Customer Connections Steering Group

Kester Jones
Connections Strategy Manager

February 2023

nationalgrid

CCSG Agenda

Agenda		
Introduction to CCSG	Kester Jones	09:30 – 09:35
Director's update	Alison Sleightholm	09:35 – 10:00
NGED/NGET/ESO Interface	Ruth Shaw - NGET & Andrew Akani	10:00 – 10:40
Major Connections Incentive	Kester Jones	10:40 – 10:45
Access SCR update	Kyle Smith	10:45 – 11:15
Refreshment / Comfort Break		11:15 – 11:30
Flexibility Markets	Ben Godfrey	11:30 – 11:45
DSO/DNO update	Ben Godfrey	11:45 – 12:00
Summary and feedback	Kester Jones	12:00 – 12:15
Lunch		12:15pm

Directors Update

Alison Sleightholm
Regulation and Corporate Director

February 2023

nationalgrid

National Grid

NGED news

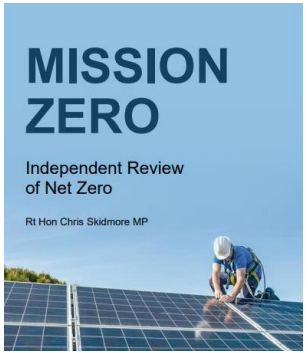
- National Grid Electricity Distribution (NGED) President Phil Swift leaves on 31st March 2023.
- Cordi O'Hara, currently President of National Grid Ventures, will become NGED's President from 1st April 2023.

Net Zero – January 2023

- Chris Skidmore (former Energy Minister) published his Net Zero review findings "Mission Zero".
  - Some key areas relate to DNOs:

"underpinning infrastructure requirements …at a distribution network operator level to be consistently and comprehensively operational without causing further delays to decarbonisation"

"The transition will need to be supported by wider changes to… distribution networks



Report: Review of Net Zero - GOV.UK (www.gov.uk)

National Grid
Industry news

❑ Ofgem's Call for Input (CFI) on the "Future of local energy institutions and governance"

- Following the CFI in 2022, Ofgem aim to publish their conclusions on reform by early 2023.

❑ BEIS Review of Electricity Market Arrangements

- A **3** stage approach
  1. setting out a statement of the case for reform (in the REMA Consultation);
  2. developing and determining what reforms are needed through engagement with energy sector (throughout 2022 and 2023); and
  3. establishing a delivery plan and overseeing implementation (from the mid-2020s) in time to meet the Government's commitment of a net zero power sector by 2035.

❑ Ofgem's Forward Work Programme 2023/24

- Ofgem's final Forward Work Programme for 2023/24 will be published by 31 March 2023.
- It contains short and longer term priorities to protect consumer's interests now and in the future covering areas such as;
  - Digitalisation,
  - Future System Operator,
  - Distribution System Operator,
  - Wholesale market reforms
  - network charging arrangements, plus;
- Enabling time-critical investment in infrastructure
  - Implementing RIIO:ED2 and undertaking reforms to improve both transmission and distribution network connection times in order to significantly reduce the current queue for connection.
- Enabling markets for Flexibility
  - work with Government to develop a competitive market for smart energy appliances and demand side response, alongside storage, ensuring that consumers and the electricity system are protected.

RIIO-ED2 Delivery Plan Progress

Following the ED2 Business Plan Final Determination outcome from Ofgem in December 2022, we will: -

By mid-February – carry out an evaluation of the Final Determination (FD) outcome

- Impact on the delivery of the 42 core commitments to be finalised
- Impact on investment (Allocation of the £5.9 billion)

By mid-March – have plans in place, which will include:

- RIIO-ED2 Delivery Plan including key initiatives, KPIs, roadmaps and critical risks.
- Efficiency savings plan.
- Workforce requirements.
- Updated Transformation Plan aligned to FD outcome.
- “Working together for Success” initiative to be launched.

