



# GRID & NETWORKS CONFERENCE 2025

27 FEBRUARY | GLASGOW

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# Mission Control or Mission Impossible? The road to clean power by 2030

Chaired by Claire Mack, Chief Executive,  
Scottish Renewables

# Ben Golding

Director, Clean Power 2030 Unit  
Department for Energy Security  
& Net Zero



Department for  
Energy Security  
& Net Zero

February 2025

# Clean Power 2030

A new era of clean electricity

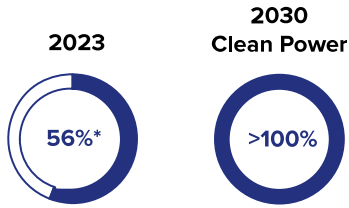


# Clean Power 2030

## Our ambition



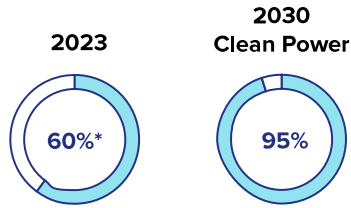
Clean sources produce at least as much power as Great Britain consumes in total.



▼ 44 points below target



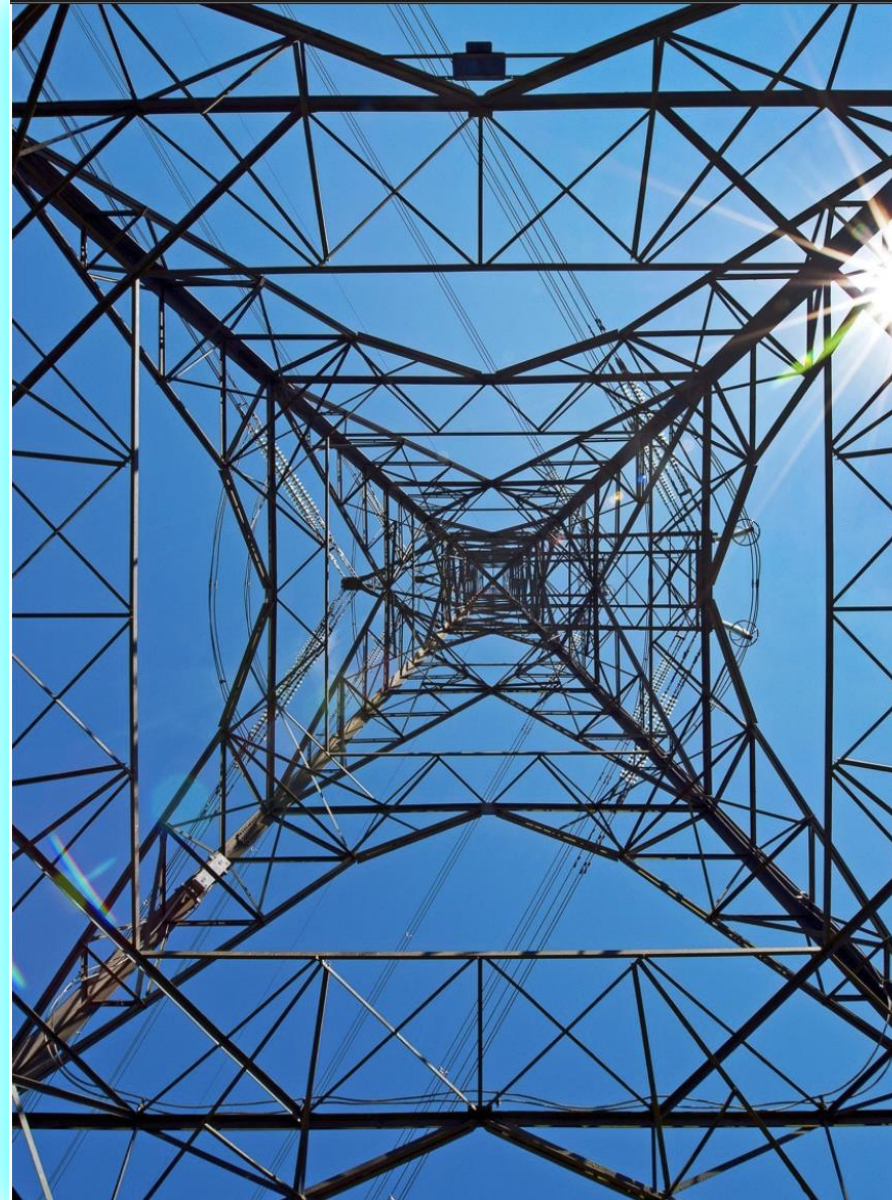
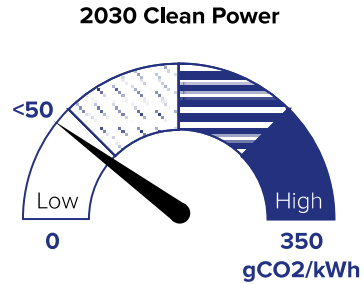
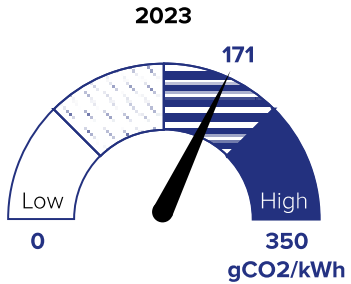
Clean sources produce at least 95% of Great Britain's generation.



