Roadnight Taylor

THE INDEPENDENT SPECIALIST GRID CONSULTANCY

All Energy Grid Session

Pete Aston

@RoadnightTaylor

Who is Roadnight Taylor?

Roadnight Taylor
THE INDEPENDENT SPECIALIST GRID CONSULTANCY

- The leading consultancy dedicated to enabling optimal grid connections; to
- GB electricity networks (only); and
- At the least cost and risk to our clients
- EHV connection success rate c.5x the market as a whole
- Secured >16GW of viable connection capacity (>320 current projects)
- www.roadnighttaylor.co.uk/connectology/

I saw this and thought of you…

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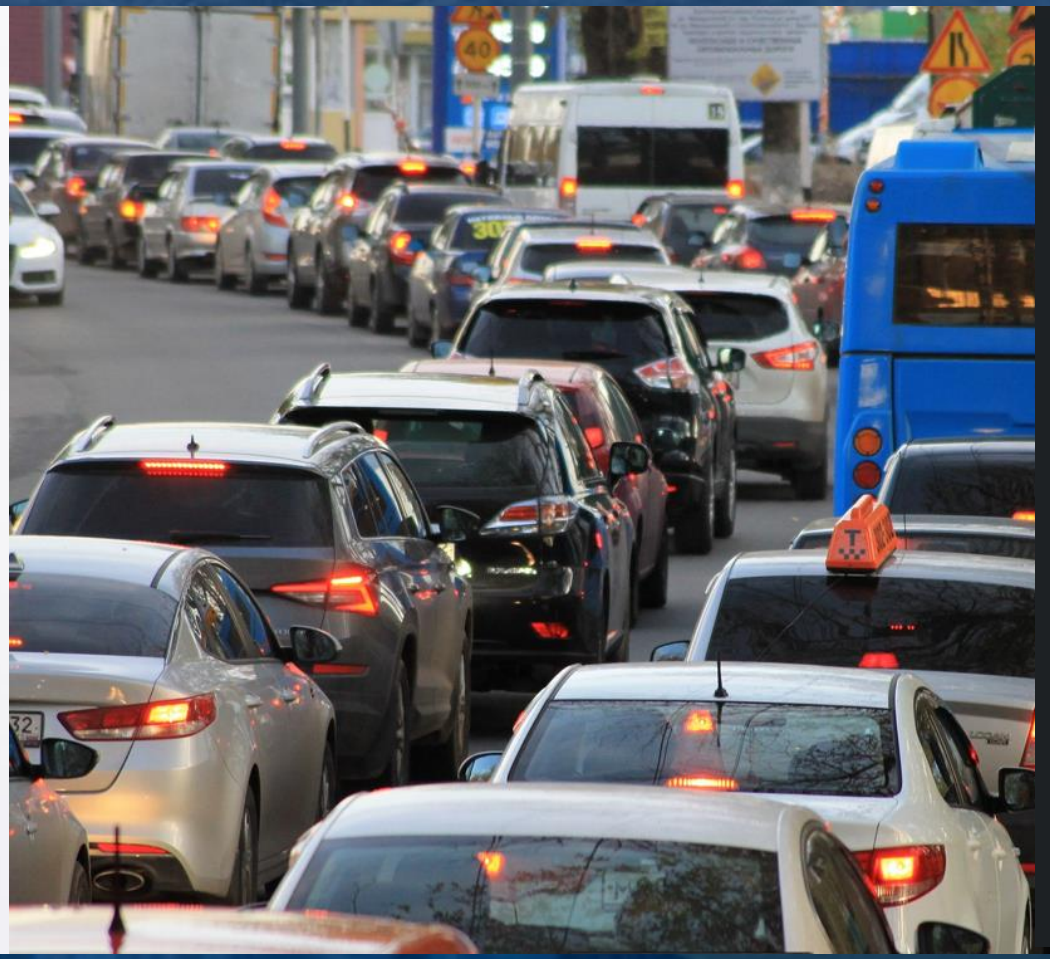

