailment data, Methodology of NGEDs curtailment analysis

Allowing clearer insight into the curtailment associated with the amended connections queue.

NGED provides a curtailment report in support to a Connection offer, to give an indication of the level of curtailment a connection may experience. By providing raw curtailment data, stakeholders will be able to self-assesses the likelihood and the scale of potential curtailment that a prospective site may\* expect.

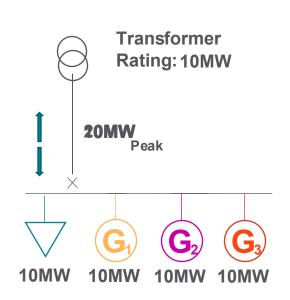
\*insights are intended to be used as an indicative tool to assist early stage site assessments, and not as a replacement to the detailed curtailment report that would be issued as part of an NGED Connection Offer.

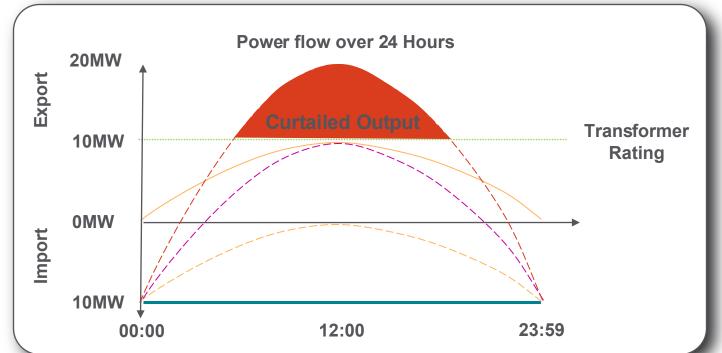


#### **Concept of Curtailment**

- Existing 10MW demand
- New 10MW PV site connects
- Second 10MW PV site connects
- Third 10MW PV site connects







#### **Curtailment Analysis - Input Data**

- 1. Substation Load
- 2. Generic Generator Profiles
- 3. Sensitivity Factors
- 4. Branch Load
- 5. Asset Ratings (pre-event limits)
- 6. Connection Queue

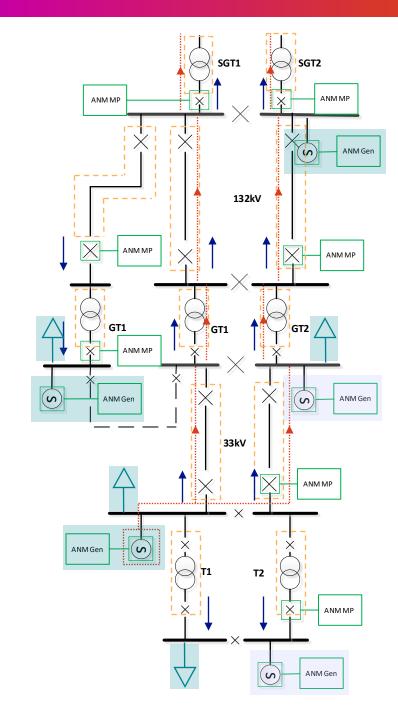
ANM – <u>Active Network Management</u>

DANM - Distribution ANM

SGT ANM – Super Grid Transformer ANM

TL ANM - Technical Limit ANM

GSP 1	DANM 33/11kV Tx	DANM 33kV Circuit	DANM 132/33kV Tx	DANM 132kV Circuit 1	DANM 132kV Circuit 2	SGT ANM	TL ANM
1			✓				
2			✓				
3	✓						
4	✓						
5			✓	✓			✓
6							✓
7	✓	✓					✓
8			✓	✓		✓	✓
9			✓	✓		✓	✓
10					✓	✓	✓
11					✓	✓	✓
12		✓			✓	✓	✓



#### **Curtailment Data Sets - (data to be published)**

#### Substation Load

Power	MW	MVAr	MW	MVAr	MW	MVAr
Unique ID	AARO	3_MAIN1	AS	HW5		BARQ5
01/01/2024 00:00	0.937	0.308	0.124	0.041	4.66	-0.54
01/01/2024 00:30	0.931	0.306	0.124	0.041	5.79	-0.4
01/01/2024 01:00	0.928	0.305	0.162	0.053	6.03	-0.4
01/01/2024 01:30	0.93	0.306	0.19	0.062	5.89	-0.43
01/01/2024 02:00	0.933	0.307	0.256	0.084	5.67	-0.43