▼ 35 points below target

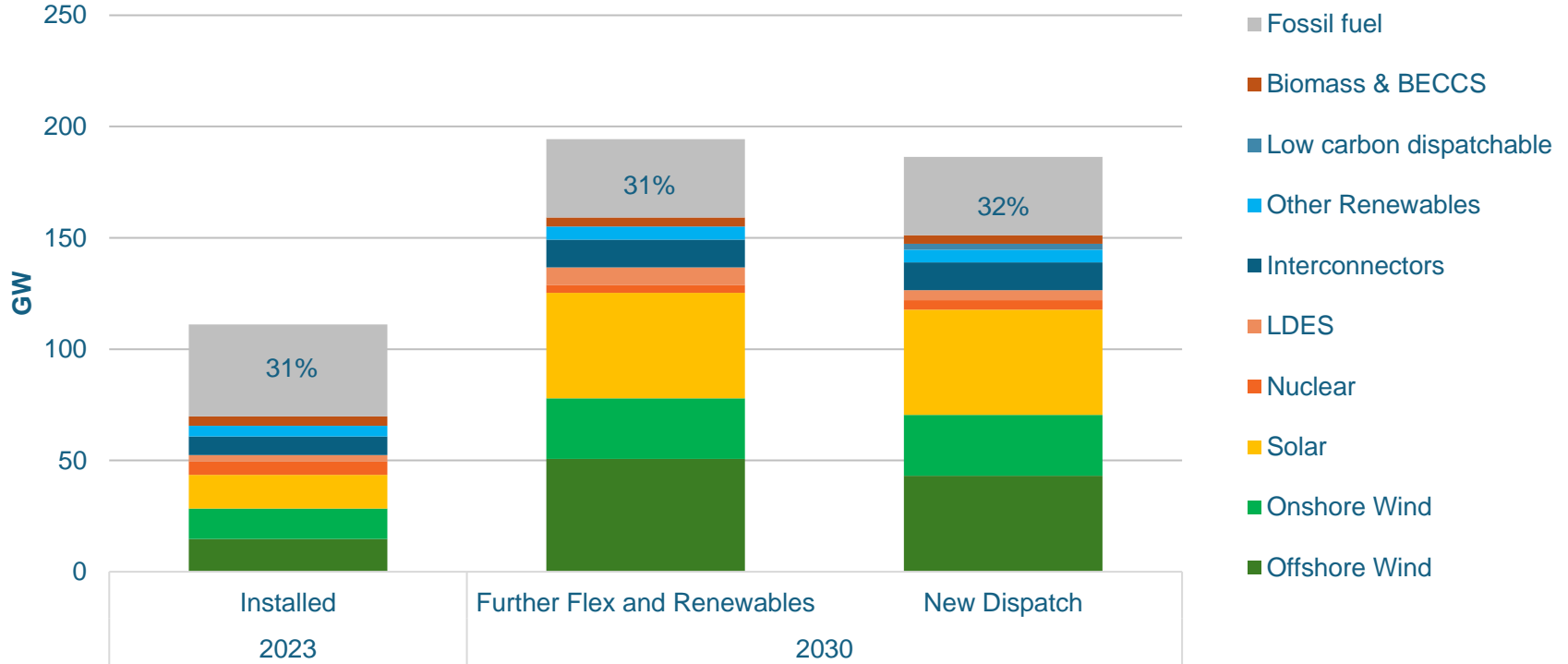


Emissions intensity of well below 50gCO<sub>2</sub>e/kWh by 2030



## Clean Power 2030

### Capacity mixes for 2023 and 2030

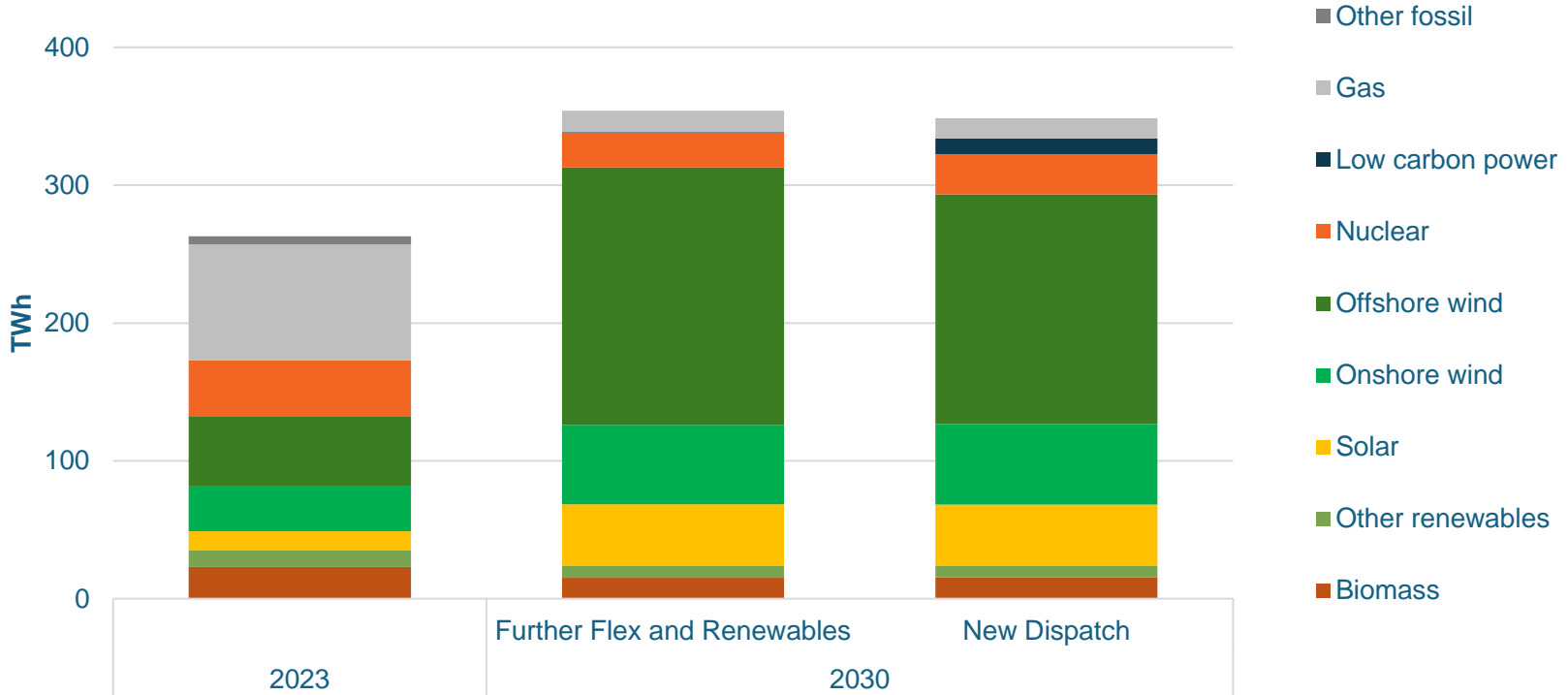


Source

NESO "Clean Power 2030: Advice on achieving clean power for Great Britain by 2030"

## Clean Power 2030

### Generation in a clean British power system in 2030



Source

NESO "Clean Power 2030: Advice on achieving clean power for Great Britain by 2030"



## Clean Power 2030

### Capacity range for 2030 (GW)

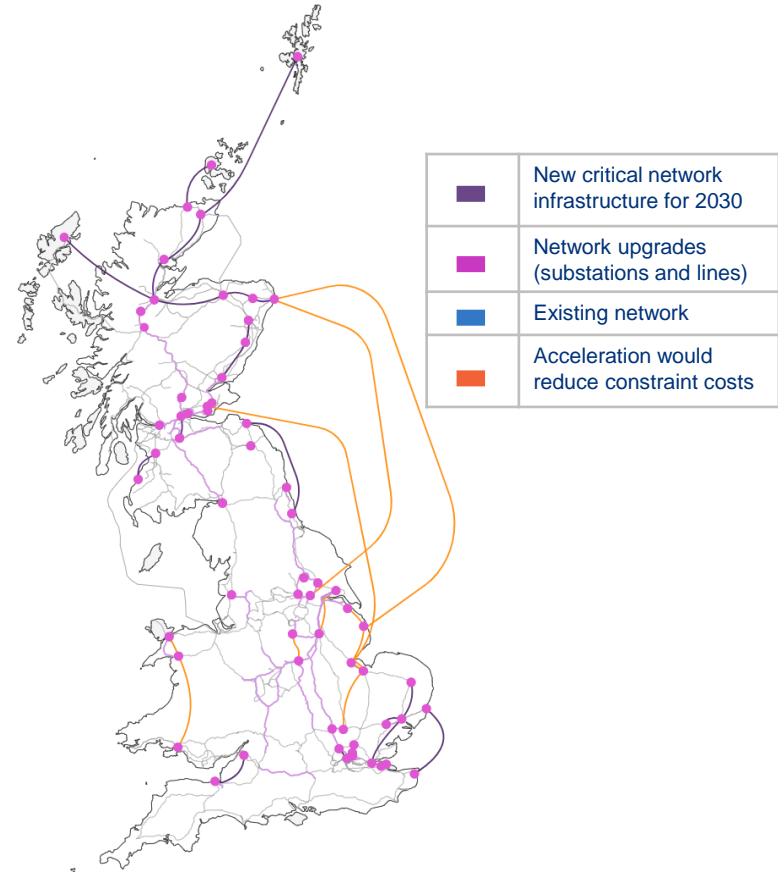
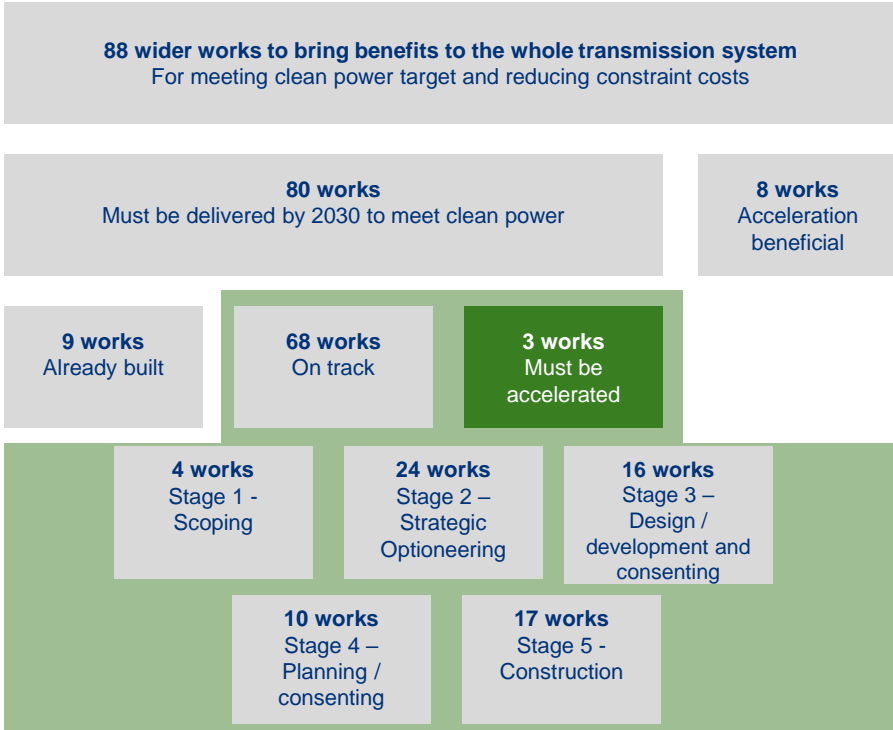
Technology	Current installed capacity	NESO 'Further Flex and Renewables'	NESO 'New Dispatch'	DESNZ 'Clean Power Capacity Range'
<b>Variable</b>				
Offshore wind	14.8	51	43	<b>43 – 50</b>
Onshore wind	14.2	27	27	<b>27 – 29</b>
Solar	16.6	47	47	<b>45 – 47</b>
<b>Firm</b>				
Nuclear	5.9	4	4	<b>3 – 4</b>
<b>Dispatchable</b>				
Low Carbon Dispatchable Power	4.3	4	7	<b>2 – 7</b>
Unabated gas	35.6	35	35	<b>35</b>
<b>Flexible</b>				
LDES	2.9	8	5	<b>4 – 6</b>
Batteries	4.5	27	23	<b>23 – 27</b>
Interconnectors	9.8	12	12	<b>12 – 14</b>
Consumer-led flexibility	2.5	12	10	<b>10 – 12</b>