All to be communicated in readiness for 1st April 2023

Electricity Distribution

NGET Update to the NGED Customer Connections Steering Group

Ruth Shaw
NGET Customer and Stakeholder Experience Manager

Andrew Akani
NGED Primary System Design Manager

February 2023

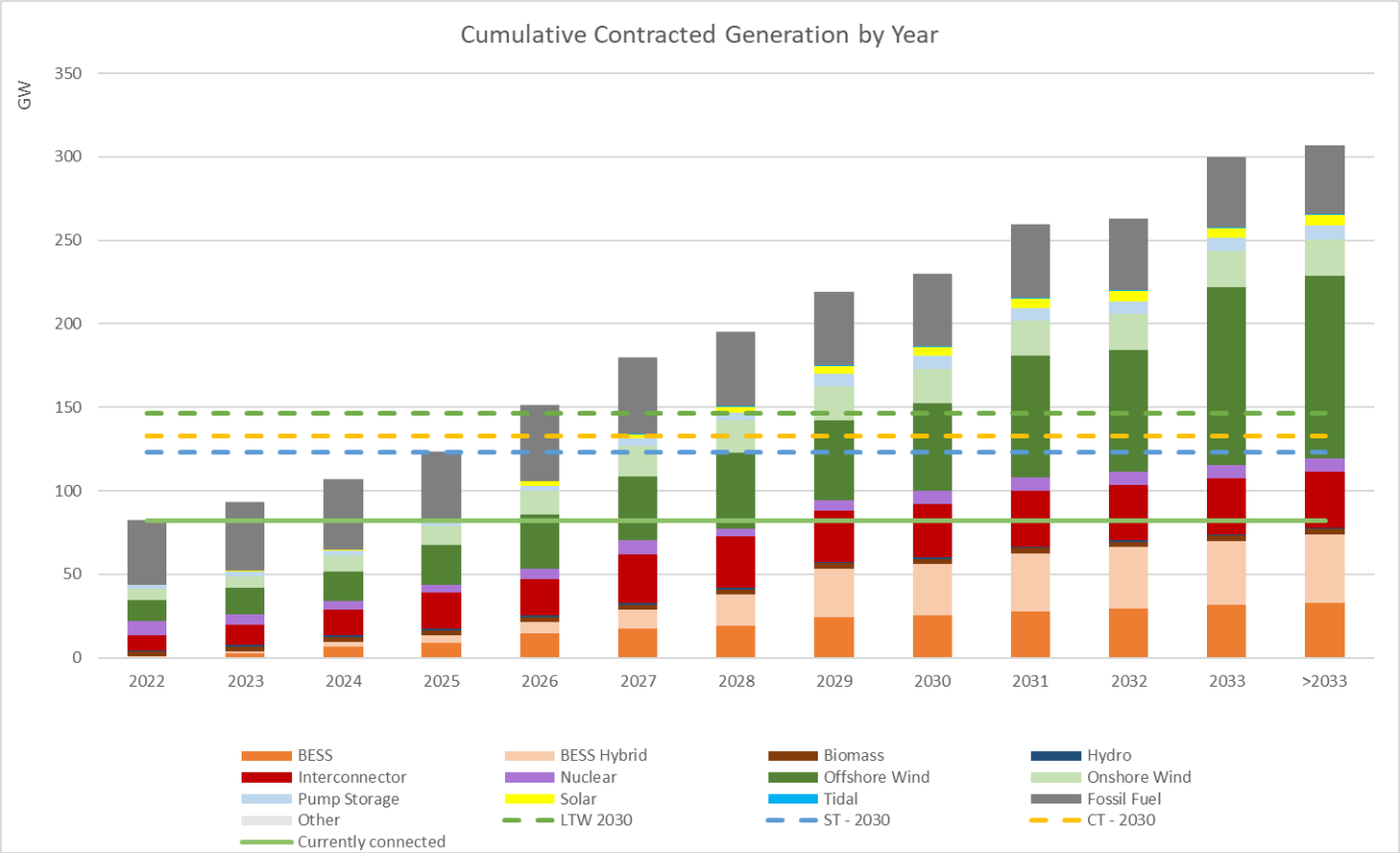
nationalgrid

The volume of contracted capacity far exceeds our best case scenario for what is required

The Electricity System Operator (ESO) Future Energy Scenarios (FES) outline the expected Transmission capacity required by 2030.

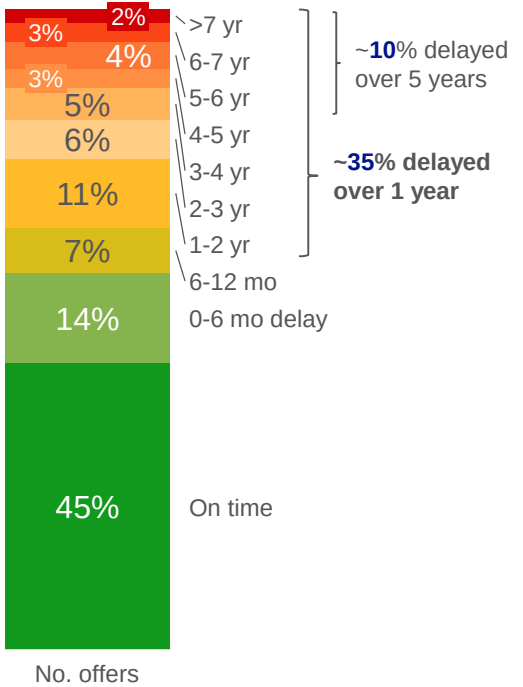
By 2030, the volume is approximately three times what is currently connected.

An enduring connections model will need clear rules around who and how customers can connect, with alignment to Government strategy around NetZero ambitions.



We need to reduce the delta between connection dates offered and customers' requested dates; 35% of customers are facing a delay >1year

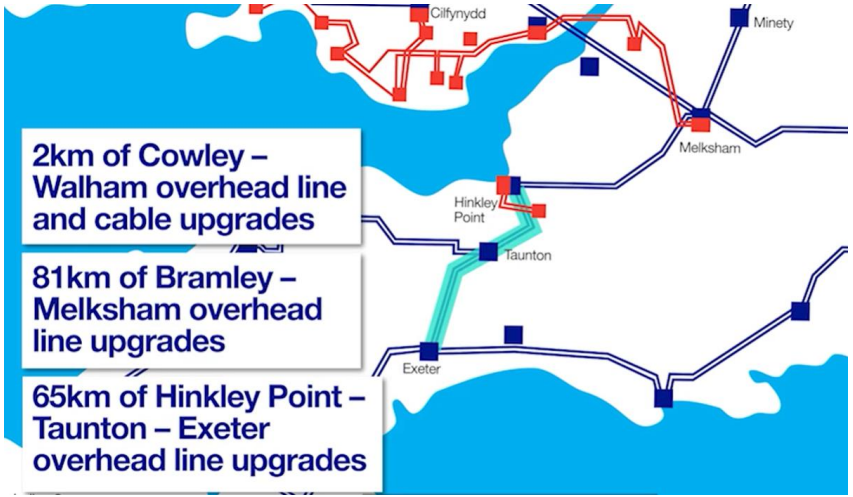
Delta between connection date offered and requested date (April 20 - Sep 22)[1] **-** Includes generation and demand contracts