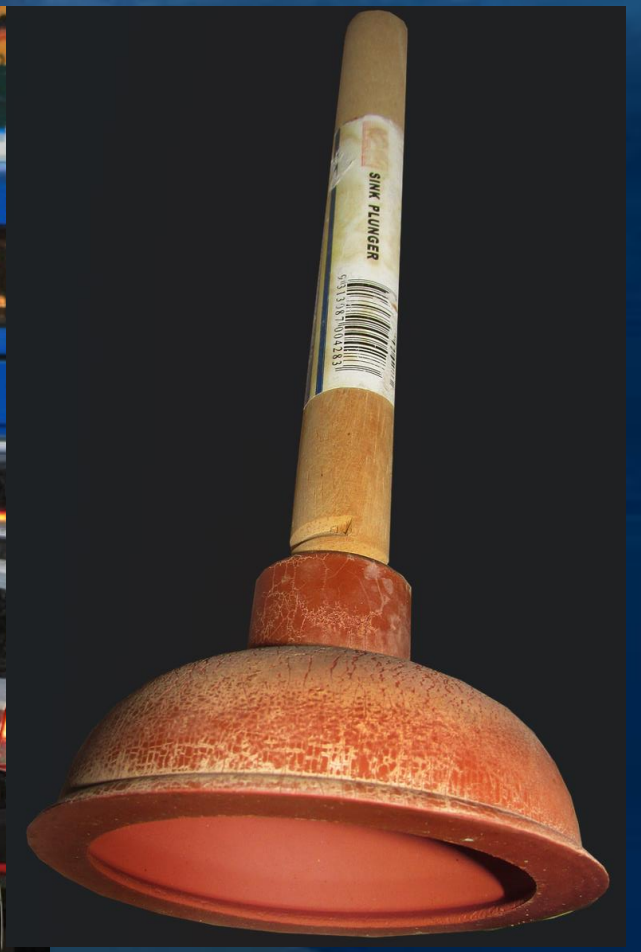

How do you solve a problem like Mari

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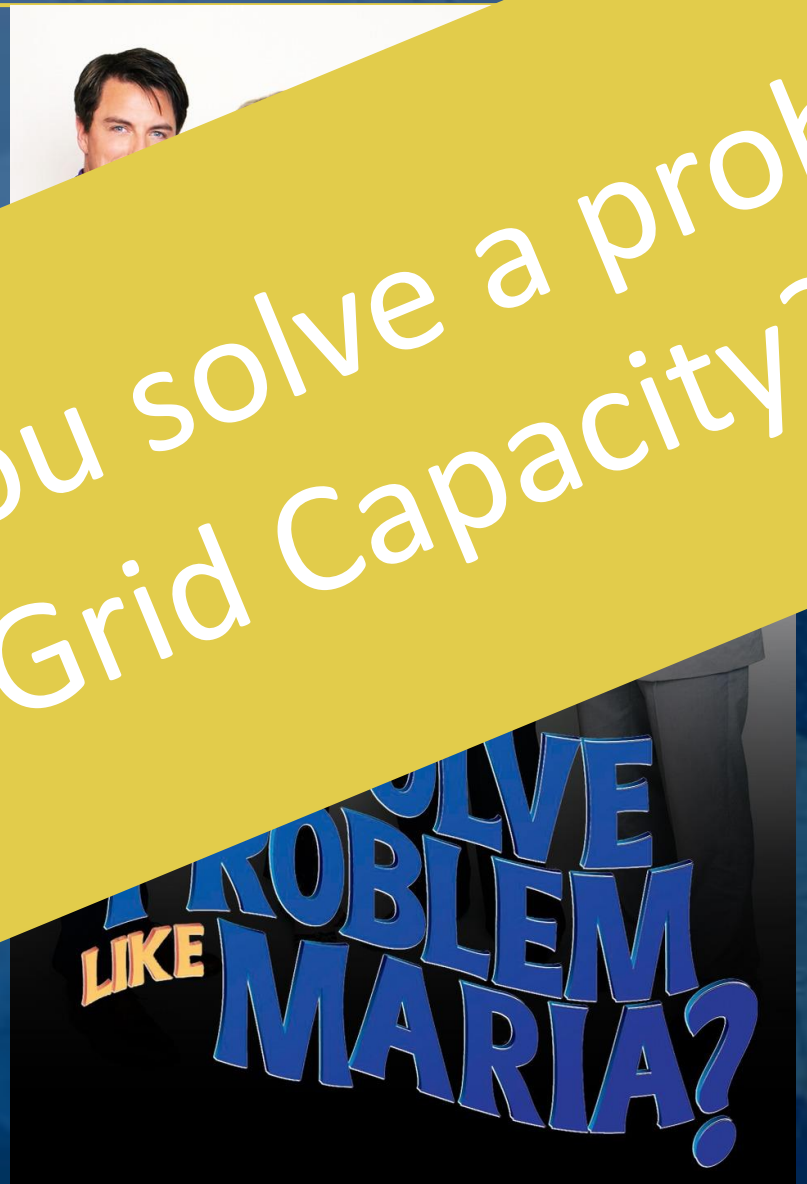
How do you catch a cloud and pin it do

How



…her I'm

…emused

…exactly

…predictable as weather
She's as flighty as a feather
She's a darling! She's a demon! She's a lamb!

