

# Welcome

## Update on South Wales and South West statement of works status

Our webinar will begin in a few minutes.

- Please use the Q&A button to post your questions.
- Please use the chat facility for any technical queries.
- We will try to answer as many questions as possible at the end of presentation.

6 July 2022



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# Agenda

1. WPD to provide overview of SoW Process
2. NGENSO to provide update;
  - Connection pipeline
  - Improving the pipeline
3. NGENSO non-build options
4. NGET to provide update;
  - Triggered transmission reinforcement
  - Transmission reinforcement works progress and timescales
5. Q & A Session



# Overview of SoW Process

Andrew Akani

Primary System Design Manager

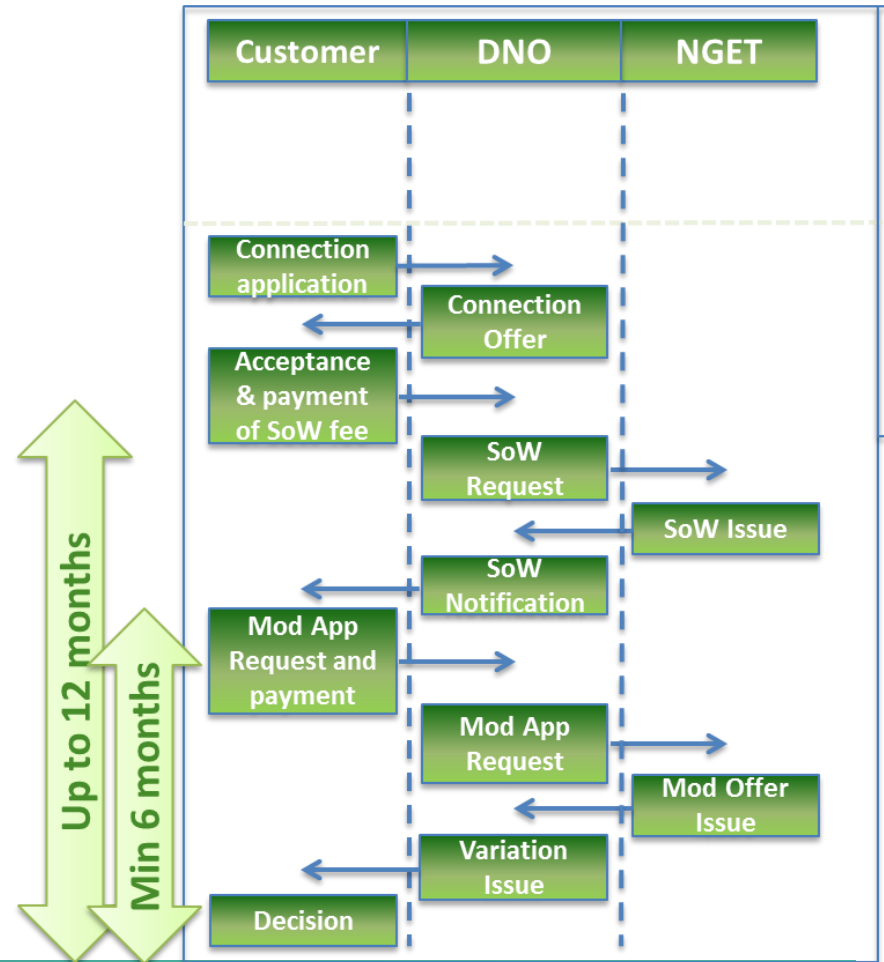
# Statement of Works Process

- Generators connecting to WPD's Distribution System may have an impact on the National Electricity Transmission System (NETS).
- SoW is the formal assessment process to identify any DG impact on the NETS.
- The SoW process is set out within the Connection & Use of System Code (the CUSC).
- DNOs have an obligation to make an initial assessment as to whether a proposed DG connection on their network is likely to have an impact on the NETS, and if so, make a SoW application.
- 2 stage process:
  - ESO/TO will review SoW request and advise the DNO (within 28 days) on whether a full assessment, Project Projection, is required.
  - The full extent of any reinforcement works or impact on the transmission network would be advised following a Project Progression application (within 90 days).



# Statement of Works – a brief history

- The process was developed when embedded DG volumes were relatively low and tended to be single larger connections.
- In order to expedite the process, the transmission owners, in conjunction with the DNOs had agreed on some thresholds for each DNO region under which it was considered that SOWs were unlikely.



# Statement of Works

DNO	Likely size when SoW would apply
Electricity North West	~10MW
Northern Power	30MW
Scottish Power Distribution	to GSP Assessment
SP Manweb	~10MW
Scottish Hydro Electric Distrib	1MW
Scottish & Southern Energy Pow	10MW
UK Power Netw	10MW
Western Power Distrib	30MW

- However, owing to an exponential growth in DG volumes and their cumulative impact, ESO/TOs subsequently advised that all DG > 1MW would be subject to PP.