- **Currently 35% of our customers' projects are facing a delay of more than a year driven by connection dates; 10% of these are delayed by more than 5 years.**
- **To meet customer needs, we need to focus on reducing the difference between offered and requested dates, typical lead time per technology;**
  - Offshore wind - 6-9 years
  - Solar >100MW - 4-9 years, Solar <100MW - 3-4 years
  - Data centres - 1-5 years
  - Batteries - 2-4 years
  - DNOs / housing estates -1-4 years
- This issue **also impacts DNOs ability to meet their customers' needs**;
- **Lead-times are driven by the increase in scale and, crucially, complexity of the queue, which is only set to increase**
- **Without fundamental reform we expect the queue to continue to rise rapidly, due to; BESS, possible relaxation of onshore planning restrictions and an increase in EV / Heat pump adoption**
- **The challenge is not unique to NGET, similar challenges are occurring across other countries**

A specific focus on the South West & South Wales

- High volume of connections continue to contract in this region. Currently we have over 30.7GWs of contracted generation with another 18.1GWs currently out for acceptance. Current connection timescales in this area are now beyond 2030.
- The region continues to see a diverse set of technologies looking to connect from offshore wind (Celtic Sea), batteries and solar farms.



Two of the earlier reinforcement works we need to deliver include:-

- **81km of reconductoring between Bramley to Melksham**
- 2km of cable and OHL upgrades from Cowley to Walham

Bramley to Melksham

- **Currently bringing forward the works to deliver this schemes, Outages now planned for 2024 /2025**
- **Pre-work Sanction being prepared for Feb 23 to purchase materials**
- **Competitive Tender planned for delivery. Est. c.£100M Upgrade**
- **Estimated Delivery date October 2025 (3 year acceleration)**

Cowley to Walham

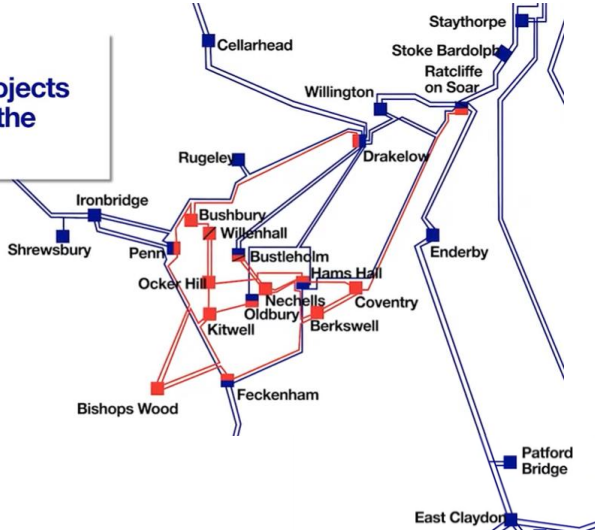
- **Outages indicatively planned for 2026/2027**
- **Initial Development work progressing**
- **Competitive Tender planned for delivery**
- **Estimated Delivery date October 2027 (2 year acceleration)**

The acceleration of these schemes will release capacity earlier than expected. The exact amount and allocation of this capacity will be linked to the optimisation process intended to complete in Spring 2023.

A specific focus on the Midlands

- High volume of connections continue to contract in this region. Currently we have over 17GWs of contracted generation Current connection timescales in this area are now beyond 2030.
- The strategy to create more capacity in this region is linked to **uprating existing circuits rather than delivering new infrastructure.**

We have over 10 reconductoring projects on circuits across the Midlands



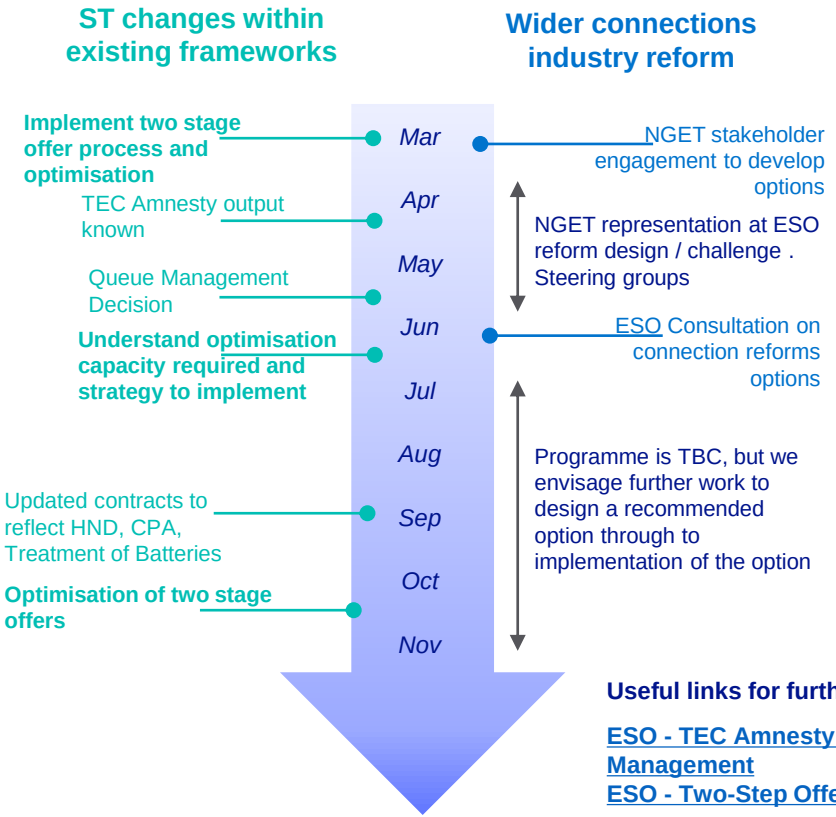
There are 10 reinforcement schemes required across this region, all of which are required to mitigate thermal constraints on the system. Key schemes that are required include :-

- Enderby - Partford Bridge – East Claydon (86km)
- Ironbridge **- Feckenham (66km)**
- Cellarhead – Dracklow (45km)

Focus is on how the Network Operability Assessment (NOA) supports the need for these reinforcements along with sequencing of the system outage plan.