Source

Clean Power 2030 Action Plan

# Clean Power 2030

## 80+ transmission works by 2030



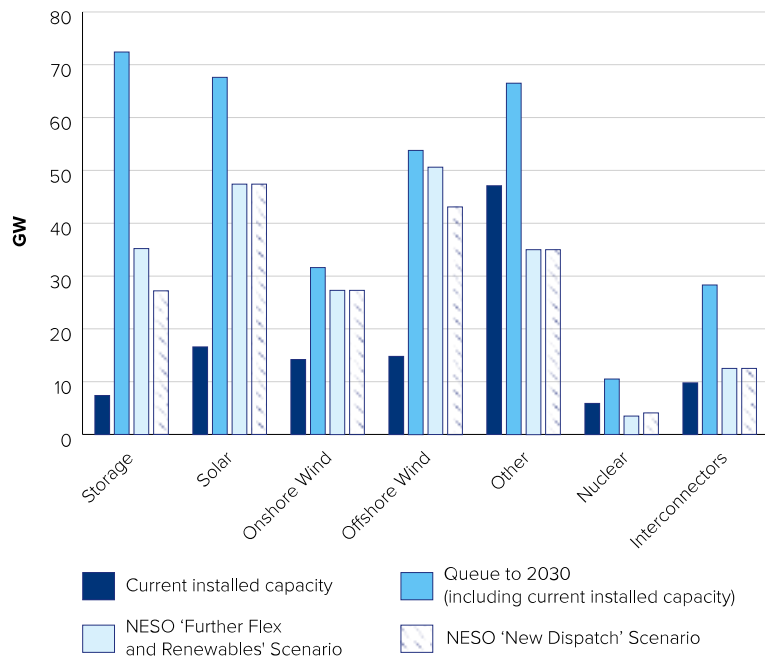
Source

Clean Power 2030 Action Plan

## Clean Power 2030

### A prioritised approach to the connections queue

Current connections queue against GB clean power scenarios by technology



Transmission network region	Solar (MW) 2030	Solar (MW) 2035	Onshore wind (MW) <sup>22</sup> 2030 <sup>23</sup>	Onshore wind (MW) 2035	Batteries (MW) <sup>24</sup> 2030	Batteries (MW) 2035
N. Scotland	100	800	5,500	-	1,900	1,900
S. Scotland	600	800	8,800	-	3,900	3,900
N. England	500	1,400	-	-	800	800
N. Wales, the Mersey and the Humber	1,200	1,700	300	-	4,200	4,200
Midlands	4,000	5,200	-	-	1,300	1,300
Central England	2,100	3,300	-	-	500	500
E. Anglia	100	900	-	-	200	200
S. Wales and the Severn	1,100	1,300	1,300	-	900	900
S.W. England	300	300	-	-	400	400
S. England	200	200	-	-	100	100
South East England	600	1,100	-	-	1,700	1,700
<b>GB total</b>	<b>10,800</b>	<b>17,000</b>	<b>15,900</b>	<b>-</b>	<b>15,900</b>	<b>15,900</b>

## Clean Power 2030

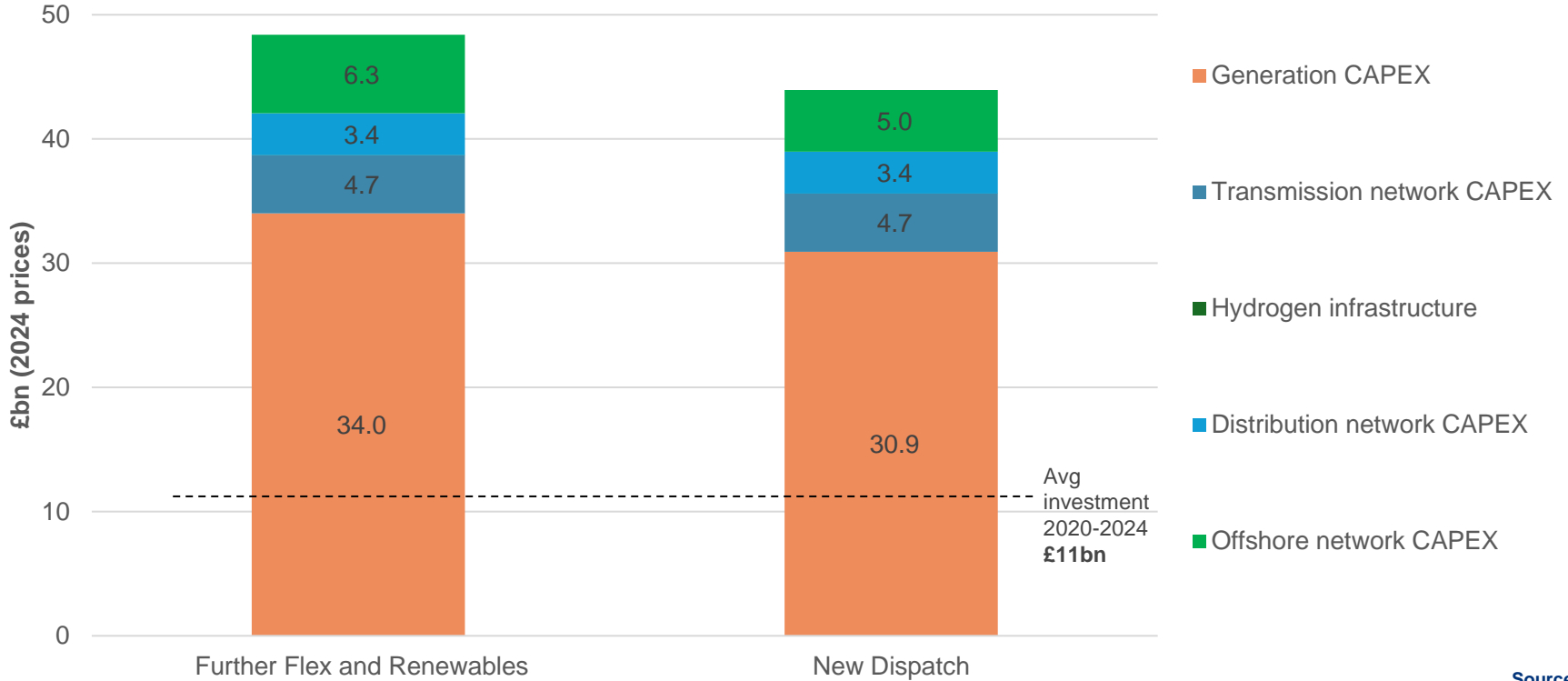
### Next steps for connections queue reform