# Appendix G Process

- Appendix G was aimed at speeding up the SoW process by facilitating aggregate assessment of DG rather than the individual schemes.
- The Appendix G trial was progressively rolled out across all 50 GSPs across all 4 Licence areas from May 2016.
- Most GSP Appendix G's had an initial Materiality Headroom of 50MW, a few had much lower headroom, and others were subject to infrastructure works.
- The Materiality Headroom increased or decreased with the monthly updates of Appendix G, and Project Progressions are submitted once the Materiality Headroom is exceeded.
- The biggest customer benefits were on GSP's that had DG enquires for capacities within the Materiality Headroom.



# Appendix G Process

- Initiated via a Project Progression (PP) application on a per GSP basis
- Modification offer after 3 months – Agreement to Vary BCA (Appendix G schedules)
- 5 Core Parts to the Appendix G Schedule:

Category of Connection	
Part 1	Historic connections
Part 2	Connections subject to technical conditions
Part 3	Subject to interim restrictions on availability and subject to technical conditions
Part 4	Generation that can only connect on completion of works to transmission system and subject to technical conditions
Part 5	This figure will reduce as <b>Developer Capacity</b> is allocated or increase if projects cancel or disconnect. However, there is no guarantee or assurance that the capacity included in Part 5 will be available or that plant will be able to connect using it
<b>Total Aggregated Developer Capacity</b>	This figure cannot be changed or exceeded without submission of either a Modification Application, Project Progression or Statement of Works
<b>Fault Level Headroom</b>	The site fault level limit





# CMP298 Overview

6 April 2022

## Final Modification Report submitted

CMP298 - Updating the Statement of Works process to facilitate aggregated assessment of relevant and collectively relevant embedded generation

Hello,

Today we have submitted **CMP298** to the Authority for a decision.

Final Modification  
Report

Final Modification Report  
Annexes

## Proposal

The current Statement of Works process can be inefficient and time-consuming where there are multiple concurrent applications. Network Operators have for a number of years trialled and refined a more efficient aggregated assessment (widely known as the “Appendix G” process) of DG that have or may have an impact on the National Electricity Transmission System (NETS).

CMP298 seeks to introduce this process into the CUSC, which will sit alongside the current Statement of Works process.

<https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc-old/modifications/cmp298-updating>



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# Statement of Works - Current Status

Licence Area	Capacity Cleared through Appendix G to date (MW)					Going through PP	Awaiting PP
	Total	Of which Connected	Connecting over the next 3 Years	Subject to transmission Reinforcement Works (pre-2028)	Subject to Wider System Works (2028)		
West Midlands	5,633	922	3,447	1,264	124*	457*	99*
East Midlands	8,329	2,929	4,260	1,140	N/A	N/A	N/A
South Wales	3,908	830	2,813	266	286	238	22
South West	4,727	2,003	2,439	285	934	1,256	41
Total	22,597	6,684	12,958	2,955	1,345	1,951	162



# Current Status

- Unfortunately, despite the success of the appendix G process over the last few years, the NETS is not an infinite busbar.
- The PP outcomes for a number of GSPs in the South Wales and South West have over the last couple of months highlighted the need for significant wider system transmission works to accommodate additional generation in these regions, both at distribution and transmission level.
- NGET will run through the scope of works.
- The expected completion date of these NGET enabling works is during 2028. However, both NGESO and NGET have been exploring various initiatives to try and facilitate earlier connection dates.



# Transmission connections challenges

Andy Wainwright  
Whole Electricity System Senior Manager



# Transmission connections challenges

## What challenges are we experiencing?

In recent months, the ESO has identified several key issues affecting transmission connections.

The **Transmission Contracted Connections background** totals **over 292GW** (and growing) of **generation**, which is in connected or contracted to connect status between now and 2033.

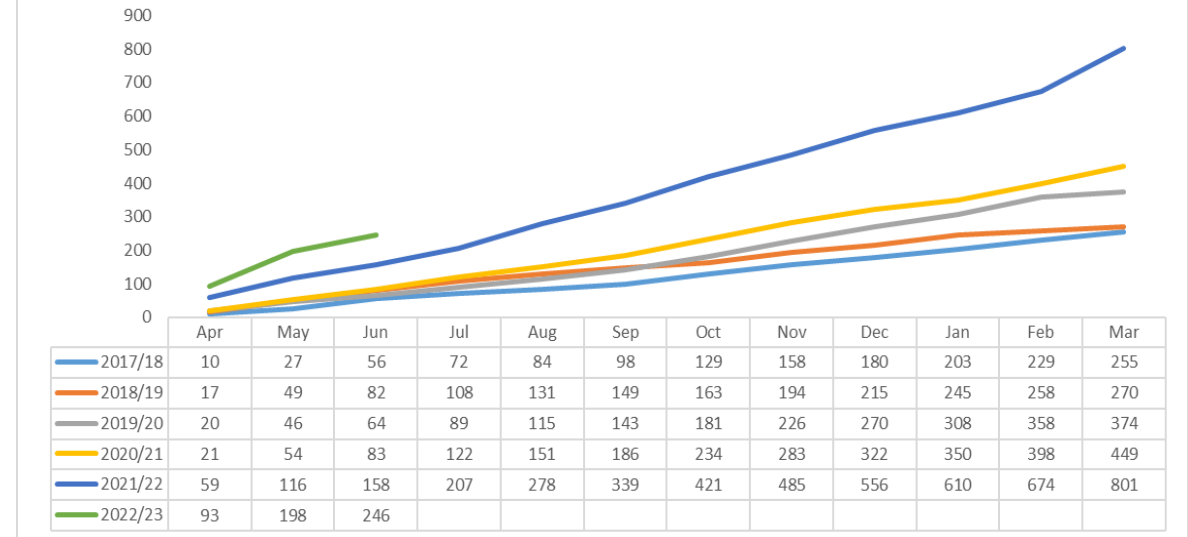
For the connection of new generation, the current connections processes at both transmission and distribution are not ideal.

