



nationalgrid

**Community energy forum: Swansea /
Fforwm Ynni Cymunedol: Abertawe**

15/11/24

About Regen / Ynglŷn â Regen

Regen provides independent, evidence-led insight and advice in support of our mission to transform the UK's energy system for a net zero future.

We focus on analysing the systemic challenges of decarbonising power, heat and transport.

We know that a transformation of this scale will require engaging the whole of society in a just transition.

Mae Regen yn darparu gwybodaeth a chyngor annibynnol a arweinir gan dystiolaeth i gefnogi ein cenhadaeth o drawsnewid system ynni'r DU ar gyfer dyfodol sero net.

Rydym yn canolbwyntio ar ddadansoddi'r heriau systemig o ddatgarboneiddio pŵer, gwres a thrafnidiaeth

Rydym yn gwybod bod trawsnewid o'r maint hwn yn golygu cynnwys cymdeithas gyfan mewn pontio teg.



Experts/
Arbenigwyr



Pioneers/
Arloeswyr



Convenors/
Cynullwyr

Regen supporting community energy / Regen yn cefnogi ynni cymunedol

We've supported and developed networks of community energy organisations across the UK for over 10 years,:

- We **champion the community and local energy sector**.
- We organise online and in-person **forums** for community energy groups.
- We take part in **innovation projects** and investigate emerging opportunities.
- We write **plain-language guides** to the energy system.

Rydym wedi cefnogi a datblygu rhwydweithiau o sefydliadau ynni cymunedol ledled y DU ers dros 10 mlynedd,:

- Rydym yn **hyrwyddo'r gymuned a'r sector ynni lleol**.
- Rydym yn trefnu **fforymau** ar-lein ac wyneb yn wyneb ar gyfer grwpiau ynni cymunedol.
- Rydym yn cymryd rhan mewn **prosiectau arloesi** ac yn ymchwilio i gyfleoedd sy'n dod i'r amlwg.
- Rydym yn ysgrifennu **canllawiau iaith glir** ar y system ynni.

Agenda

- 13.00** **Welcome from the chair and National Grid Electricity Distribution (NGED) / Croeso gan y Cadeirydd a National Grid**
Prina Sumaria, *net zero project manager / rheolwr prosiect sero net*, Regen
Sarah Jeffery, *head of strategic customer engagement / pennaeth ymgysylltu strategol cwsmeriaid*, NGED
- 13.10** **Gwyrdd Bangla: The Bengal Dragons go green!**
Jon Townend, *executive director / cyfarwyddwr gweithredol, Ynni Teg*
- 13.25** **Panel: How do we achieve successful shared ownership projects in Wales? / Sut mae cael prosiectau cyd-berchnogaeth llwyddiannus yng Nghymru?**
Prina Sumaria, *net zero project manager / rheolwr prosiect sero net*, Regen
Monika Paplaczky, *investment director / cyfarwyddwr buddsoddi*, Thrive Renewables
Ben Ferguson, *co-executive director / cyd-gyfarwyddwr gweithredol*, Community Energy Wales / Ynni Cymunedol Cymru
- 13:55** **Tea break and networking / Saib te a rhwydweithio**

Agenda

- 14.35** **Community energy's role in the wider energy landscape in Wales / Rôl ynni cymunedol yn nhirwedd ehangach ynni Cymru**
Jennifer Pride, head of energy delivery / pennaeth cyflawni ynni, Welsh Government / Llywodraeth Cymru
- 14.55** **Ynni Cymru: what's been achieved so far and what's next? / Ynni Cymru: beth sydd wedi digwydd hyn yn hyn a beth sydd nesaf?**
Steve Keating, director / cyfarwyddwr, Ynni Cymru
- 15:10** **Breakouts: How can GB Energy support community energy in Wales? / Gweithdai: Sut gall GB Energy gefnogi ynni cymunedol yng Nghymru?**
- 15:55** **Plenary and feedback / Ymgasglu ac adborth**
- 16:00** **Close / Diwedd**