#### 4. Branch Load

From bus number	To bus number	Ckt id	Half hour		Load mw	
7001	735905	L1		01/01/2024 00:00		-2.679
7001	735905	L1		01/01/2024 00:30		-2.955
7001	735905	L1		01/01/2024 01:00		-2.934
7001	735905	L1		01/01/2024 01:30		-2.76



#### 2. Generic Generator Profiles

TimeStamp CE	Wind	PV	Other	
01/01/2024 00:00	0.8458	0	1	
01/01/2024 00:30	0.8458	0	1	
01/01/2024 01:00	0.8615	0	1	
01/01/2024 01:30	0.8503	0	1	
01/01/2024 02:00	0.8186	0	1	



#### 5. Asset Ratings (pre-event limits)

From bus number		To bus number	Ckt id	Rating	PEL_raw	
	7001	735905	L1	16.2		6.7
	7001	735905	L1	14.4		5.9
	7001	766403	L1	16.2		7
	7001	766403	L1	14.4		6.2



#### 3. Sensitivity Factors

	To bus number	Ckt id		Sensitivity factor mw
7000	7001	L1	7000	-1
7000	7001	L1	700001	-1
7001	735905	L1	7000	-0.5148
7001	735905	L1	7001	-0.5142



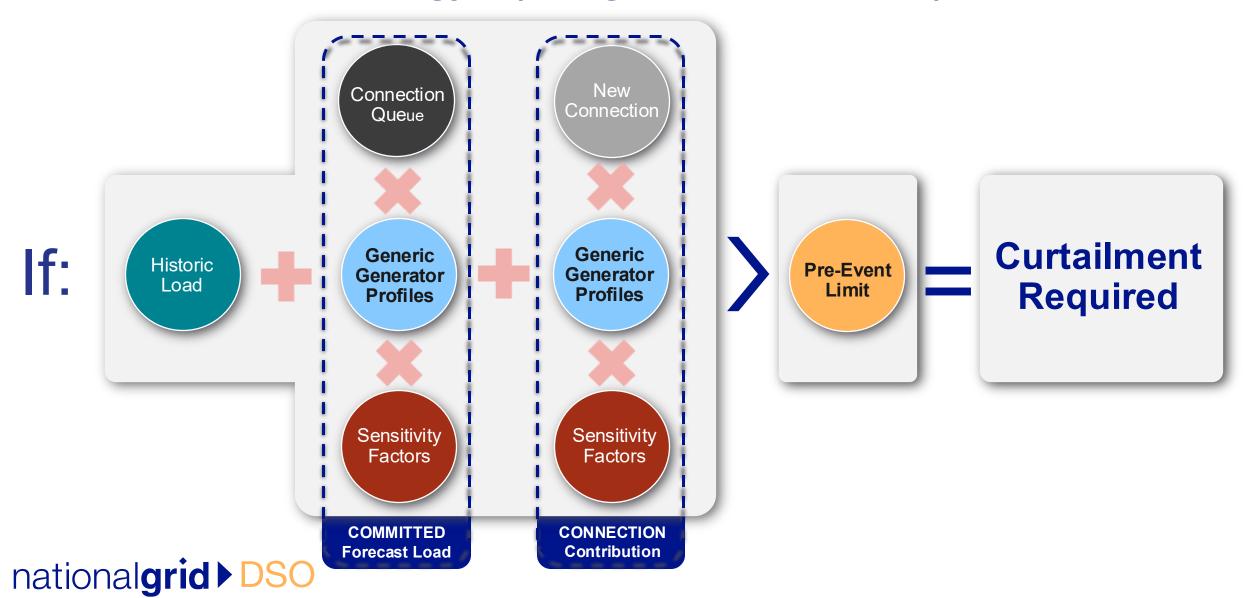
#### 6. Connection Queue

TANM	Technical Limits	SGT RPF	DANM	Export Capacity (MW)	Canacity	Scheme Status	Fuel Typ e	Node Name
Yes	No	Yes	Yes	2.3	0.024	Connected	Wind	VTNG3_MAIN1
Yes	No	Yes		30	0	Accepted	PV	TRNW3
Yes	No	Yes	Yes	44	25	Accepted	PV, BESS	TRSC3
Yes	No	Yes	No	15	5	Accepted	PV, BESS	MENR3_MAIN1