The processes do not recognise the oversubscribed contracted background, nor do they account for the challenges associated with enabling the connection of the right technology, in the right place, with the right capacity and within target timescales for net zero.

**In FY23, Transmissions Connection Applications have already seen a growth of 35% when compared to the same period last year, where in FY22 we saw an 80% increase in Licensed Applications.**

The current transmission connections code framework that governs the connections process lacks a robust process whereby we, the ESO, are able to proactively and firmly manage the contracted position and the queue of connections in order to ensure we are able to deliver on the best interested of consumers and meeting British Energy Security Strategy (BESS) targets.

Licensed Connection Applications



# Transmission connections challenges

## Connections Heat Table

This provides a view of the volume of connections over the next decade and beyond which are currently managing

	CONNECTED	SCOTLAND	NORTH WEST	NORTH EAST	EAST MIDLANDS	WEST MIDLANDS	LONDON & EAST ANGLIA	SOUTH EAST	SOUTH WEST
BESS	1,253	5,175	649	2,622	177	1,294	518	569	1,439
BESS Non-Renewable	12	448	-	-	-	-	-	750	12
BESS Renewable	399	1,080	4,023	1,955	4,372	4,737	3,389	621	2,565
Biomass	3,278	-	60	-	-	-	-	-	-
CCGT	33,244	-	107	7,503	-	-	2,799	1,800	-
Coal	4,252	-	-	-	-	-	-	-	-
Hydro	1,001	-	-	-	-	-	-	-	-
Interconnector	-	-	-	1,000	-	-	-	-	-
Nuclear	8,256	-	-	1,670	-	-	1,670	-	3,340
OCGT	1,631	-	164	375	-	-	655	100	516
Oil & AGT	21	-	-	-	-	-	-	-	-
Pump Storage	2,744	3,156	-	-	-	-	-	-	-
Solar PV	75	89	114	560	2,117	269	600	57	349
Sync Comp	1	61	-	-	-	-	-	-	-
Thermal	2,254	40	50	-	57	-	-	-	164
Tidal	-	247	390	-	-	-	-	-	-
Wind Offshore	14,150	49,827	10,680	8,920	-	-	9,344	1,200	7,991
Wind Onshore	7,052	10,717	348	985	-	-	67	-	1,594
<b>Grand Total</b>	<b>79,621</b>	<b>70,839</b>	<b>16,584</b>	<b>25,589</b>	<b>6,723</b>	<b>6,300</b>	<b>19,042</b>	<b>5,097</b>	<b>17,971</b>

This table doesn't include embedded generation



# Transmission connections challenges

## How has the ESO reacted to these challenges?

We understand the urgency to resolve the current transmission connections issues and are developing several solutions with our stakeholders.

From the ESO's perspective, there is a degree of urgency to change how we manage new applications for connections. Therefore, we have included a deliverable for Connections Reform in our RII0-2 Business Plan 2 (BP2). However, we are mindful this will be a lengthy process.

In the meantime, we are looking at ways to provide the ESO and Transmission Owners (TOs) the opportunity to review the contracted background and address the volume of new connections applications.

- **Confirm the validity of connections and solutions** associated with those connections, including enabling works
- **Work with contracted customers** to confirm commitment to the programme and connection timescales
- **Provide Ofgem with a view** on prioritisation of contracted generation
- **Enable time to review** the approach to Distributed Energy Resources (DER)
- **Provide a view on prioritising** of wider and enabling network reinforcement works which align with the BESS.

These opportunities will enable the ESO and TOs to:



# Transmission connections challenges

## What is the ESO doing to improve the connections process?

We're developing a range of actions and strategies to resolve transmission connections constraints both now and through the future.

Following some factfinding work, we have concluded that a certain number of strategies and actions need to be pursued, which the ESO must lead on.

These actions and strategies not only look to address urgent changes with immediate effect and impact, but also look forwards to fundamentally change the connections process.

These solutions – which are described in further detail later in this document – cover both urgent actions and enduring solutions to overcome our transmission connection challenges:

- **Short term to intermediate actions and strategies:**  
With regards to the more urgent actions, our proposal is to enable the management of contracted background, existing and future connections.
- **Long term and enduring actions and strategies:** On enduring strategies, we are looking to create the opportunity for engagement with Ofgem and industry to initiate discussion on design news processes that place whole system strategy and economics at the centre of what connections will be enabled and delivered.