Significant focus on the system access plan to coordinate the necessary package of reinforcement works within this area.

Next Steps and timeline



- **Strategy today is focused on enabling short term changes within the existing framework and developing proposals on wider reform to the connection process which will fix the root cause.**
- **Short term change objectives:-**
  - Implement a new Construction Planning Assumption that enables the potential acceleration of contracted customers.
  - Different treatment for batteries that decouples them from the impact of triggering wider system reinforcements.
  - Strengthening the contractual tools through the implementation of queue management.
- **Wider connections Industry reform:-**
  - Provide a recommendation for a connection process that is fit for delivering at the pace for net zero.
  - Projects that are ready are prioritised.

Useful links for further info;

ESO - TEC Amnesty & Queue Management
ESO - Two-Step Offer mailing list

ESO - Connection Reform
NGET - Connections Page & relevant updates

Major Connections Incentive

Kester Jones
Connections Strategy Manager

February 2023

nationalgrid

Major Connections

New Major Connections incentive for ED2

- Ofgem’s aim is for the major connections incentive to drive licensees to provide good customer service to larger connection customers
- Under this incentive licensees will;
  - undertake the Major Connections Customer Satisfaction Survey
  - produce a Major Connections Annual Report

Major Connections

Major Connections Customer Satisfaction Survey - MCCSS

- Will run both on a financial and reputational basis based on the level of effective competition demonstrated in Relevant Market Segments
- Includes all connection categories
  - excluding “small” connections (1-4 connections and small LV)
- Contains two “killer” questions, scored out of 10
  - One after the quote has been issued
  - One after the connection has been completed

Major Connections Annual Report

Will include:

- Performance in relation to the MCCSS
- Performance in relation to timeliness of major connections (TTQ/C) and
- Delivery of the DNOs major connections strategy

Access Significant Code Review (SCR) update

Kyle Smith
Connections Strategy Engineer

February 2023

nationalgrid

Access SCR overview

Distribution Network Connection Charges

- There will be different connection charging depths for Demand and Generation Connections, subject to the application of a High Cost Threshold.
- For Demand schemes, Distribution Network Operator (DNO) fully funds reinforcement and recovers through Distribution Use of System (DUoS).
- For Generation schemes, customer only contributes to reinforcement at the same voltage level as Point of Connection.
- The following High Cost Cap values will apply:
  - Generation will be set at £200/kW
  - Demand will be introduced and set at £1720/kVA

SCR Connection boundary reforms

Distribution Network Connection Charges

	Extension assets	Reinforcement assets at connection voltage	Reinforcement assets at connection voltage +1
Current arrangements	Connecting customer pays 100%	Connecting customer pays a proportion of the reinforcement costs	Connecting customer pays a proportion of the reinforcement costs
New arrangements (Demand)	Connecting customer pays 100%	Fully funded by the DNO via DUoS	Fully funded by the DNO via DUoS
New arrangements (Generation)	Connecting customer pays 100%	Connecting customer pays a proportion of the reinforcement costs	Fully funded by the DNO via DUoS

SCR Access rights

Non-Firm Access Arrangements

- Curtailment Definitions:
  - To be defined as ‘any action taken by the network operator to restrict the conditions of a connection in response to a constraint on the distribution system’
  - Excludes customer interruptions from faults
  - Excludes interruptions resulting from the transmission network

Curtailment Limits

- DNOs will set the curtailment limits and include this in the connection offer
- The process should be as simple as possible
- The processes implemented must be common to all DNOs and be repeatable
- Limits accepted by customers will be included in both their Curtailable Connection offer and connection agreement
- Customers subject to Curtailment will receive regular reporting on the level of curtailment relative to their accepted limits

Working Group - DCP 404

Changes to Terms of Connection for Curtailable Customers

DCP 404

Implement parts of Ofgem's Access SCR Decision in respect of Non-firm Access Rights.

Seeks to address paragraphs 18 to 22 of the Access SCR Direction.

- Introduction of new non-firm (curtailable) access rights for distribution connected users
  - Where there is a need for reinforcement and a need for curtailment to manage local network constraints i.e. if there is sufficient capacity for a firm-connection a curtailable connection will not be offered

What does this mean for you?

- Where Reinforcement to the network is required, a Curtailable offer could be made.
- Within a Curtailable offer we will have detailed all the Curtailment Information.
- Curtailment end dates will be the date Curtailment ends for your connection.
- Exceeded Curtailment Prices will be provided.

(f) Curtailment Information:

(i) Non-Curtailable Import Capacity:	[xxx] kVA
(ii) Non-Curtailable Export Capacity:	[xxx] kVA
(iii) Curtailable Import Capacity:	[xxx] kVA
(iv) Curtailable Export Capacity:	[xxx] kVA
(v) Curtailment End Date: DD/MM/YYYY]	[[N/A]
(vi) Import Curtailment Limit:	[hours]
(vii) Export Curtailment Limit:	[hours]

(viii) Exceeded Import Curtailment Price (subject to change): [£/MVAh]

(ix) Exceeded Export Curtailment Price (subject to change): [£/MVAh]

Working Group - DCP 405

Managing Curtailable Connections between Licensed Distribution Networks

DCP 405

Implement the outcomes of Ofgem's Access and Forward-Looking SCR in respect of curtailable connections where the customer is connected to a different licenced DNO than the network that drives the requirement to curtail the customer

Seeks to introduce obligations at the boundary between licensed DNOs. To implement paragraphs 18 to 22 of the Access SCR Direction.

This includes:

- To ensure that an appropriate assignment of responsibilities and liabilities between DNO – IDNO – Customer.