#### **Curtailment Methodology – (using Curtailment Data)**



#### Roadmap to accessing curtailment data Availability Provided by NGED Based on the network at the time of the application with the Connection NGED Calculated by NGED to inform the decision of whether to accept Curtailment Offer Report Estimated to be Internet based data, made available on <u>NGED's</u> online Connected Data Portal available online in Provision of • Enables customer's own analysis Curtailment last quarter of 2025 Data Estimated to be Internet based tool to provide estimate of analysis at any point on our network launched online in Simplified version of the report that is provided with a Connection Offer Self-serve 2nd quarter of 2026 Tool



## **Future Data**

**Evolving Data Portal** 

Vaughan Pyne, Strategic Engagement Officer



#### **Evolving Data Portal**

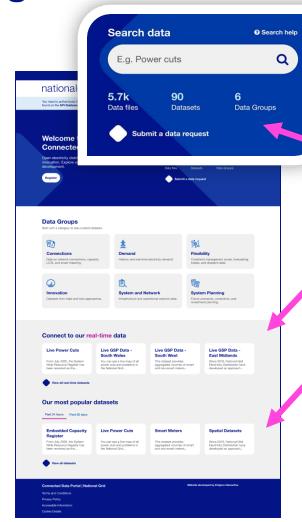
In response to stakeholder feedback the CPD:

- Introduced Live Data sets
  - providing real-time insights into transformer flows & live power cuts
- Increased the frequency of dates on some of our key datasets, i.e.:
  - flexibility market
  - underlying data of **Network Opportunity Map**.
- Evolving from Connected Data Portal
   Rebranded Data Portal
  - improve presentation,
  - visibility,
  - user interfaces
  - additional dashboards



#### Rebranded Data Portal – Homepage Screen





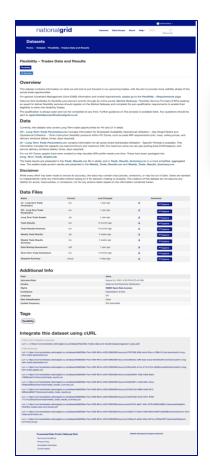
- Clearer layout
- Improved search visibility
- Easier to explore real time data
- Better visibility of most popular datasets

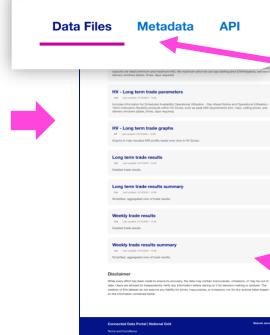


**Proposed design** 



#### Rebranded Data Portal - Data Set Screen





nationalgrid

Trades Data and Results

Today's design

**Proposed design** 

① Subscribe

→ Explore

→ Explore

Submit a data request
Share your feedback

- Clearer layout
- Improved visibility of option to subscribe to a dataset
- Tabs for files, metadata and API information so you only see what you need, when you need it
- Visible file descriptions so you know what each file is



#### Rebranded Data Portal – shaped for YOU

Rebranded Data Portal re-vamp

What improvements would you like to see?

• Useability?

• Insight mechanisms?

• Dashboards?

Help NGED to keep delivering:

- ✓ the right data
- ✓ in the right format
- ✓ at the right time



Register your interest for input here at: <a href="mailto:nged.dataportal@nationalgrid.co.uk">nged.dataportal@nationalgrid.co.uk</a>

# Summary

#### **Summary**

- The Connected Data Portal is the gateway to our open data
- Access data via either front-end manual engagement or back-end API endpoint
- Utilise our visual dashboards for data insights, such as our Network Flexibility and Network Opportunity Maps
- Upcoming new data sets: include Self-Serve Curtailment Portal, raw Curtailment data, Connections Queue & Secondary transformer Phasing Data
- Be involved in the conversation: for our Rebranded Data Portal
   New data sets, improved data accessibility or meta data descriptions







From bus number	To bus number	Ckt ID	Bus number	Sensitivity factor mw
7000	7001	L1	7000	-1
7000	7001	L1	700001	-1
7001	735905	L1	7000	-0.5148
7001	735905	L1	7001	-0.5142





### We want to hear your views

It's important to us to make sure we are delivering what you need.

Has today improved your understanding of our data tools?

After today, how much do you think you'll use our data tools and platforms?

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## **Data Experts**

### Panel Q&A



Phil Moseley Head of System Models and Data



Phil Lawson

Data Engineering
and Process

Manager



Malachi Moses-Gair DSO Data Engineer



Rebecca Harris
Rebrand Data
Portal Product Owner



Will Topping
DSO Curtailment
Team Leader



Henry Walker

DSO Models and

Data Team Leader