- **13 December 2024:** Published our Clean Power 2030 Action Plan, which provided capacity ranges to allow NESO to align the reformed connection processes with strategic needs.
- **20 December 2024:** NESO submitted connection reform proposals to Ofgem
  - **29 January:** Pause on transmission connection applications from generation and storage projects and transmission impact assessment of generation and storage projects at distribution.
    - **14 February:** Ofgem published 'minded to' position and consultation
      - **End March:** Ofgem to publish decision on NESO proposals and licence changes
        - **May:** Following required 56-day standstill from licence changes go live is expected and customers to submit evidence of 'readiness' to connect to NESO
          - **31 May:** Connection applications pause ends
            - **June – October:** Applying 'strategic need' criteria, allocating queue position and designing network to accommodate qualifying connection projects
            - **October – December:** Revised connection offers issued

## Clean Power 2030

### Average annual investment system costs in clean power pathways 2025-2030



Source

NESO "Clean Power 2030: Advice on achieving clean power for Great Britain by 2030"

# Rita Wadey

## Head of Energy Policy

### NESO



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# National Energy System Operator and CP30 advice to UK Government

Scottish Renewables Grid & Networks  
Conference, 17 February 2025

**Rita Wadey, Head of Energy Policy – NESO**

# The National Energy System Operator

The UK's 2023 Energy Act set the legislative framework for an independent system planner and operator to be set up to help accelerate Great Britain's energy transition, leading to the establishment of the National Energy System Operator (NESO).

## Our Primary Duties

NESO will promote the following three objectives:



**Net Zero**  
Enabling the Government to deliver on its legally binding emissions targets.



**Efficiency & Economy**  
Promoting efficient, co-ordinated and economical systems for electricity and gas.



**Security of Supply**  
Ensuring security of supply for current and future customers of electricity and gases.

## Our Secondary Duties

NESO will also have regard to:



**Facilitating Competition**  
Creating and maintaining competitive energy markets and networks.



**Consumer Impacts**  
Understanding what changes mean for consumers.



**Whole System Impacts**  
Understanding linkages across systems.



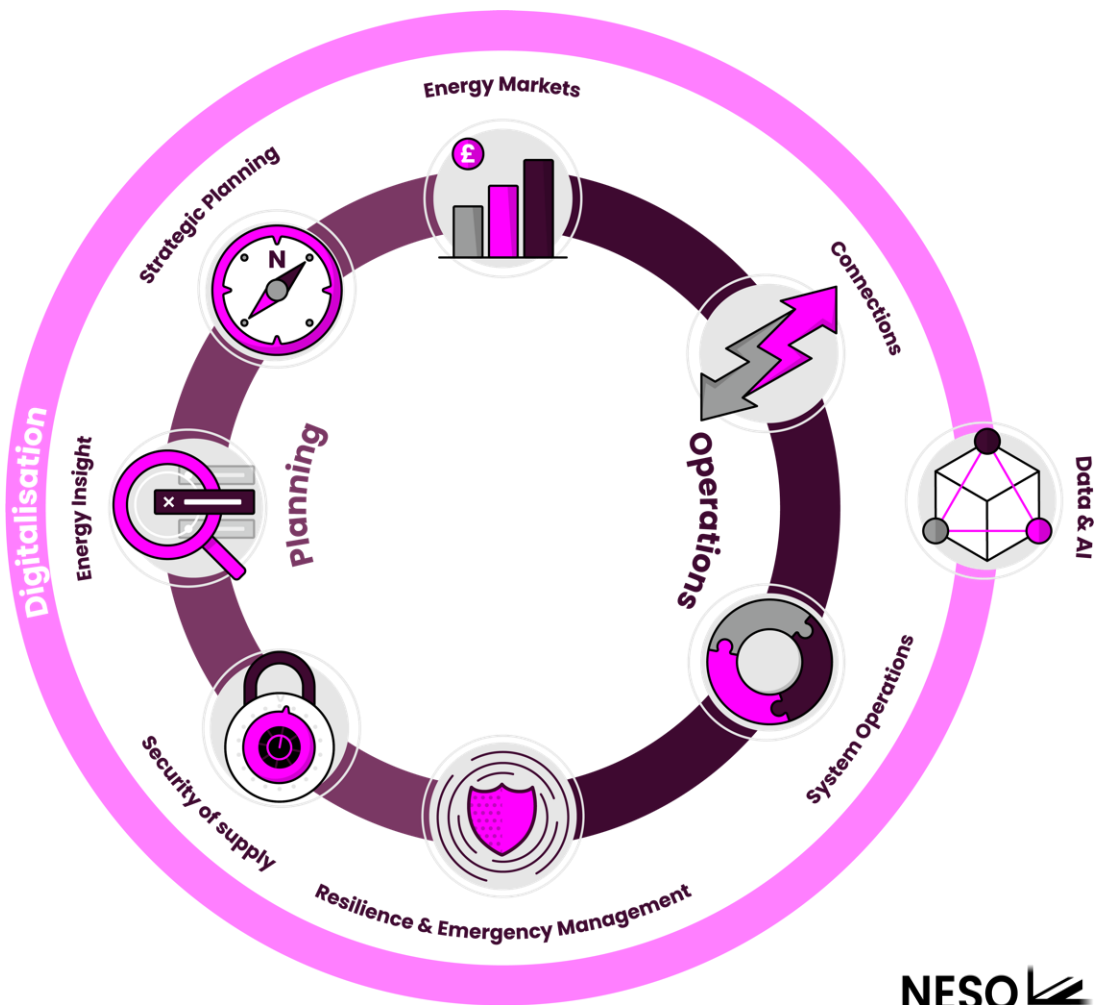
**Facilitating Innovation**  
Creating an environment that enables others to help solve energy challenges.



# What We Do

We bring together eight activities required to deliver the plans, markets and operations of the energy system of today and the future.

Bringing these activities together in one organisation encourages holistic thinking on the most cost-efficient and sustainable solutions to the needs of our customers.