# Short term to intermediate actions and strategies

## Transmission Entry Capacity (TEC) Amnesty

Later this year, the ESO will be launching a programme to reduce congestion within the transmission capacity queue.

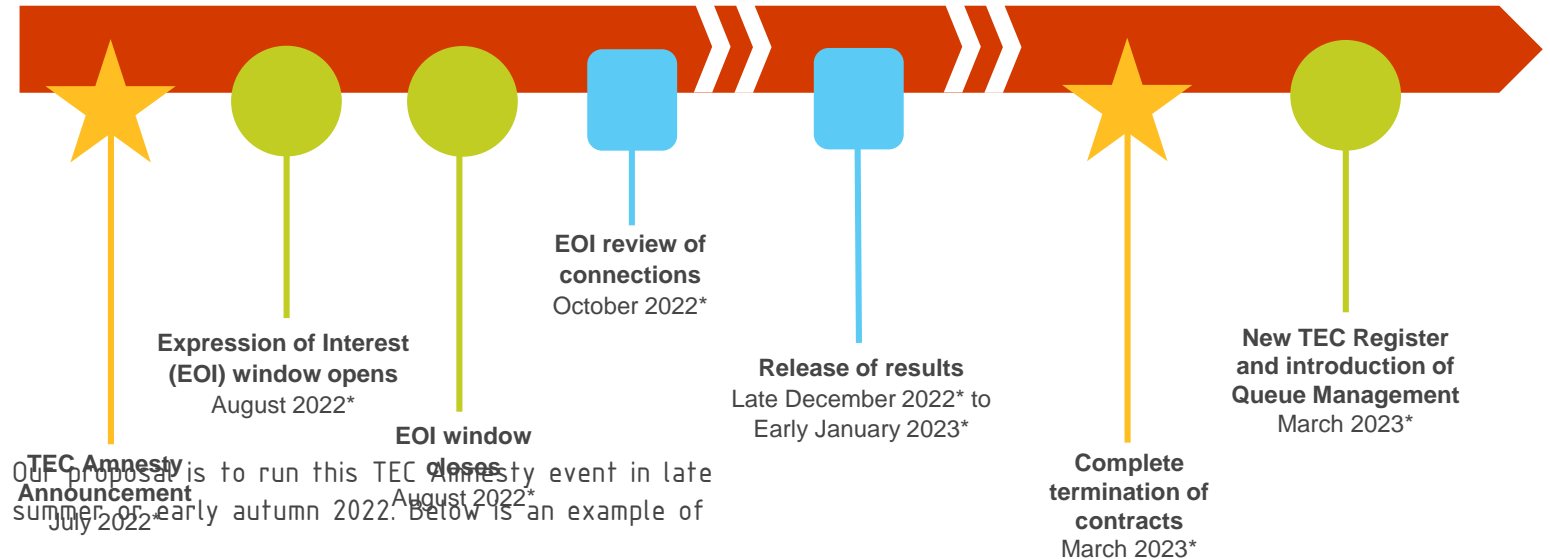
TEC Amnesty is a process run by the ESO whereby we invite all parties with connection agreements listed on the TEC register (i.e., generation developers) to confirm whether they would be willing to terminate their agreement at no or minimal cost.

The ESO is currently leading discussions with Ofgem and TOs to agree principles of a TEC Amnesty. We believe this is a necessary measure that forms part of a wider strategy to reduce the number of projects that sit within the transmission capacity queue which are not in a position to successfully deliver their generation project.

A TEC Amnesty has not been offered to customers since 2013, and during that round we didn't see a successful uptake on the offer. However, we are hopeful to receive a higher uptake this time around due to the time gap between events, added clarity with regards to the process and assessment criteria, and the inevitability of introducing new processes to enable management of contracted capacity (through the proposed new queue

management arrangements).

what the time could look like, but these dates are for reference only and are not the actual TEC Amnesty dates.



Our proposal is to run this TEC Amnesty event in late summer or early autumn 2022. Below is an example of



\*Dates for reference only

# Short term to intermediate actions and strategies

## Queue Management

We're developing and enhancing Queue Management guidelines to ensure suitability for transmission connections.

**Queue Management is the process of managing the order in which generators on the TEC register are connected to the National Transmission System.**

The Transmission Queue is saturated with projects that are not progressing due to a variety of reasons. This has led to other projects that are ready to connect – and therefore able to contribute to the delivery of net zero ambitions – not being able to connect in a timely manner.

Earlier in 2022, the ESO made the decision to pause the use of Queue Management as an additional clause in new offers due to the challenges received from customers and wider industry. The ESO has been leading an exercise to further develop and enhance Queue Management guidelines released by ENA to ensure suitability to be applied to transmission connections.

the proposals and to ensure that relevant processes between TOs and the ESO are created and introduced to support the key active management of projects in the queue.

The ESO feels that these timescales are important. To support our net zero goals, Queue Management needs to be implemented as soon as possible.