Working Group - DCP 406

Changes to Common Connection Charging Methodology (CCCM)

DCP 406 & DCP 406A

Implement parts of Ofgem's Access SCR Decision in respect of the CCCM.

Seeks to address paragraphs 12 to 15 and 17 of the Access SCR Direction.

This includes:

- The definition of Demand and Generation connections;
- Reflecting terms throughout Schedule 22 (the CCCM) of the DCUSA.

What does this mean for you?

- Changes to the Common Connection Charging Methodology (CCCM) examples.
- Demand reinforcement socialised up to the High Cost Project Threshold (HCPT)
- Generation reinforcement, cost apportioned at the voltage of the POC and fully socialised at the voltage level above, up to the HCPT.
- Definition of treatment of IDNO reinforcement for load growth and new connections.
- Cost allocations for Curtailable Connections.

Subject to Ofgem's approval

What does this mean for you?

- Rebates for second comer payments – It is important to note that the ECCR is currently also due to be amended in line with Ofgem's Access SCR decision.
- Definition of Demand and Generation customer.
- These changes are for Connection applications received on or after 1st April 2023.

Subject to Ofgem's approval

Generation Connection	means a connection to a Premises where the primary purpose of the Premises is wholly or mainly Electricity Generation and/or Electricity Storage. In determining such primary purpose we will consider: i. if the Maximum Capacity of the connection of the Premises to the Distribution System for export is greater than the Maximum Capacity for import; ii. if the Premises has a Generation Licence; iii. if the Premises has a Generation Licence Exemption; and/or iv. any other information we consider relevant.

Working Group - DCP 407

Speculative Development

DCP 407

Implement parts of Ofgem's decision in respect of Speculative Development into the CCCM, with consequential changes to be made into Schedule 32 (Residual Charging Bands) of the DCUSA.

This CP also seeks to address paragraph 16 of the Access SCR Direction.

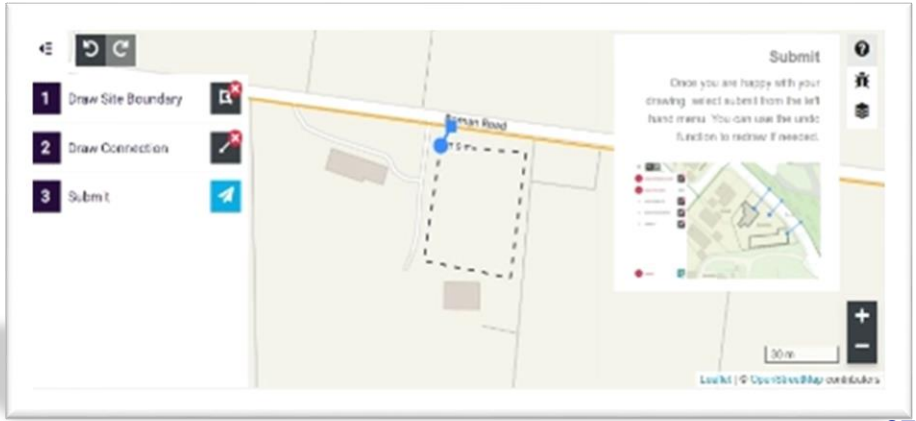
This includes:

- Greater clarity on the characteristic "the capacity requested caters for future expansion rather than the immediate requirements of (an) end user(s)";
- Greater clarity on the characteristic "the capacity requested caters for future speculative phases of a development rather than the initial phase(s) of the development"; and
- Consideration of introducing a methodology for connections with planned phases or future expansion".

What does this mean for you?

- Change to the definition of ‘speculative’ development.
- Implementation of a new scoring matrix.
- Applications are to be scored against the new matrix to be determined if they are speculative.
- Speculative developments fully fund reinforcement costs.

Subject to Ofgem’s approval



DCP's To Date.

DCP 404 **DCP 405**	Approval received from Ofgem for implementation.
DCP 406 & 406A **DCP 407**	DCP's have been approved by DCUSA panel. Awaiting Ofgem's approval: DCP 406 & 406A is due early to mid February DCP 407 is due late February

Distribution System Operator

Ben Godfrey
Director of Distribution System Operator

nationalgrid

Electricity Distribution

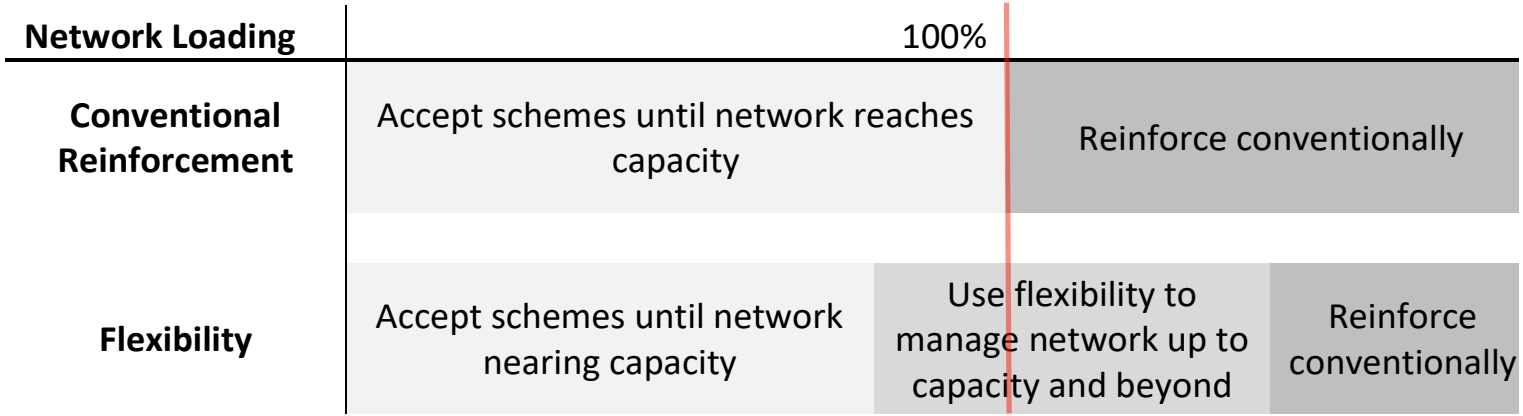
1

Flexibility Market Update

nationalgrid

Use of Flexibility Services by NGED

- **Enables us to defer reinforcement works**
- Reduces costs
- Allows more time to plan reinforcement works
- **Flexibility Services can be acquired faster than new assets**