How do you solve a problem like Grid Capacity?

Planned upgrades

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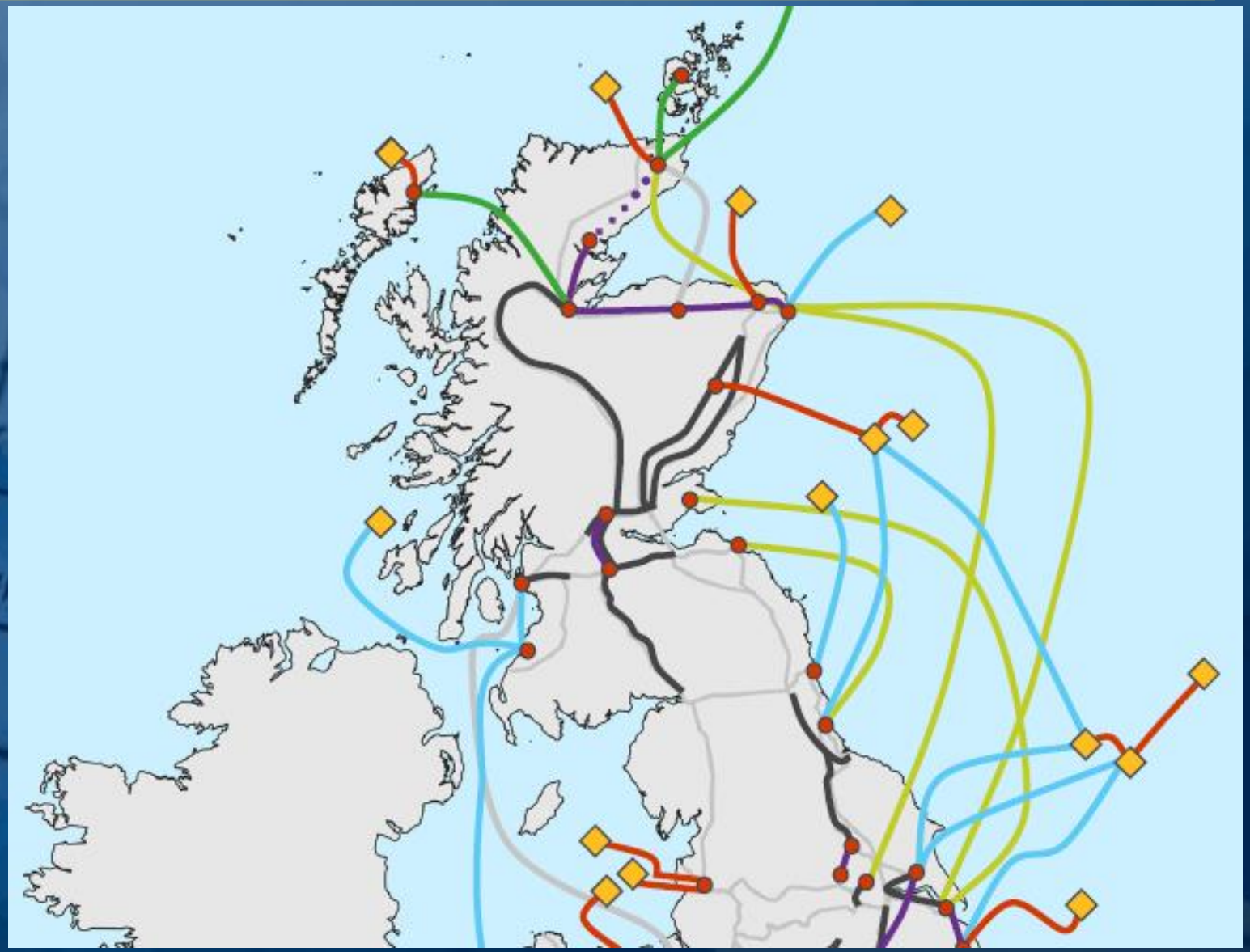
Map taken from NGESO Holistic Network Design Summary Report (July 2022)

Legend	
Existing network	
Existing network upgrade	
New onshore network infrastructure	
New subsea network reinforcement	
Other works	
Onshore substation to connect new infrastructure	
All option routes and locations are for illustrative purposes only.	