- **Introducing Queue Management as a CUSC Modification:** The ESO is working with Ofgem, TOs, and the CUSC Panel and is engaging with ESO customers and key stakeholders to ensure a successful return to working group to enable the relevant changes to be approved by Ofgem ahead of Q1 2023 and as a follow up from the TEC Amnesty event.
- **Introducing new Queue Management contract processes:** In the meantime, the ESO and TOs will be able to introduce new processes to ensure successful implementation of Queue Management to all contracts.

We are working with TOs to ensure relevant support for

Next steps for this project include:

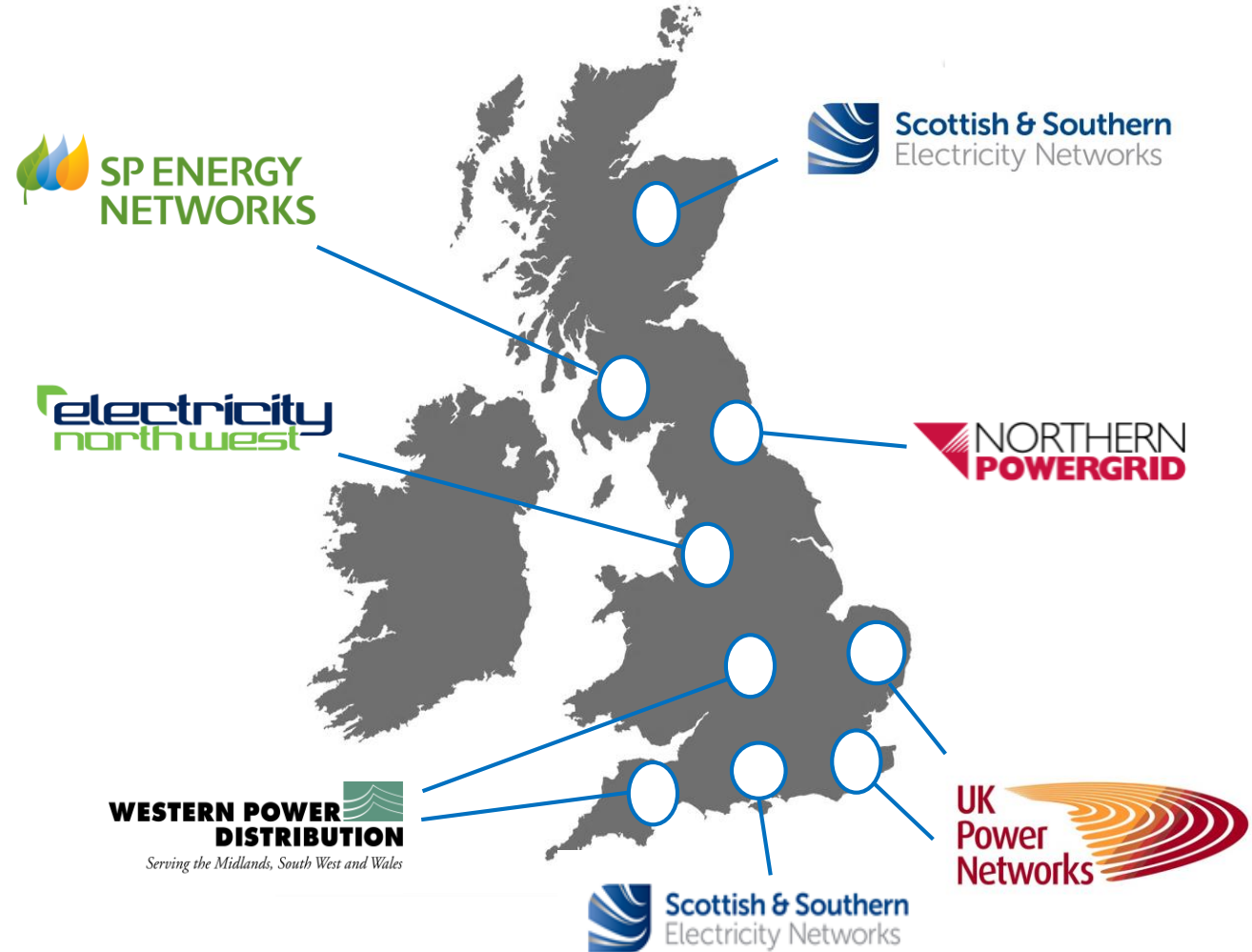


# Regional Development Programmes

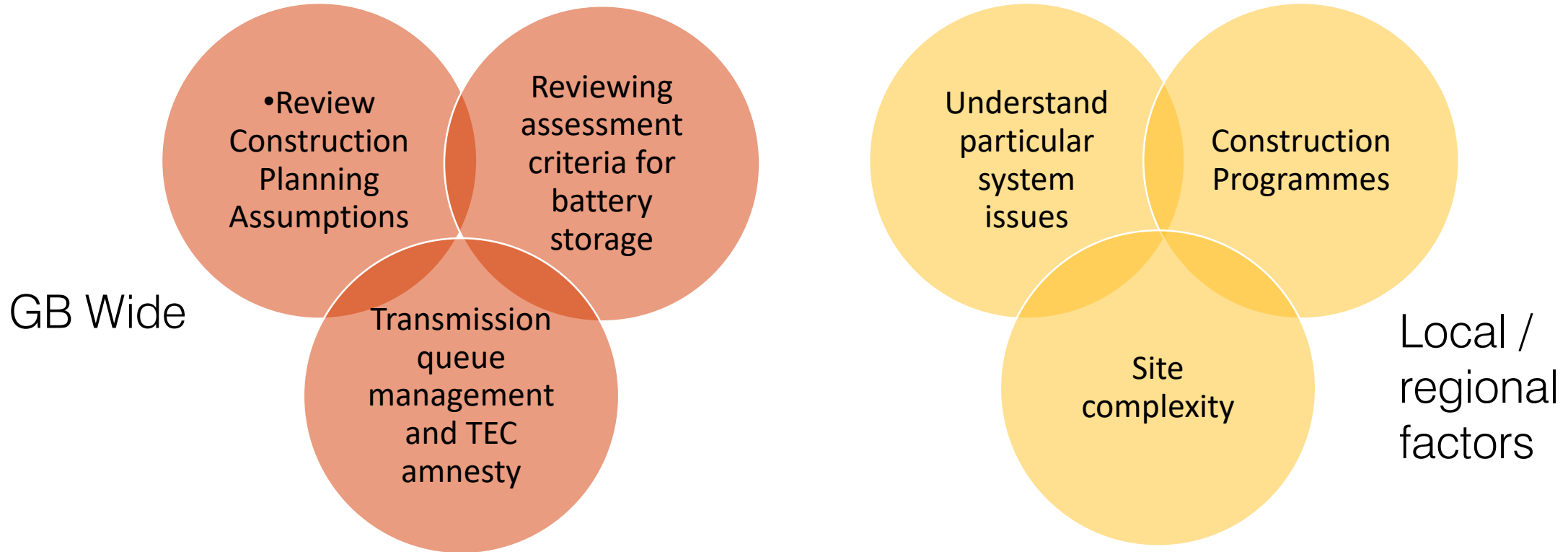
Katharine Clench

## Regional Development Programme overview

- RDPs are examinations of whole areas of the network where more distributed energy resources (DERs) might create operability challenges
- By working together, network organisations are finding ways to ‘unlock’ more capacity through non-network solutions
- RDPs consider the use of flexibility services from DERs by developing coordinated markets, systems, processes and ways of working with distribution network operators (DNOs)
- RDPs are design by doing projects. They are informed by, and inform, the ENA Open Networks project.