Service Types

	Demand Constraint	Generation Constraint
Demand Side Response (DSR)	Demand Turn Down	Demand Turn Up
Distributed Generation Response	Generation Turn Up	Generation Turn Down





Evolving Flexibility

We listened:

Feedback from our Stakeholder consultations:

- Simplify and remove admin burden
- Provide digital interfaces
- Increase market opportunities
- Increase market investment

What we're doing:

Market Entry

- Digital tools to lower barriers to entry
- APIs to support scale and to link with wider platforms/ aggregators
- Open and accessible data

Product Evolution

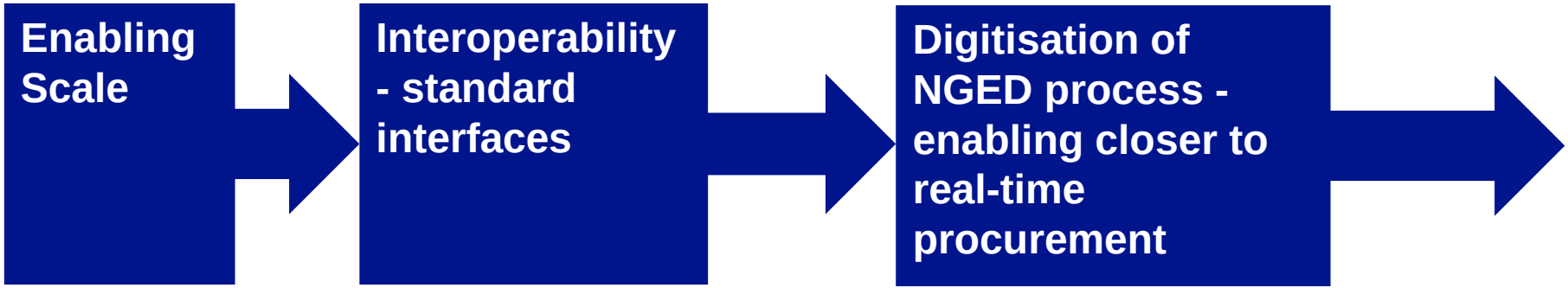
- Introduction of Sustain targeted at domestic
- Long Term and Short Term Products
- Steps towards closer to real-time procurement

Increased participation

- 1360 new LV locations
- Step away from fixed pricing
- Move to ceiling prices for Sustain, Secure and Dynamic

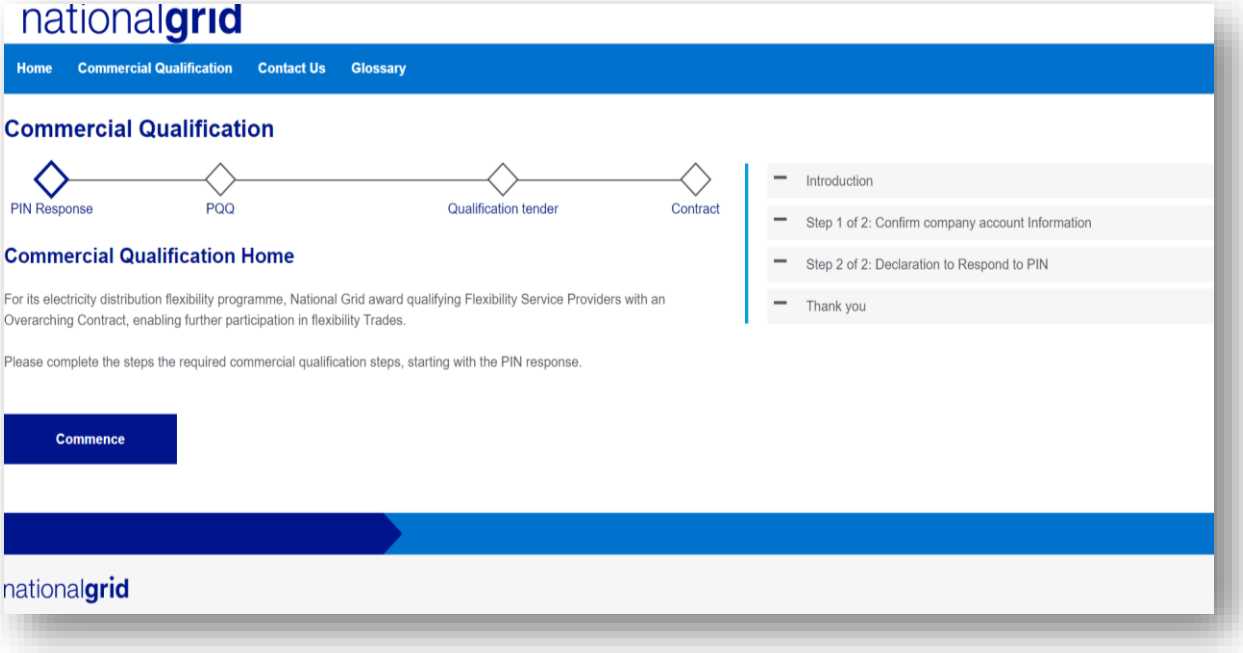
Evolving Flexibility

Standardising our processes digitally;



Market Gateway

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

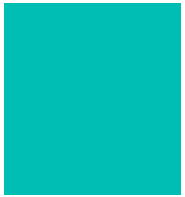


One account per Organisation

One User per Organisation initially

Account requests approved within 1 working day

NGED’s DSO Flexibility Market

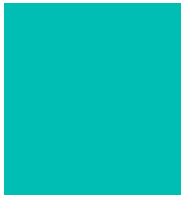


1360 secondary network sustain zones launched for operation winter 23/24

£36m of reinforcement

1360 CMZs (need from 5kW up)

Prices vary on location (up to £317/kW/year).