Great Grid Upgrade

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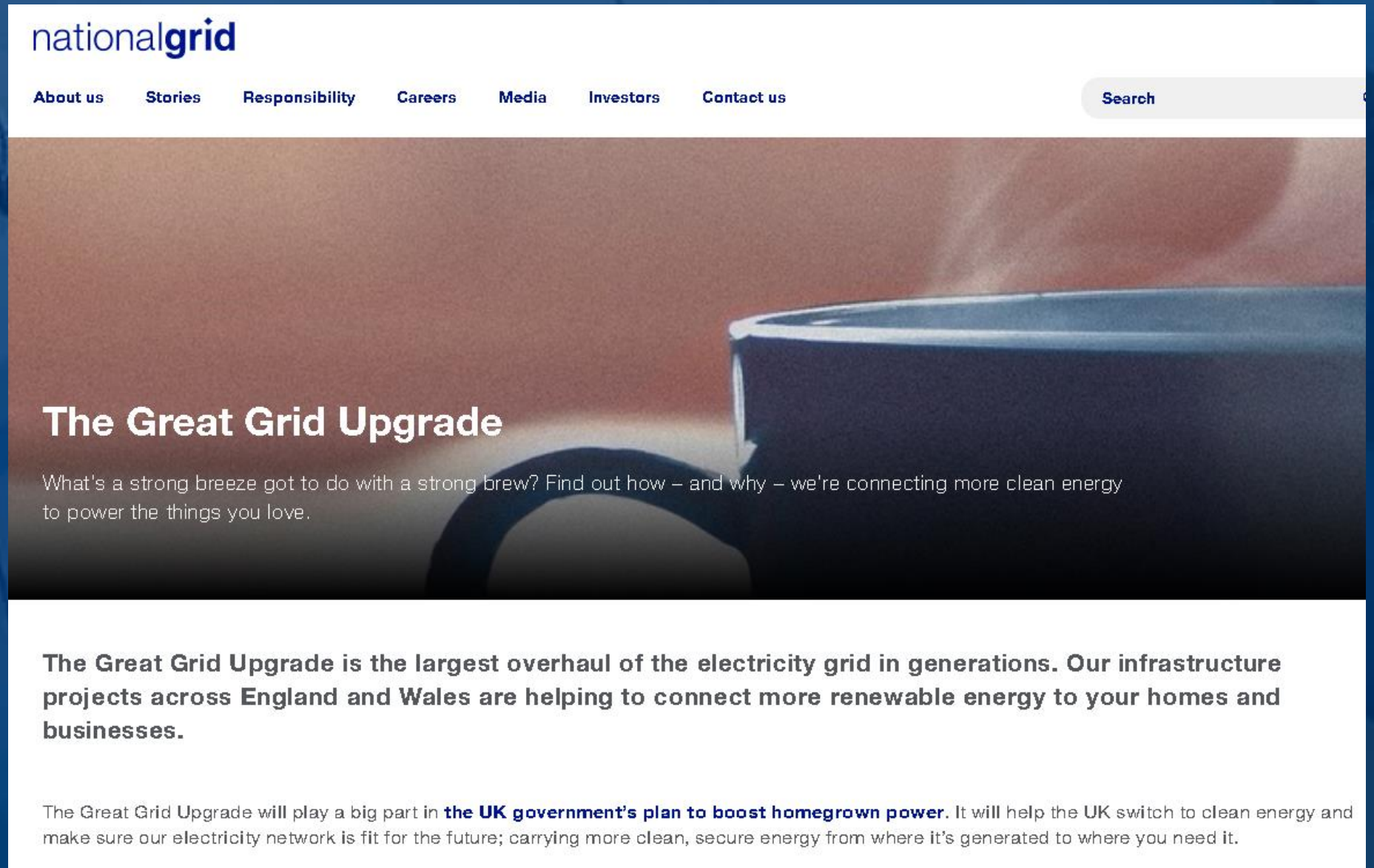

Changes to battery modelling

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- New Construction Planning Assumptions
  - Batteries 0MW (non-firm)
  - High attrition rates (up to 66%)

- Total transmission schemes which include energy storage:

Area	No. schemes	Capacity (GW)
Total GB	450	84
Scotland	107 (24%)	19 (23%)