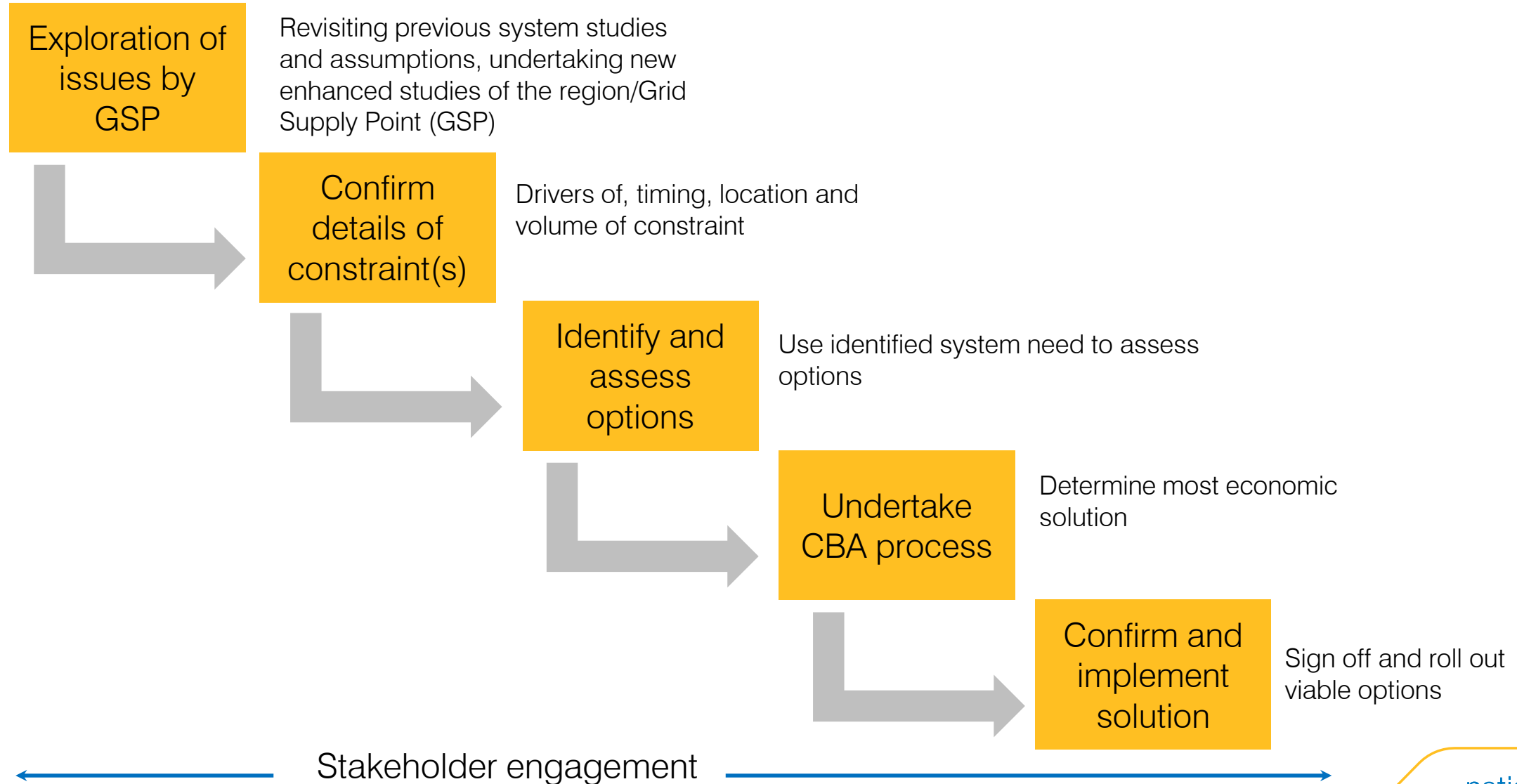
## Identifying and assessing options



### Possible options:

- Delay connections until reinforcement is complete
- DER able to connect sooner with time limited restrictions (plus Visibility & Control obligations)
- DER able to connect sooner without restriction (with Visibility & Control obligations)