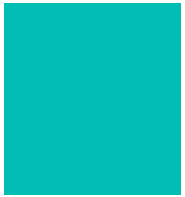


159MW of primary network zones being procured

£135m of reinforcement

37 CMZs

£2.6m for FY23/4



163MW of primary network zones being operated

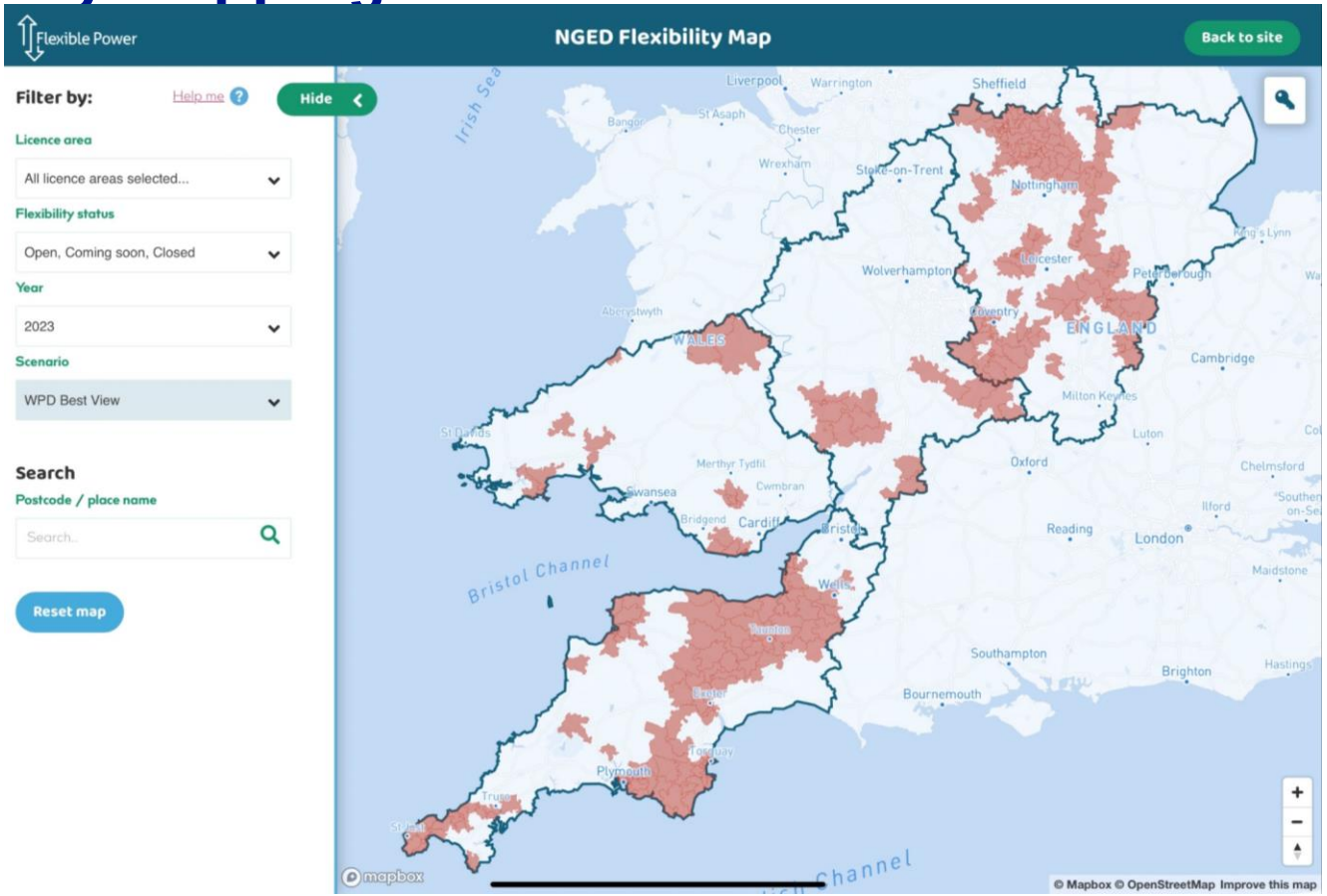
£126m of reinforcement

24 CMZs

£0.5m in FY22/3

Last year we dispatched 1.24GWh of flexibility to help support our network across 32 CMZs using 48 different dispatch groups.

Opportunity Mapping



Key Dates

Our full procurement timeline for 2023/24 flexibility requirements are published here; **https://flexiblepower.wpdserv.net/downloads/1002**

13th Feb

- Publication of HV and LV CMZ locations with Winter 2023/24 requirements on the Flexible Power website and the Connect Data Portal.

27th Mar

- Sustain and Long Term Trade Opportunities open on the Market Gateway

5th May

- Deadline for Trade Response Submissions

2nd Jun

- Trade Awards Communicated

4th Sep

- Publication of HV and LV CMZ locations with Summer 24 requirements
- on the Flexible Power website and the Connect Data Portal.