Example 1

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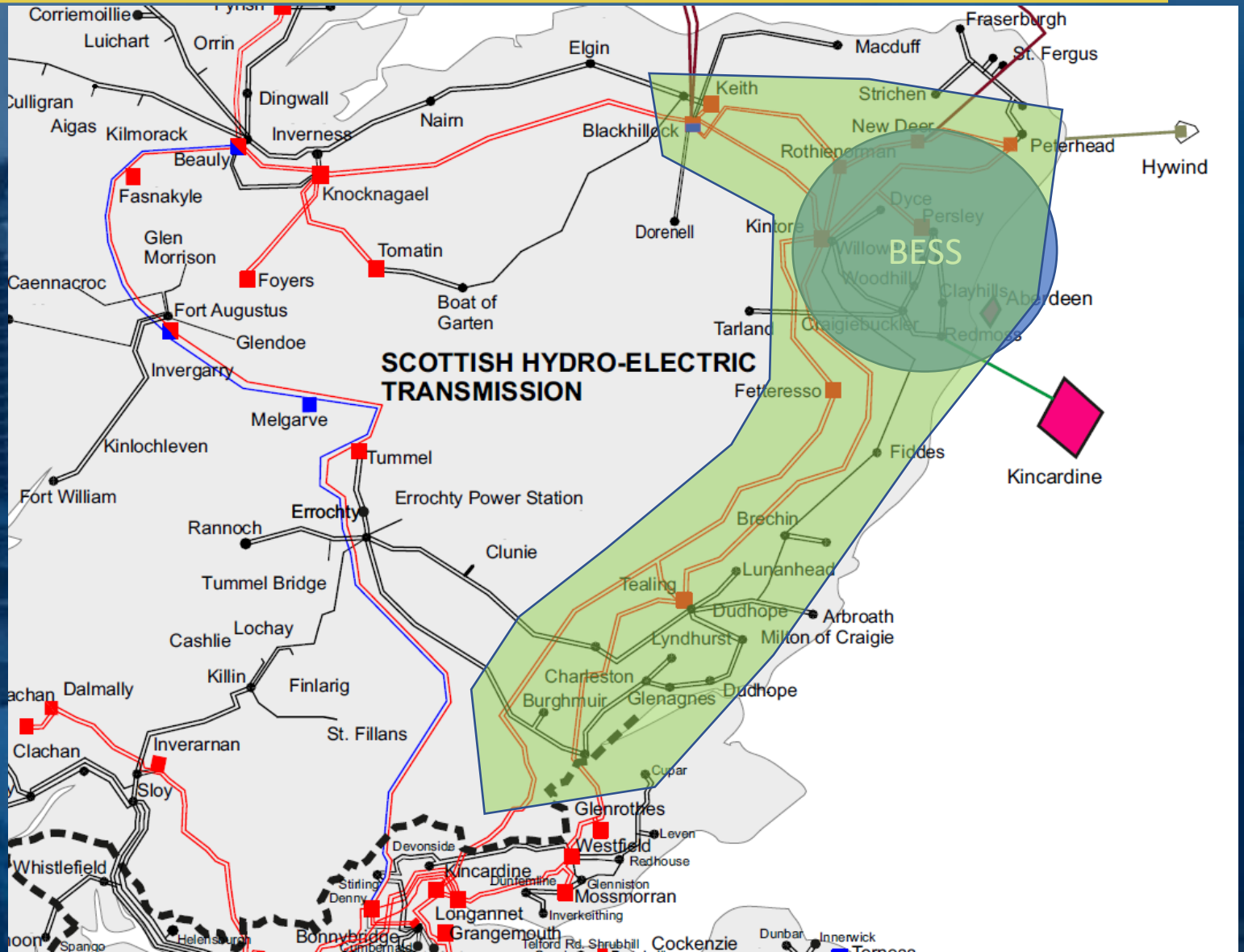
- Battery Energy Storage System (BESS)
- 275kV connection
- 100sMW size
- East Coast upgrade
- Offshore HVDC cable Peterhead to Drax (England) – c500km
- Oct 2033 connection date