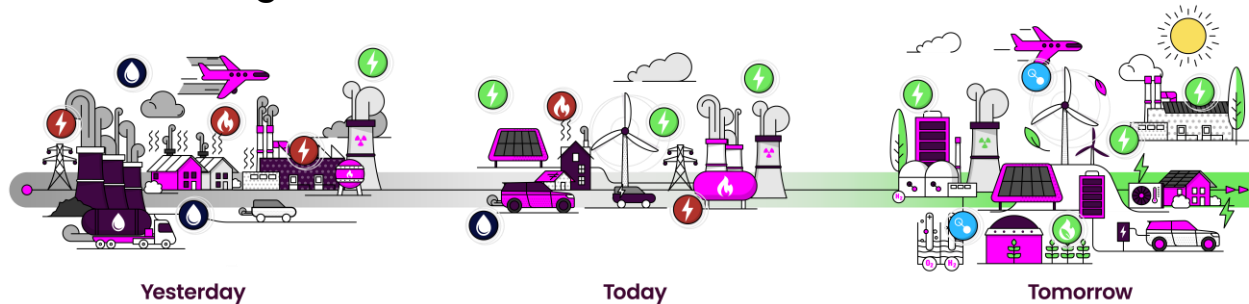
# Clean Power 2030 – NESO advice

**NESO was asked to provide independent advice on the pathway towards the 2030 ambition**, with expert analysis of the location and type of new investment and infrastructure needed to deliver it.

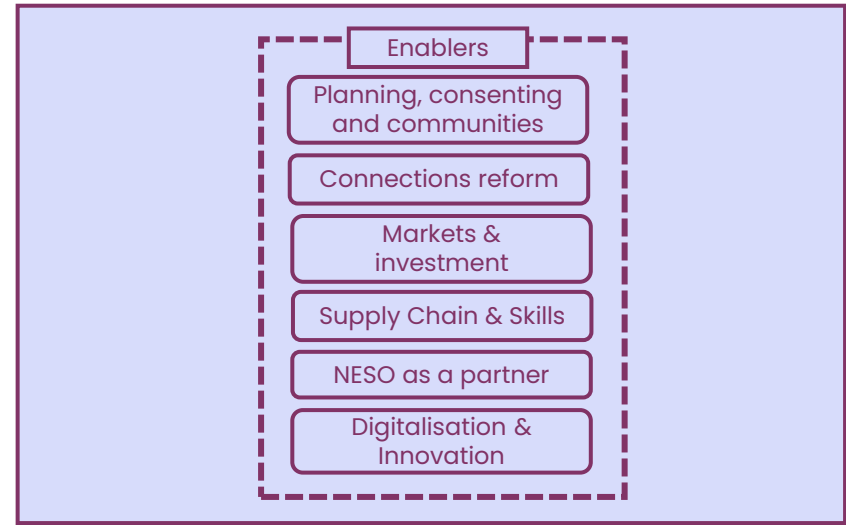
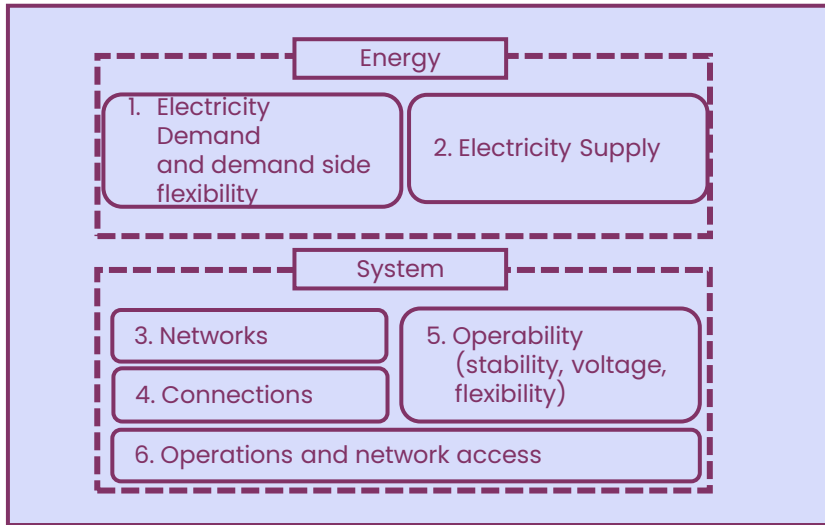
Submitted advice to Government in Nov '24 as input to Clean Power Action Plan

## Headline messages

- **Clean power by 2030 is achievable** – requires a herculean effort, and swift action to unblock delivery challenges
- **Clean power will require doing things differently**, establishing and maintaining momentum every year to 2030
- **Clean power can bring benefits for GB**



# Components of NESO's clean power analysis

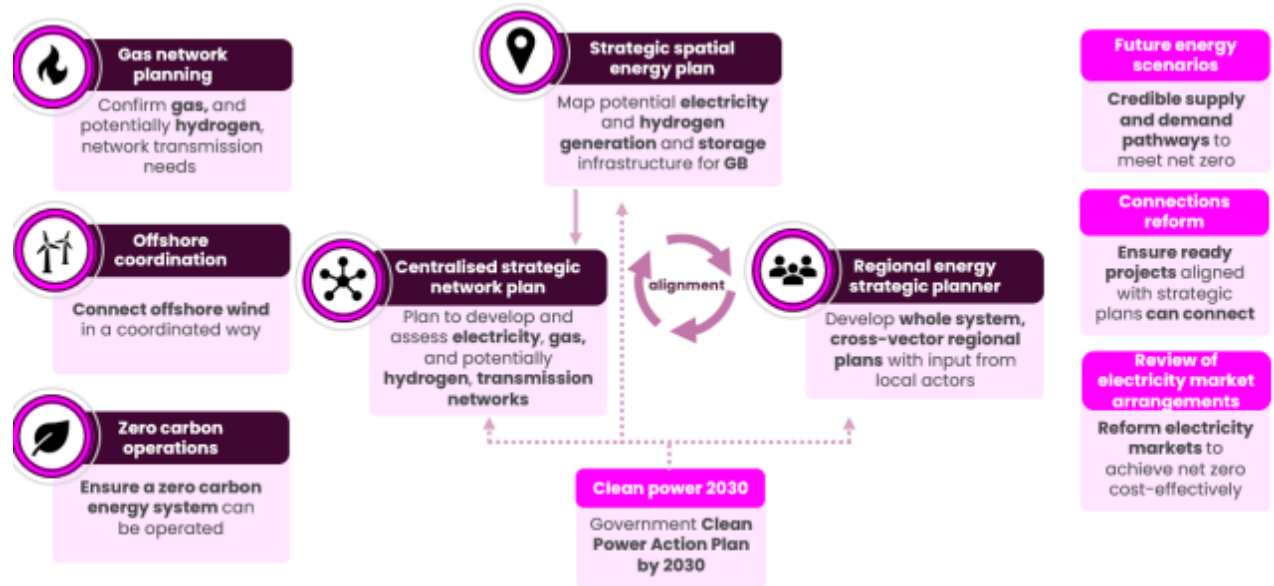


Critical considerations such as **emissions and environment, consumer and community impacts, energy security, whole energy and beyond 2030 and economic impact** cut across the six key elements.