**Electricity
Distribution**

Welcome from National Grid

**Sarah Jeffery
Head of Strategic Customer Engagement**

nationalgrid

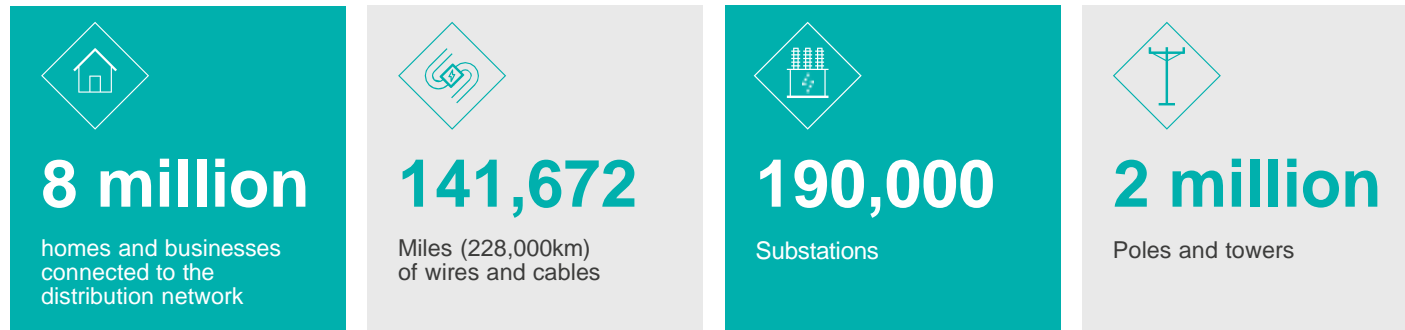


Who we are and what we do

National Grid Electricity Distribution (NGED) is a Distribution Network Operator (DNO) and a Distribution System Operator (DSO), responsible for distributing electricity to eight million customers.

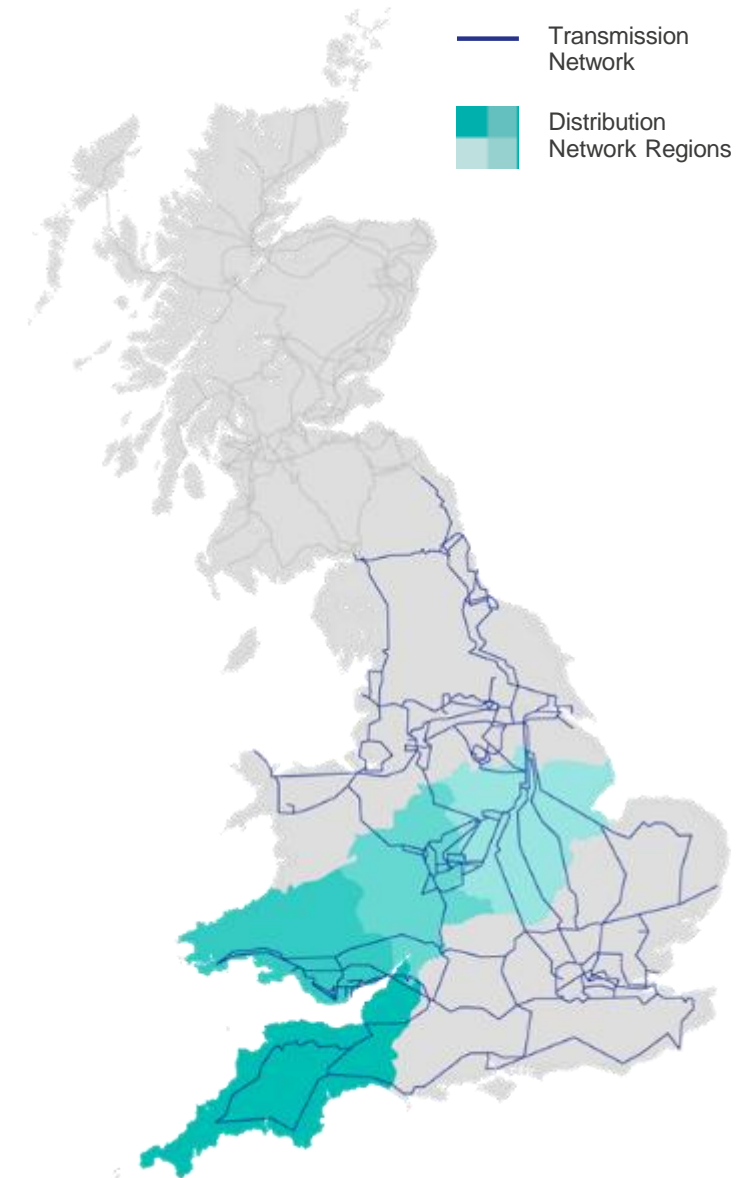
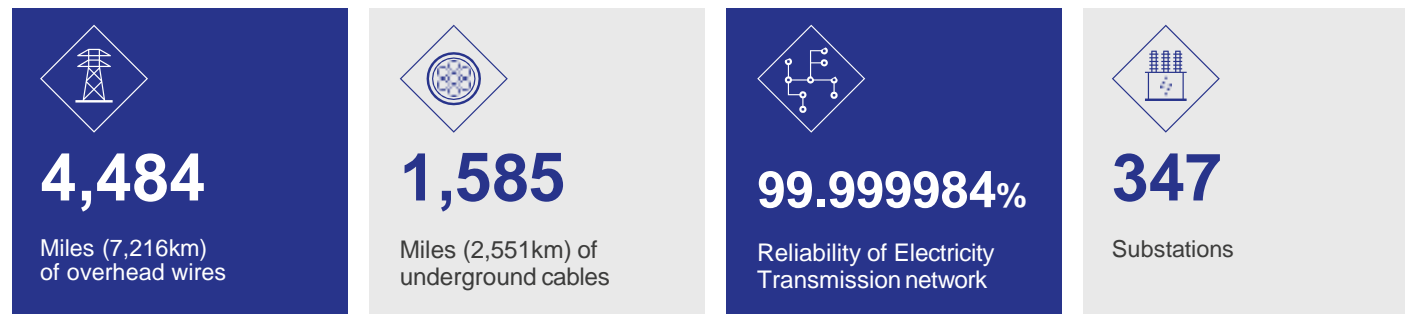
Electricity Distribution