Example 2

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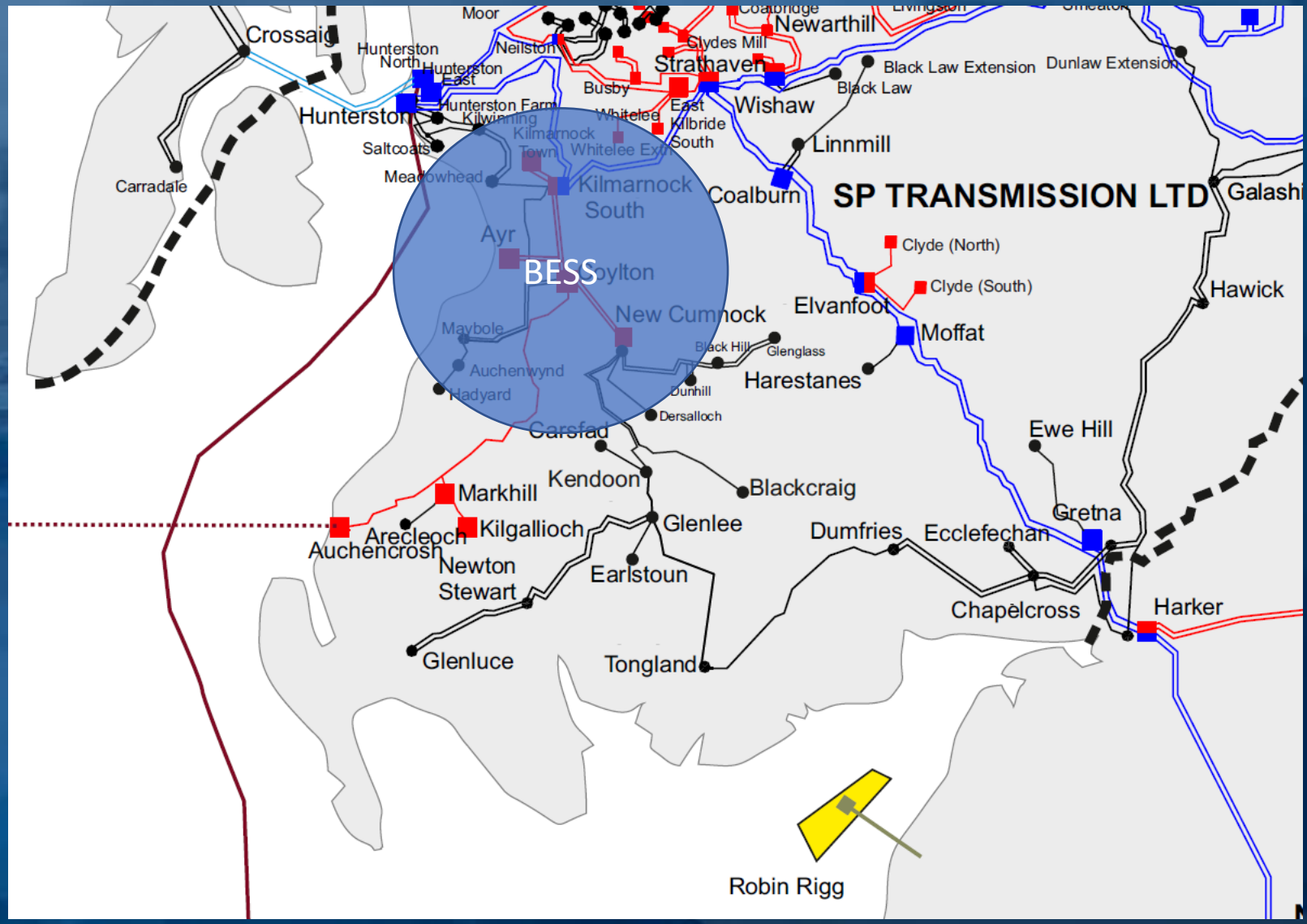
- Battery Energy Storage System (BESS)
- 275kV connection
- 100sMW size
- Part of a generation export management scheme
- Potentially high curtailment
- No wider reinforcements
- Oct 2027 connection date