# RDP local development process



# NGET – WPD Customer Webinar

**David Cowling** – Customer Connections  
Manager

**Barrie Hill** – Regional Connections  
Manager (South West & South Wales)



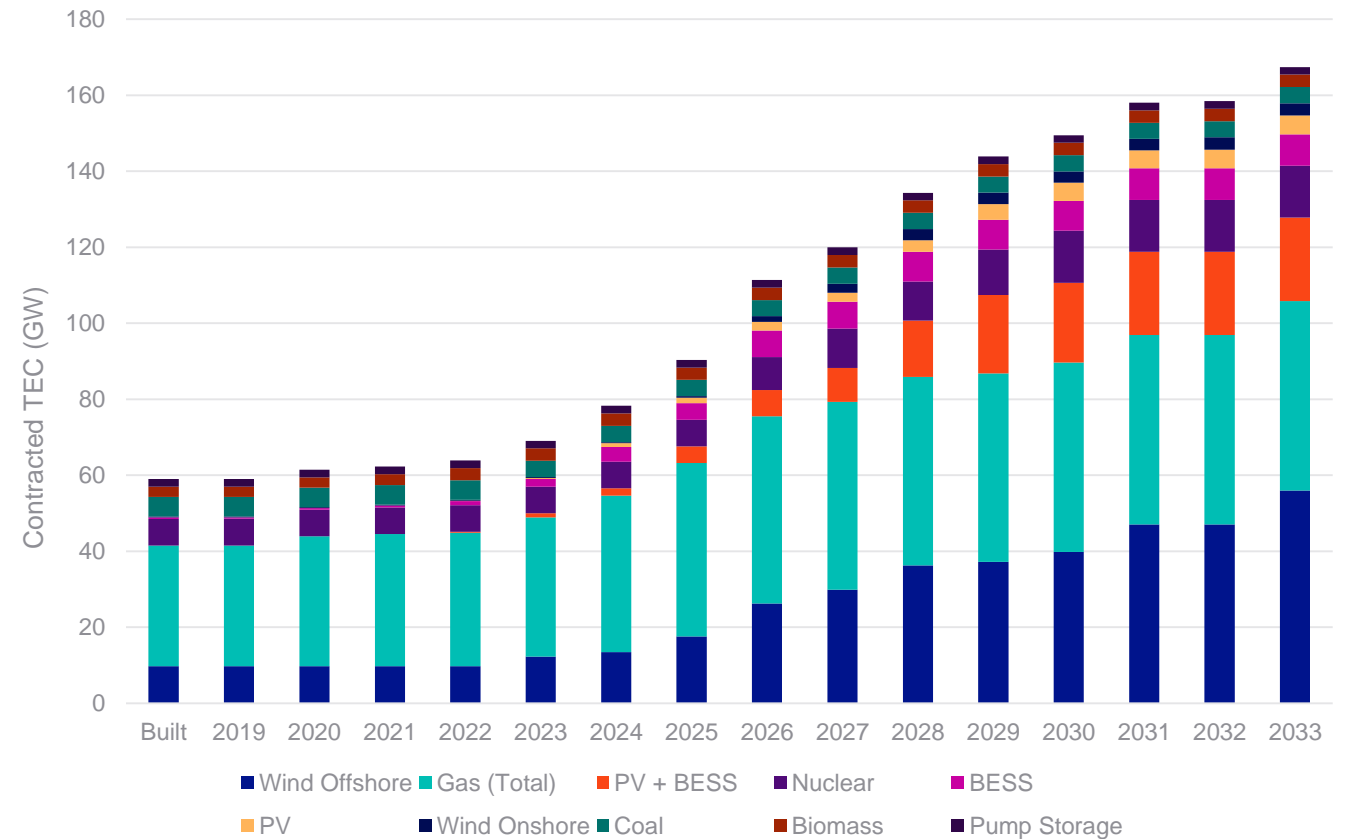
nationalgrid

# A focus on the contracted background

Today we have approximately 128GW of contracted generation to connect to the transmission system in England and Wales.