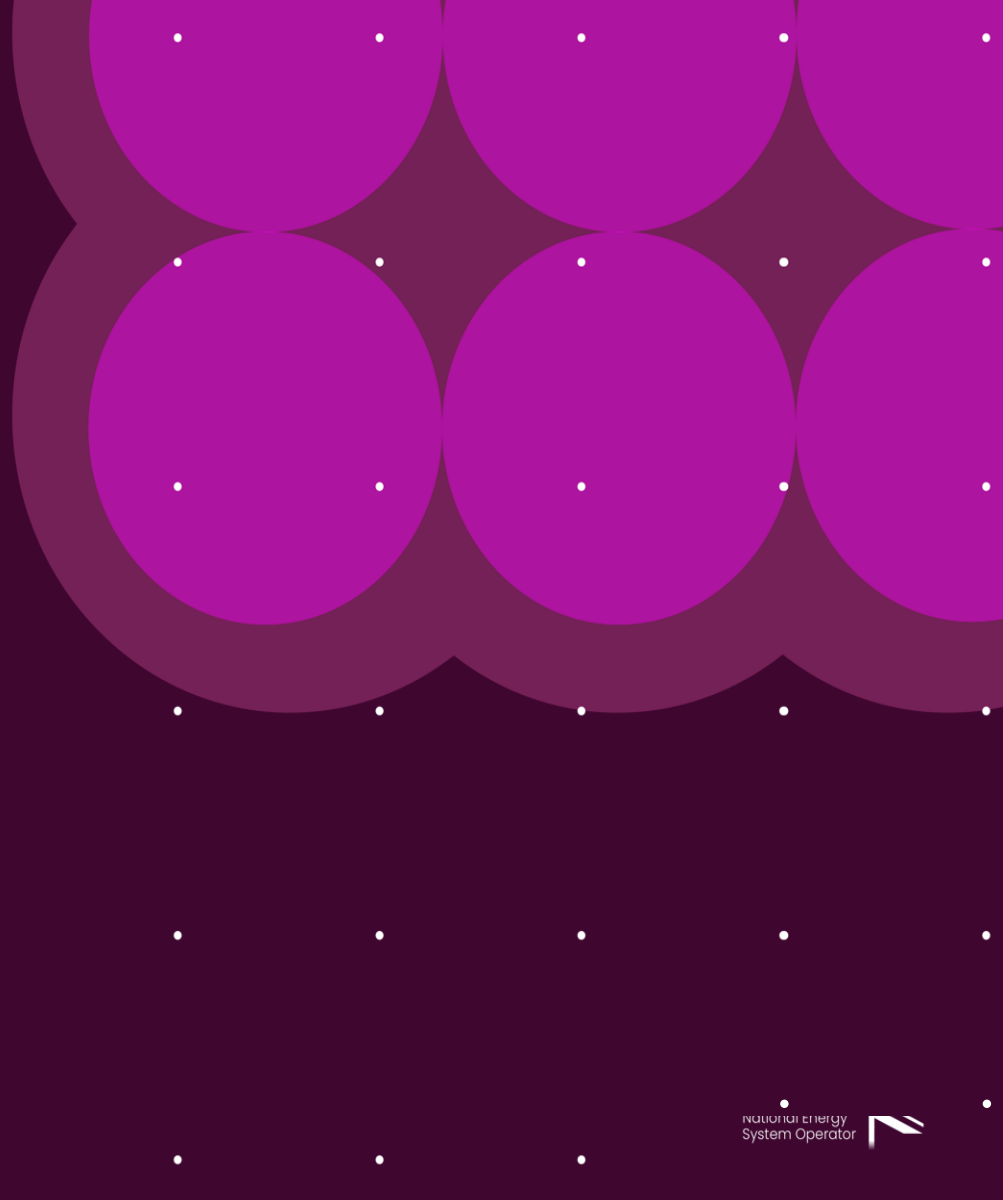
# NESO as delivery partner for 2030 and beyond

## NESO will play our part in delivering the Clean Power Mission:

- Connections reform
- Strategic Planning
- System Operation
- Energy Code Reform
- Market evolution
- Strategic advice to Government and Ofgem



Summary of strategic energy planning interactions



# Sara McGonigle

## Head of Strategy

### SSEN Transmission



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# Pathway to 2030 Investment Programme

● ASTI

● LOTI

— New infrastructure

- - - Upgrade/replacement of existing infrastructure

— Existing network



# Pathway to 2030 & Beyond

- Existing
- LOTI
- ASTI
- Beyond 2030

- New Infrastructure
- Upgrade/Replacement of Existing Infrastructure





# Adam Morrison

## Country Manager UK

### Ocean Winds



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**Claire Mack**

Chief Executive, Scottish Renewables

**Ben Golding**

Director, Clean Power 2030 Unit, Department for Energy Security  
& Net Zero

**Rita Wadey**

Head of Energy Policy, NESO

**Sara McGonigle**

Head of Strategy, SSEN Transmission

**Adam Morrison**

Country Manager UK, Ocean Winds



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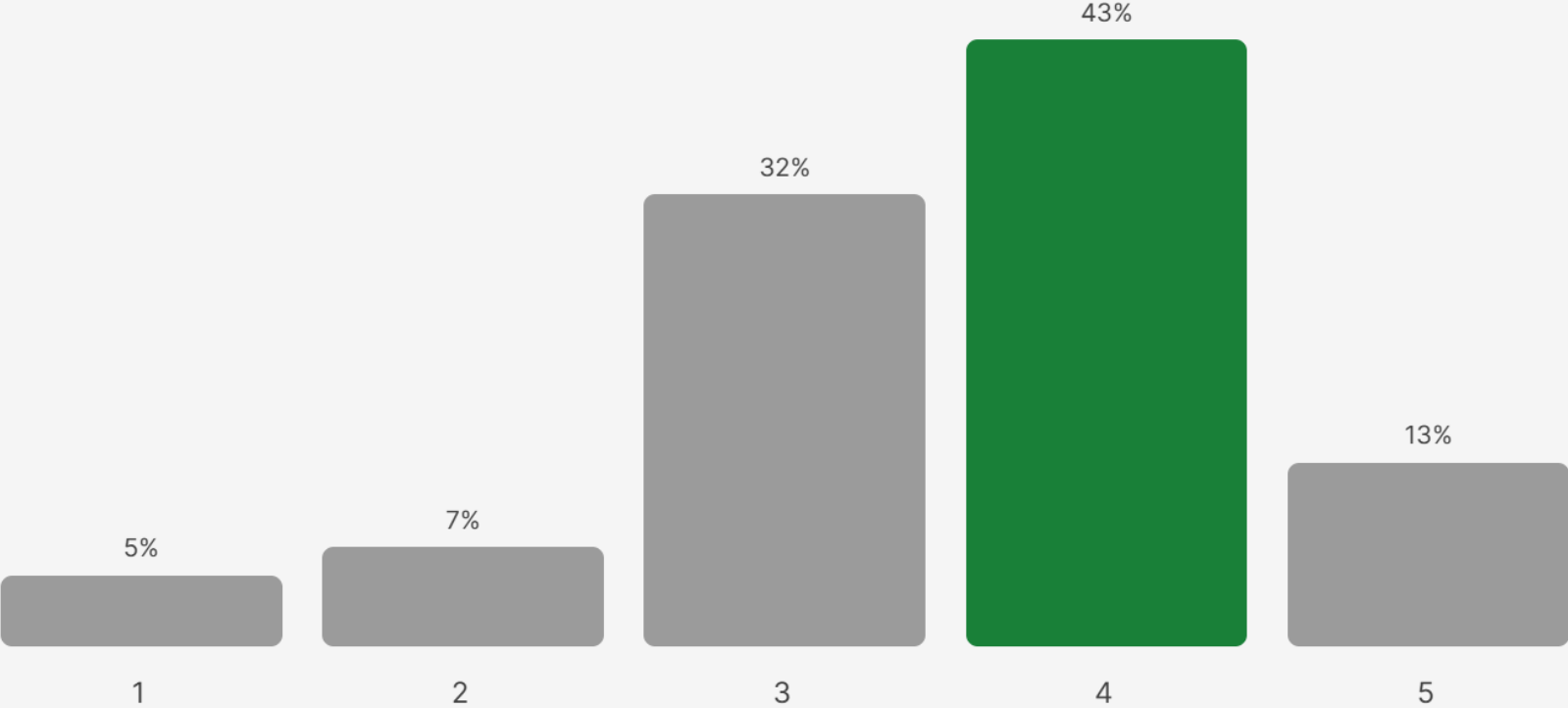
# **‘We’re connecting you now!’ ...the ongoing evolution of Connections Reform**

Chaired by Dr Graham Pannell, Head of Grid  
and Electricity Regulation, BayWa r.e. UK