Example 3

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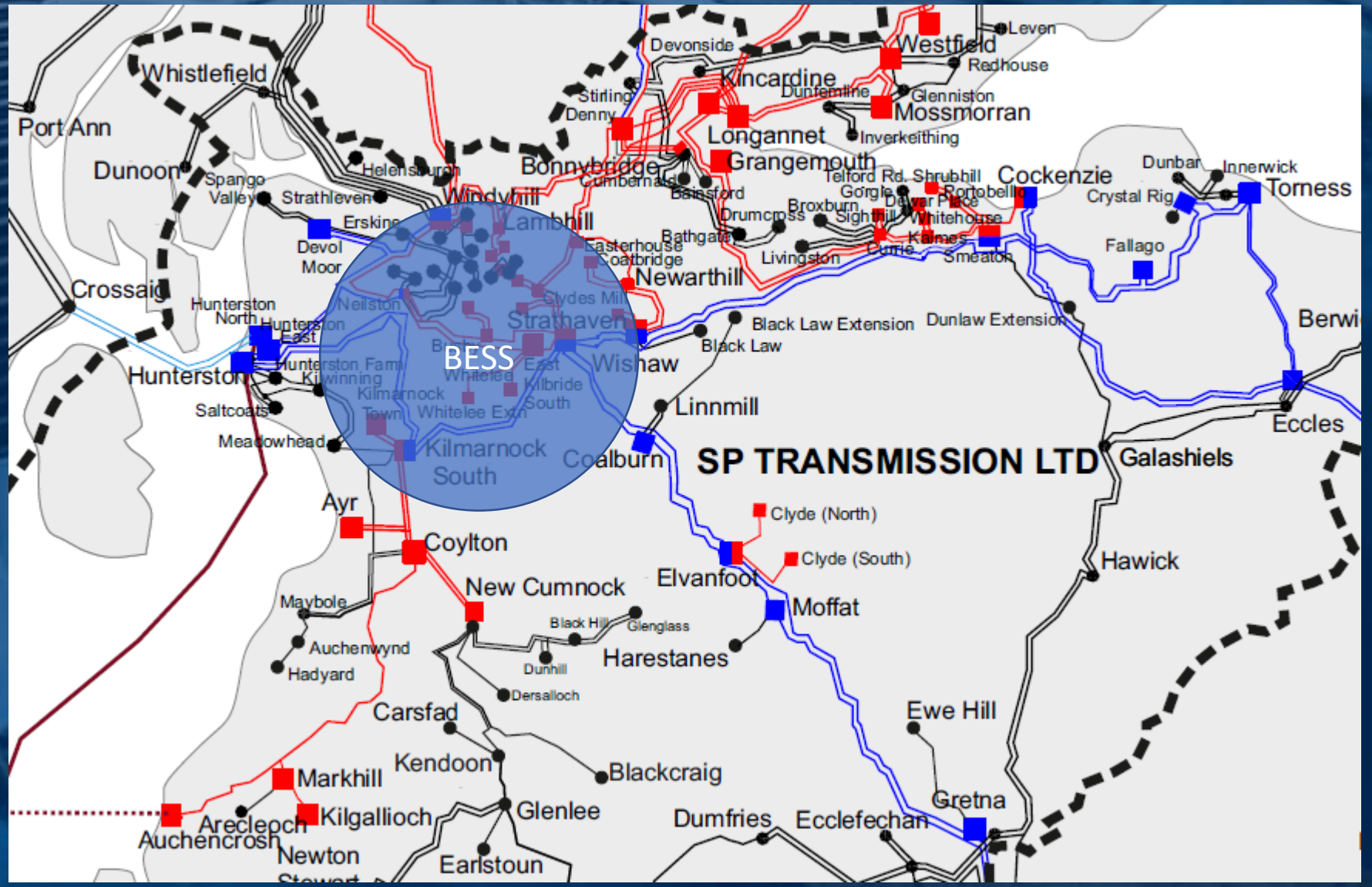
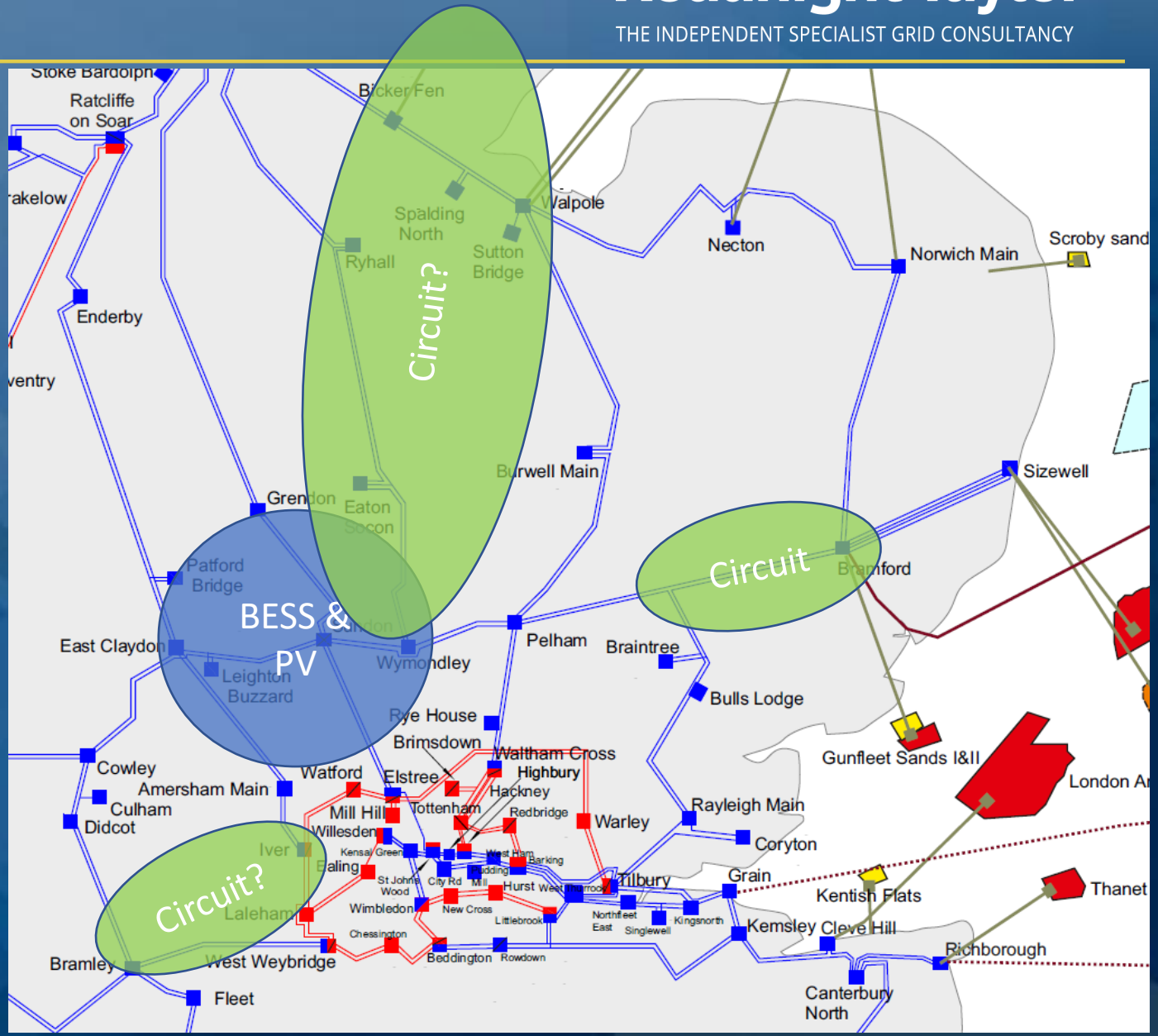
- Battery Energy Storage System (BESS)
- 33kV connection
- <100MW size
- SGT reinforcement c£10m
- Connection date likely >2033