16th Oct

- Sustain and Long Term Trade Opportunities open on the Market Gateway
- Short Term (weekly) Trade Opportunities commence

Electricity Distribution

2

What is a DSO?

nationalgrid

What is a Distribution System Operator (DSO)?

Distribution System Operators are part of the Distribution Network Operator, focused on network development to we can help the UK and stakeholders reach their decarbonisation ambitions by delivering a network in the most efficient way possible .

Each of the electricity networks has a DSO function, this is separate to the ‘Future/Independent System Operator’ in the process of being set up, which focuses on the transmission network.

Within National Grid the Distribution System Operator sits within its own directorate, which allows board level accountability and visibility of actions.

Why is a Distribution System Operator required?

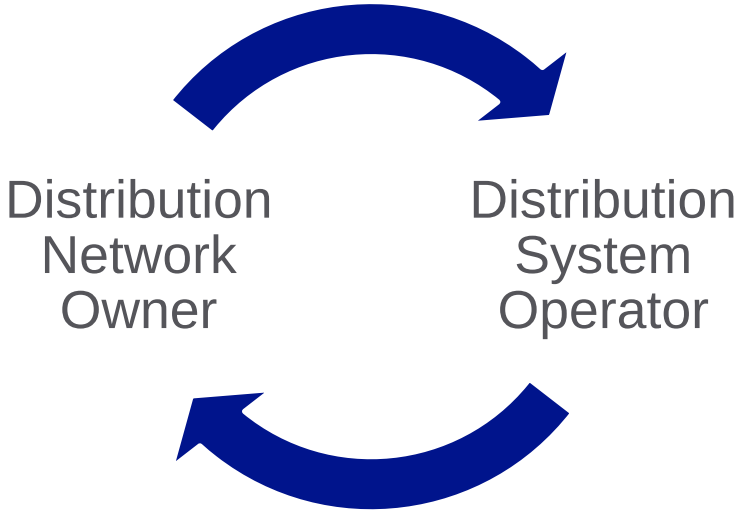
In the next 30 years the way that the electricity distribution network is used is going to change, as we use electricity to decarbonise sectors such as domestic heat, transport and the electricity generation mix.

How load growth is going to materialise on our networks will change, such that not all of network investment for load growth will be driven by single new connections to the network.

Putting more of a focus on planning for the future, and developing different ways of solving constraints on our network should mean that we can build our network in the most coordinated way possible.

Interaction between DNO and DSO

- Builds a smart and flexible network
- Provides quality and accurate data on network loadings and assets
- Keeps the lights on



- Accurately sizes new capacity required to serve current and future needs
- Makes decisions on how to create new capacity
- Develops data to create market opportunities
- Procures flexibility to meet needs
- Economically dispatches flexibility to deliver capacity

What are the roles of a DSO?

Role 1: Planning and network development

- Plan efficiently in the context of uncertainty, taking account of whole system outcomes, and promote planning data availability

Scenario Planning

Whole Systems

Optioneering

Resilience

Role 2: Network operation

- Promote operational network visibility and data availability
- Facilitate efficient dispatch of distribution flexibility services

Monitoring

Energy Management

Dispatch Systems

Settlement

Role 3: Market development

- Provide accurate, user-friendly, and comprehensive market information
- Embed simple, fair, and transparent rules and processes for procuring distribution flexibility services

Platform integration

Distribution Energy Markets

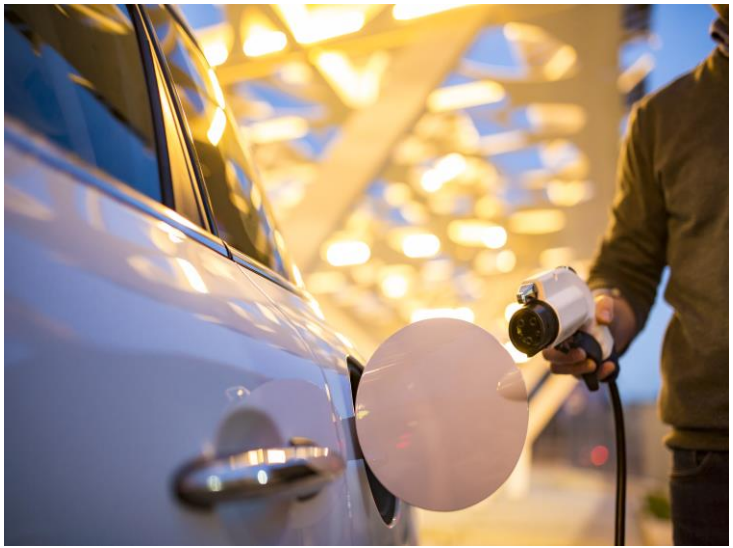
Signposting

Flexibility Products

How will the DSO benefit customers and new connections?

The DSO will enable National Grid Electricity Distribution to develop the **distribution system** in the most **efficient, economic and coordinated** manner possible.

This will include providing adequate capacity ahead of time, in order to reduce delays for new connections. Offering opportunities for customers to access new markets for flexibility services provides both benefit to National Grid and customers.



Feedback and Summary

Kester Jones
Connections Strategy Manager

February 2023

nationalgrid

Close and thank you

Summary	**Feedback** • Any further feedback on todays topics
What would you like to see next time?	• Is there a topic you would like to be discussed in our next meeting?
Other events	**Events** • Next CCSG – Wednesday 21st June 2023 • Developer/builder virtual forum – Thursday 27th April 2023 **Follow National Grid on LinkedIn for updates**

https://yourpowerfuture.nationalgrid.co.uk/our-engagement-groups/connection-customer-engagement/connection-customer-steering-group

nationalgrid