# Do you think the new process will work?

1 - Strongly disagree 5 - Strongly agree

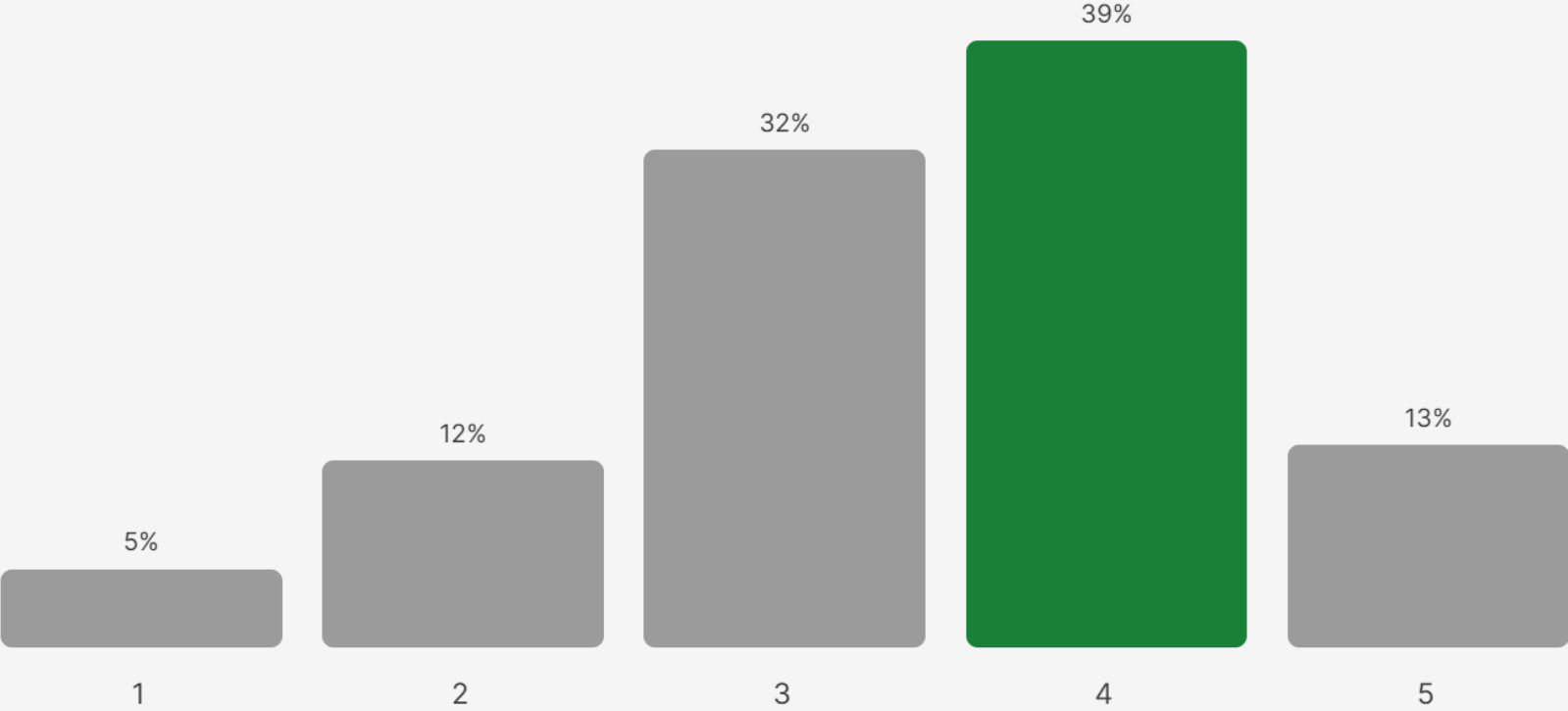
Score: ★ 3.5



# Do you perceive the new connections process as fair?

1 - Strongly disagree 5 - Strongly agree

Score: ★ 3.4



**Dr Graham Pannell**

Head of Grid and Electricity Regulation, BayWa r.e. UK

**Jack Presley Abbott**

Deputy Director of System Planning and Connections, Ofgem

**Matt Vickers**

Director of Connections Programme, NESO

**Helen Snodin**

Senior Grid and Regulation Manager, Muir Mhòr Offshore Wind Farm

**Catherine Cleary**

Grid Connections Specialist, Roadnight Taylor

# Ofgem TMO4+ minded-to decision

Issued on **February 14, 2025**, Ofgem published a minded-to decision to **accept** the National Energy System Operator's (NESO) Connections Reform proposals, including:

- **CUSC Modification Proposal 434, Workgroup Alternative CUSC Modification 7 (WACM7)**: introducing a pause for market self-regulation before NESO and TOs undertake the network assessment.
- **CUSC Modification Proposal 435, WACM1**: implementing a pause for 'Gate 2' applicants to assess the viability of their projects ahead of commitment to progress.

**Out for comment:** consultation on connections reform (TMO4+) enablers, including a separate statutory consultation on modifications to licence conditions (**deadline: March 14, 2025**)



*Beaully-Denny overhead line*



## **Dr Graham Pannell**

Head of Grid and Electricity Regulation, BayWa r.e. UK

## **Jack Presley Abbott**

Deputy Director of System Planning and Connections, Ofgem

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# From the ground up: translating from strategic to local level of network governance

Chaired by Lesley Dow, Head of Community  
Engagement, SSEN Transmission

# Fergus Tickell

## Regional Energy Strategic Planning (RESP) Manager for Scotland NESO

# Regional Energy Strategic Plans (RESP)

## Why?

To achieve local and national net zero targets we need:

- 1. To accelerate electricity network investment** – enable heat & transport decarbonisation
- 2. Consistency** – same approach for all network companies
- 3. Whole system** – joined-up plan for all aspects of energy system

## Where? (proposed)

Map A1 – Ofgem's preferred GB RESP settlement



## Who? (proposed)

**Ofgem** – defining role

**NESO** – delivering role

**Strategic Boards & Working Groups**

**Local authorities:**

England: CAs, CCs, unitaries

Scotland & Wales: unitaries

**Networks:** DNOs & GDNs

**Other local actors:** relevant to energy system & spatial planning

# Draft RESP Outputs

Ofgem have outlined 3 building blocks that NESO's RESP role must deliver. The NESO RESP Team is responsible for these outputs and will be producing them in collaboration with stakeholders. We have identified 6 key outputs that will enable the delivery of credible whole energy regional plans. These outputs will be refined and validated when developing the RESP Methodology.

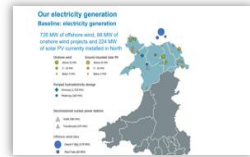
## The Regional Energy Strategic Plans

The RESPs will develop future energy pathways and identify hotspots where strategic investment need is likely to arise to meet the regional energy visions

1

### Regional Energy Vision

Develop and establish Regional Energy Visions, reflecting local needs, to collectively support national objectives

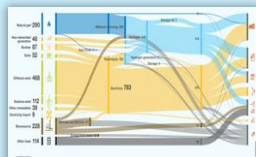


a

2

### Regional Pathways

Create Regional Pathways - built from the bottom-up and which are coherent with national needs. NESO will also develop consistent planning assumptions



a b

3

### Spatial System Need

Following from the pathways and considering network constraints, identify strategic investment needs as well as spatial cross-vector system needs



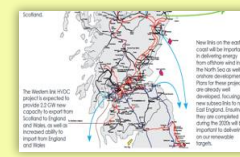
b

4

## Support for price controls

### Network plan Technical coordination

Assure that network companies' investment plans are integrated across vectors, built on consistent assumptions and deliver regional needs at pace, within national constraints



c

5

## Regional Geospatial Energy Plan

Develop publicly available geospatial regional plans that provide transparency and visibility to all stakeholders. The plans will track and monitor the delivery of the RESPs, including Strategic Investments.