Example 4

- Battery Energy Storage System (BESS) and PV
- 400kV connection
- 100sMW size
- Multiple upgrades of existing circuits
- 3x new 400kV circuits (100skm)
- Oct 2037 connection date



Action plans

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Energy networks launch action plan to accelerate

connection

ESO

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End the gridlock: Octopus Energy report reveals how to speed up green grid connection

- Five steps outlined to speed up connection of new wind and solar farms

How do you solve a problem like Grid Capacity?

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- Queue management
- SGT charging
- Transmission assessment threshold
- Ofgem – net zero mandate
- Build
- Work together
- This can be done!

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Speak to one of our experts

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Spare slides – probably not needed

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NGESO plan

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ESO's five-point plan to speed up the current connections queue is as follows:

1. Operating a Transmission Entry Capacity Amnesty until April 2023, allowing developers to terminate their connection contracts without incurring liabilities, freeing up capacity in the queue.
2. Updating our modelling assumptions to reflect current connection rates and reducing the assumption that most projects in the queue will connect.
3. Changing the treatment of storage, including batteries on the network to allow them to connect faster and free up capacity for other projects.
4. We are developing new contractual terms for connection contracts to manage the queue more efficiently so that those projects that are progressing can connect and those that are not can leave the queue.
5. And finally, we will soon offer an interim option for storage projects to connect to the network sooner, but with the caveat that they may be required to turn off more frequently when the system is under stress without initially being paid to do so.

ENA plan

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ENA has set out three immediate priority areas to support customers connecting to the distribution network:

1. Reforming the distribution network connections queue, promoting mature projects that are closer to delivery above those that may be ‘blocking’ the queue.
2. Changing how transmission and distribution networks coordinate connections, improving their interactivity.
3. Greater flexibility for storage customers through new contractual options.

Octopus plan

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Five-point-plan to speed up grid connection times for renewable projects:

1. Proactive queue jumping to connect renewable projects that are further along
2. Enforce sunset clause on grid offers so old fossil fuels ones don't take up space
3. A more transparent can-do attitude with data and tech driving it, creating 'zones' ripe for developing renewables quickly
4. Increase competition in the grid connection process
5. Enable collaboration between developers to share and reduce connection costs