Own and operate the electricity distribution networks for the Midlands, the South West and South Wales.



Electricity Transmission

Own and operate the high-voltage electricity transmission network in England and Wales.



How we support community energy



nationalgrid

‘Gwyrdd Bangla’ Prosiect Ynni Cymunedol Community Energy Project

The Bengal Dragons Go Green!

Jon Townend, ED, Ynni Teg Cyf.

Regen V3 15.11.24



Ynni Teg – the challenge



What kind of community energy projects can we develop?

Community Energy – how are you feeling?

Net Zero – big numbers, short delivery dates
Grid capacity - small numbers or long delivery dates
Global events

Climate change, renewable energy – don't we all get it?
'Get rid of the green crap'

Feeling powerless?



But what and how?

What kind of project – no grid, regulatory restrictions, how do we make it pay?

- Single/big or small/multiple?
- Direct wire, BTM, scalable
- SLES?

Where and how to start?

The 4 Ds – decarbonisation, decentralisation, digitisation and democratisation

Less about energy, more about people.

The Bengal Dragons – the challenge



BENGAL DRAGONS
FOUNDATION



The Gwyrdd Bangla Project



Seeks to address the impact of the climate crisis and high energy costs on the Bangladeshi and Pakistani heritage communities in South Wales by fostering community-led action to benefit community hubs, businesses and households.