b c

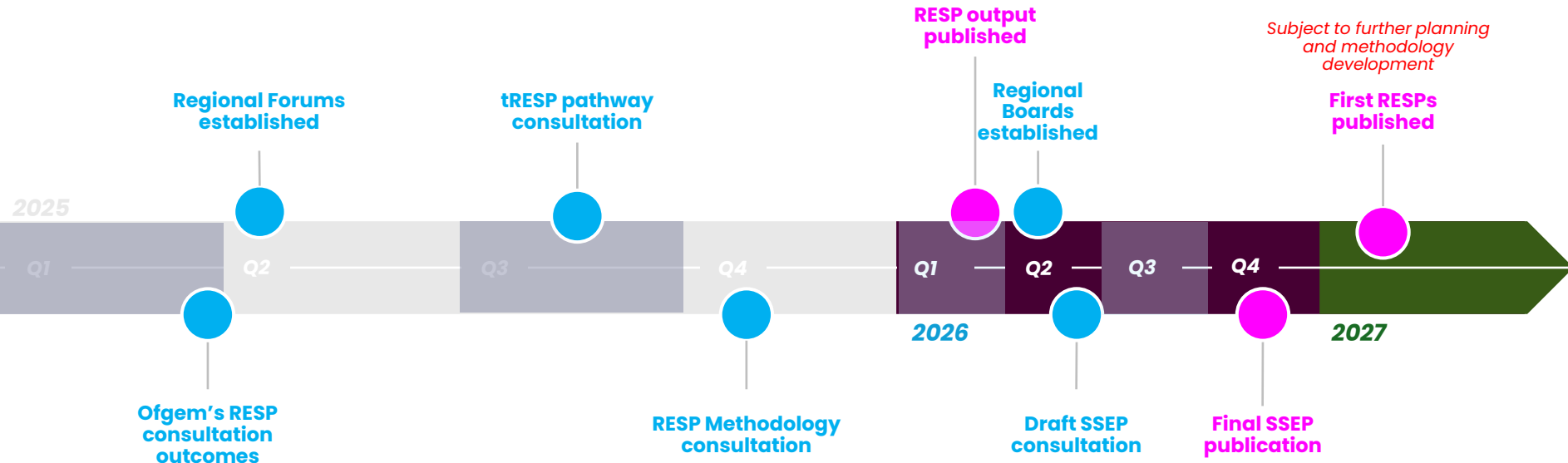
6

## Societal Impact Assessment

Review the societal impact at a local level of the energy transition (including jobs, transport, industry, environment etc.)



# RESP Key Milestones



**Lesley Dow**

Head of Community Engagement, SSEN Transmission

**Fergus Tickell**

Regional Energy Strategic Planning (RESP) Manager for Scotland, NESO

**Fraser Stewart**

Energy Justice and Just Transitions Lead, Regen

**Eibhlin Norquoy**

Head of Trading, Community Energy Scotland

**Kudakwashe P. Chinyani**

Associate, CMS

**Catherine Williams**

Deputy Director – Directorate for Energy and Climate Change,  
Scottish Government



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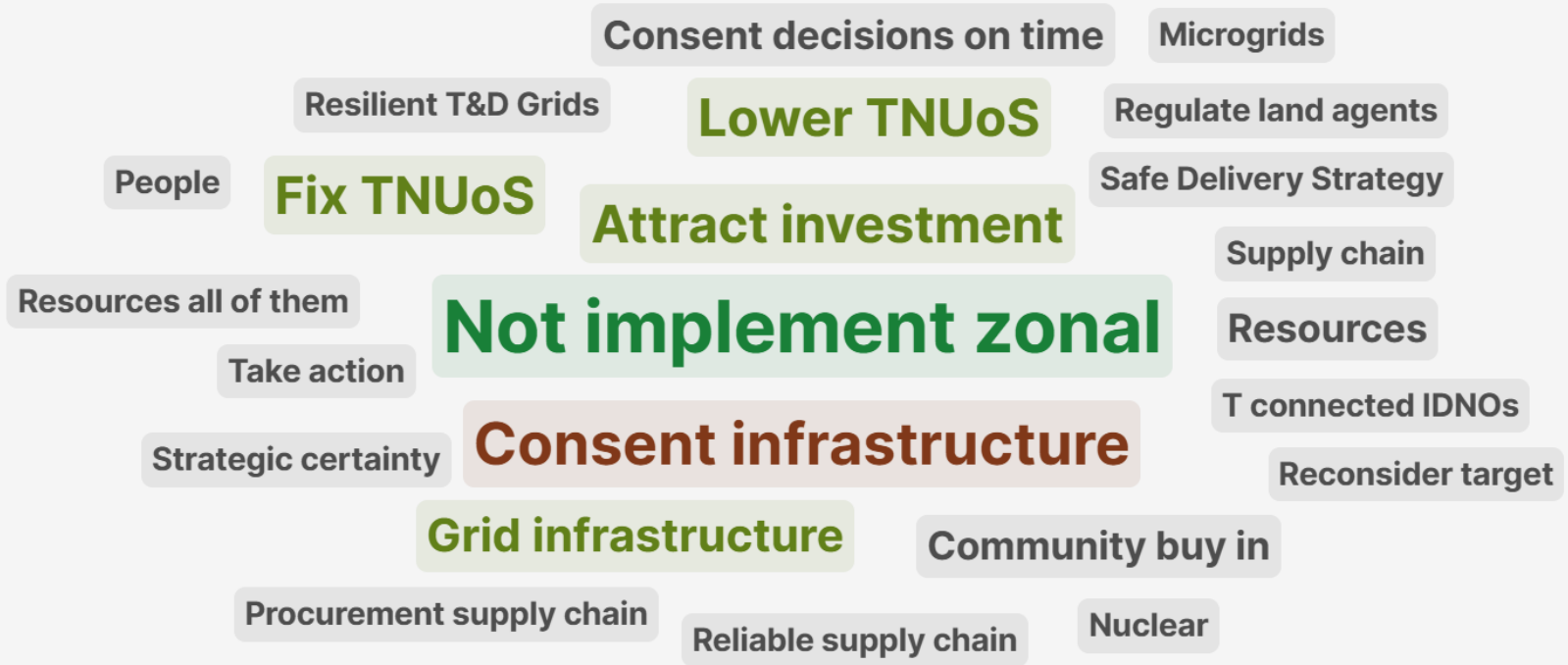
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# Eyes on the horizon: the future of longer-term reform

Chaired by Simon Gill, Independent Energy  
Consultant, The Energy Landscape

# What is the most important thing we need to do to deliver net-zero in Scotland by 2045?



## **Simon Gill**

Independent Energy Consultant, The Energy Landscape

## **Julian Leslie**

Director of Strategic Energy Planning and Chief Engineer, NESO

## **Lisa Woolhouse**

Head of Energy Transition, SSEN Transmission

## **Joe Dunn**

Head of Grid & Regulation, ScottishPower Renewables

## **Karen Turner**

Professor & Director of the Centre for Energy Policy,  
University of Strathclyde



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# SCOTTISH RENEWABLES' EVENT CALENDAR



**YOUNG PROFESSIONALS  
IN RENEWABLES**  
12 MARCH 2025 | ABERDEEN

The banner features a teal background with abstract, overlapping geometric shapes in shades of green and yellow.



**RENEWABLE ENERGY  
SUPPLY CHAIN CONFERENCE**  
13 MARCH 2025 | ABERDEEN

The banner has a dark purple background with a stylized logo on the left consisting of three curved, overlapping bands in yellow, pink, and blue.



**YOUNG PROFESSIONALS  
GREEN ENERGY  
AWARDS™**  
1 MAY 2025 | GLASGOW

The banner features a blue background with a green and yellow globe icon on the left.

**NOMINATION DEADLINE: 6 MARCH**

**VIEW ALL  
UPCOMING  
EVENTS**





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