Technology Type	Contracted (GW)
Offshore Wind	46
Onshore Wind	3
Gas (including Biomass)	17
Nuclear	7
Storage	9
Solar (including hybrid storage / solar)	24
Interconnectors	22

NGET Future Contracted Generation Mix (TEC)

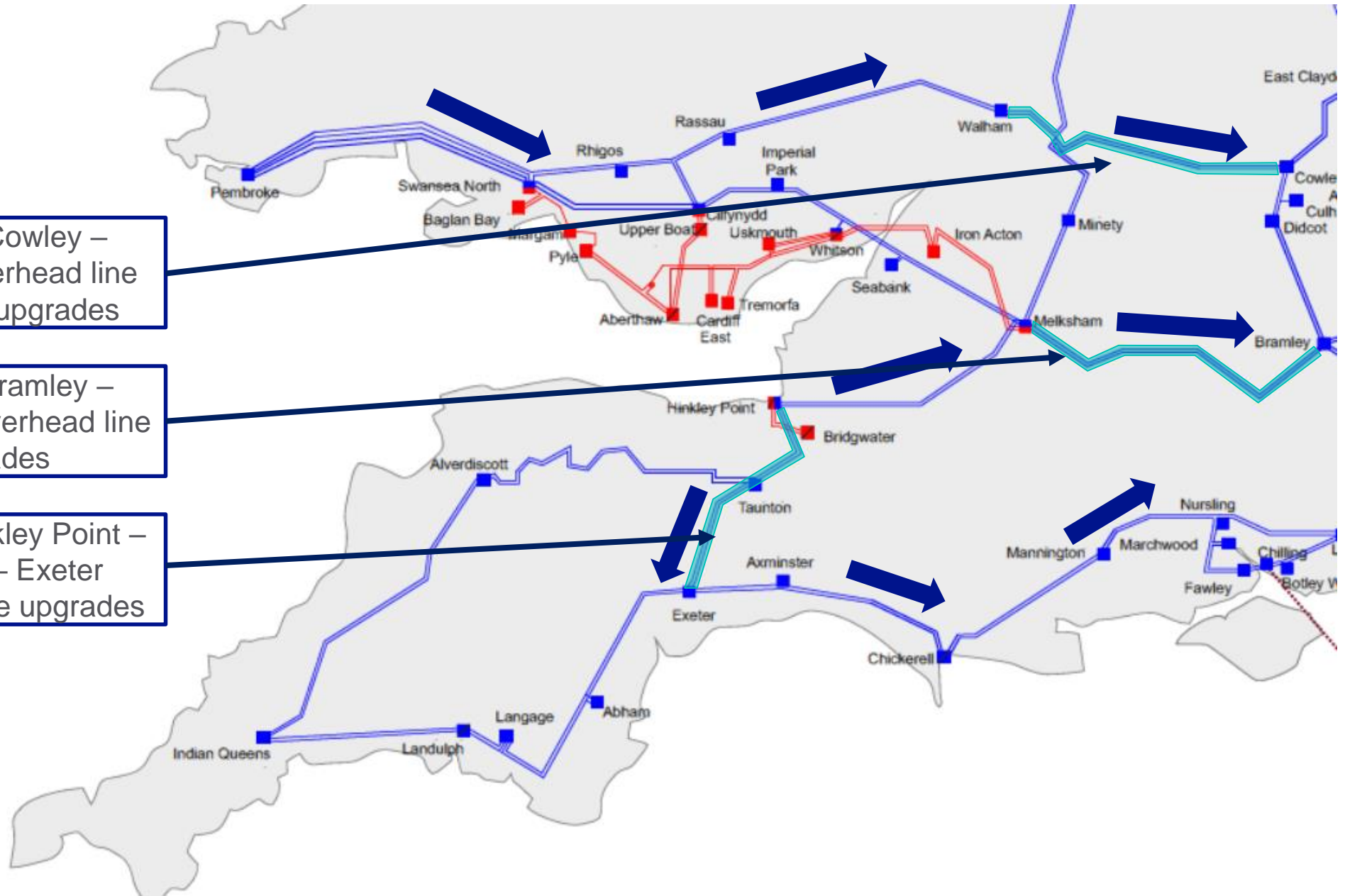




89km of Cowley –  
Walham overhead line  
and cable upgrades

81km of Bramley –  
Melksham overhead line  
upgrades

65km of Hinkley Point –  
Taunton – Exeter  
overhead line upgrades



# Next Steps

## Regional Films published from late July to early August

- Current market demand we are seeing for connections in the region
- What this means for connections timescales
- What types of reinforcements we are taking forward
- NGET strategy to deliver increased capacity across the network

# Q and A

- Please use the Q&A button (not the chat) to post your questions.
- We will try to answer as many questions as possible
- If we run out of time or can't answer your question on the call, we will get back to you individually

6 July 2022



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