Reduce CO2 emissions
and energy costs for
consumers

Promote efficient uptake
of renewable energy and
smart technologies

Foster greater
understanding and
confidence to engage in
climate actions



video

Building Locations

Iqra Mosque



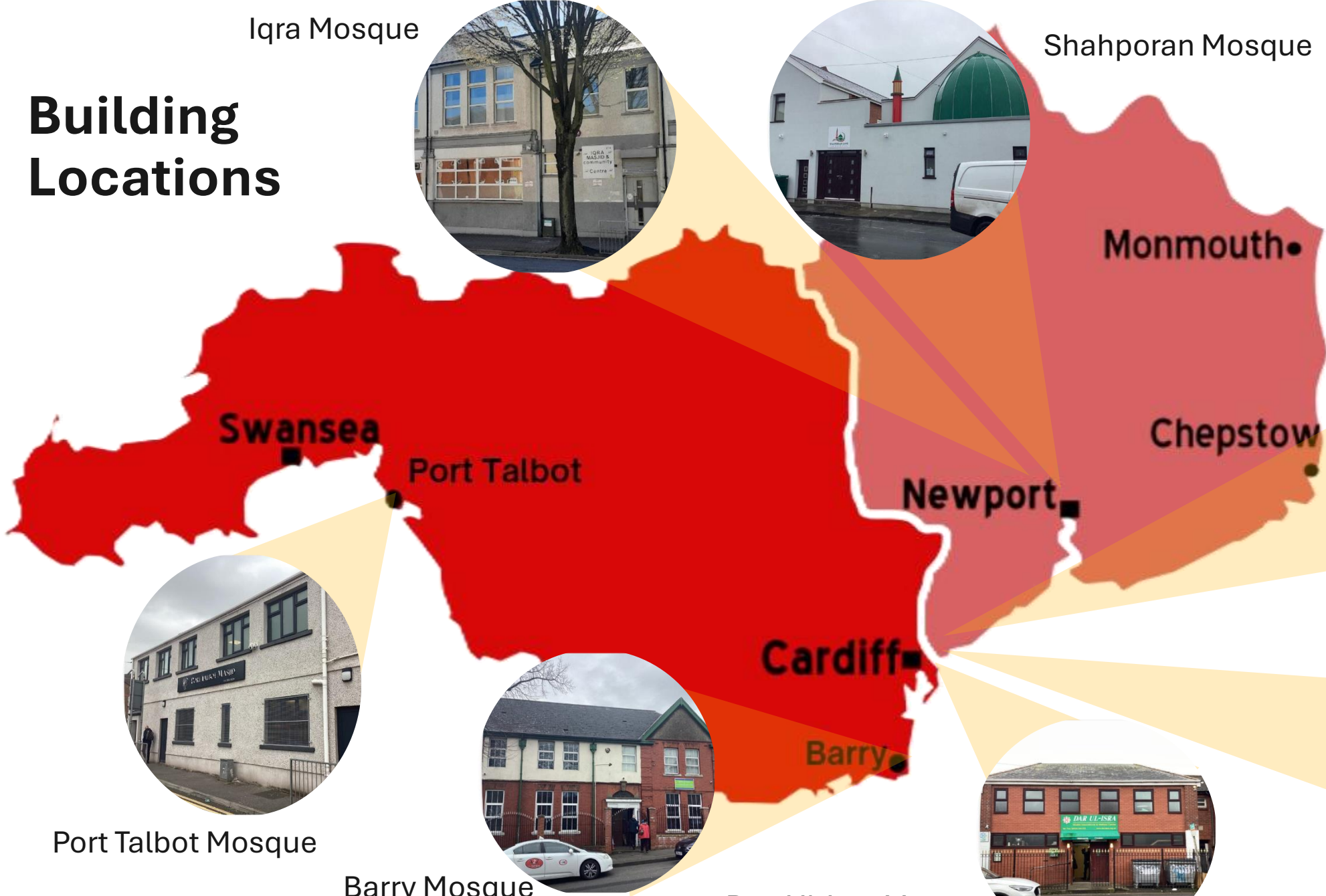
Shahporan Mosque



Madni Mosque



Jalalia Mosque



Swansea

Port Talbot

Newport

Monmouth

Chepstow

Cardiff

Barry

Port Talbot Mosque



Barry Mosque



Dar-Ul-Isra Mosque





GWYRDD BANGLA
COMMUNITY ENERGY





GWYRDD BANGLA
COMMUNITY ENERGY





GWYRDD BANGLA
COMMUNITY ENERGY



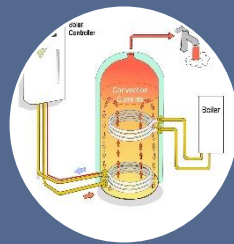
Proposals – phase 1

12 community buildings, with assets managed through software platform providing integration and optimisation.



**Renewable Electricity
Generation:**

Target c.200kWp



Energy Storage Systems:

Lithium Ion Batteries

Target c.300kWh

Solar Water Heaters



Transport:

6 Electric Vehicle (EV)
charging points

EV Car Clubs

SYSTEM SOFTWARE INTEGRATION



GWYRDD BANGLA
COMMUNITY ENERGY

BD
BENGAL DRAGONS
FOUNDATION



Now and next

- 7 buildings surveyed, grant application to Ynni Cymru
- 5 more community buildings to survey
- First phase installations
- Build capacity and ambition – Energy Redress revenue funds?
- Promote the wider project to local communities
- Target - action for 500 households – advice, efficiency, solar and storage?



GWYRDD BANGLA
COMMUNITY ENERGY



Outcomes for both of us

- Empowerment and enabling
- Learning and understanding
- Building capacity and resilience
- Ownership – taking back control!



GWYRDD BANGLA
COMMUNITY ENERGY



Diolch yn fawr / Thank you

www.bengaldragonsfoundation.org

www.ynniteg.cymru

How do we achieve
successful shared ownership
projects in Wales? /
Sut mae cael prosiectau
cyd-berchnogaeth
llwyddiannus yng Nghymru?

► Break / Saib



Llywodraeth Cymru
Welsh Government

Trosolwg Ynni Energy Update

Jennifer Pride

Meysydd blaenoriaeth

Dylunio System

- cynllunio ynni
- galluogi grid

Darparu buddion

- Trydan Gwyrdd Cymru
- Ynni Cymru
- Gwasanaeth Ynni Llywodraeth Cymru

Priority areas

System design

- energy planning
- enabling grid

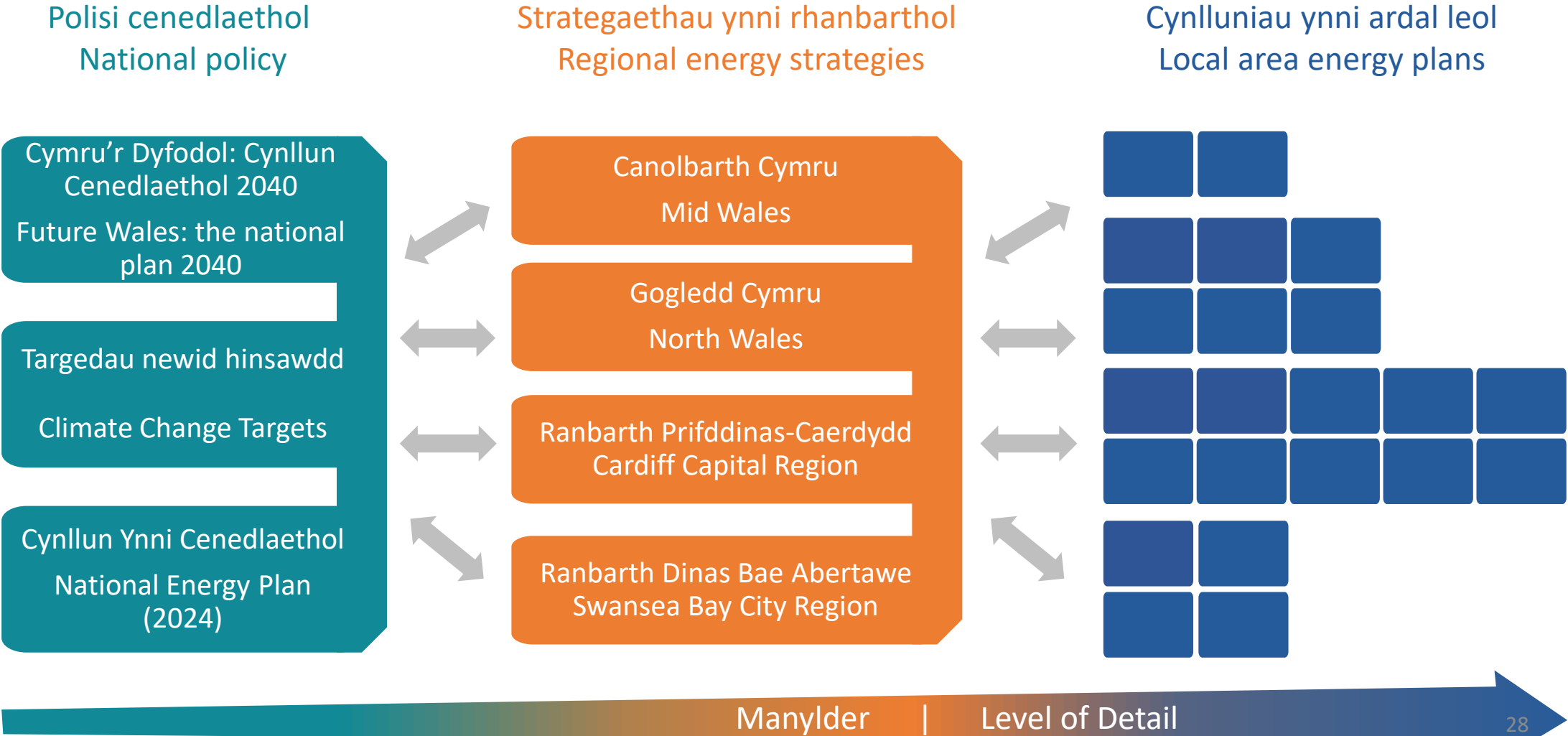
Realising benefits

- Trydan Gwyrdd Cymru
- Ynni Cymru
- Welsh Government Energy Service

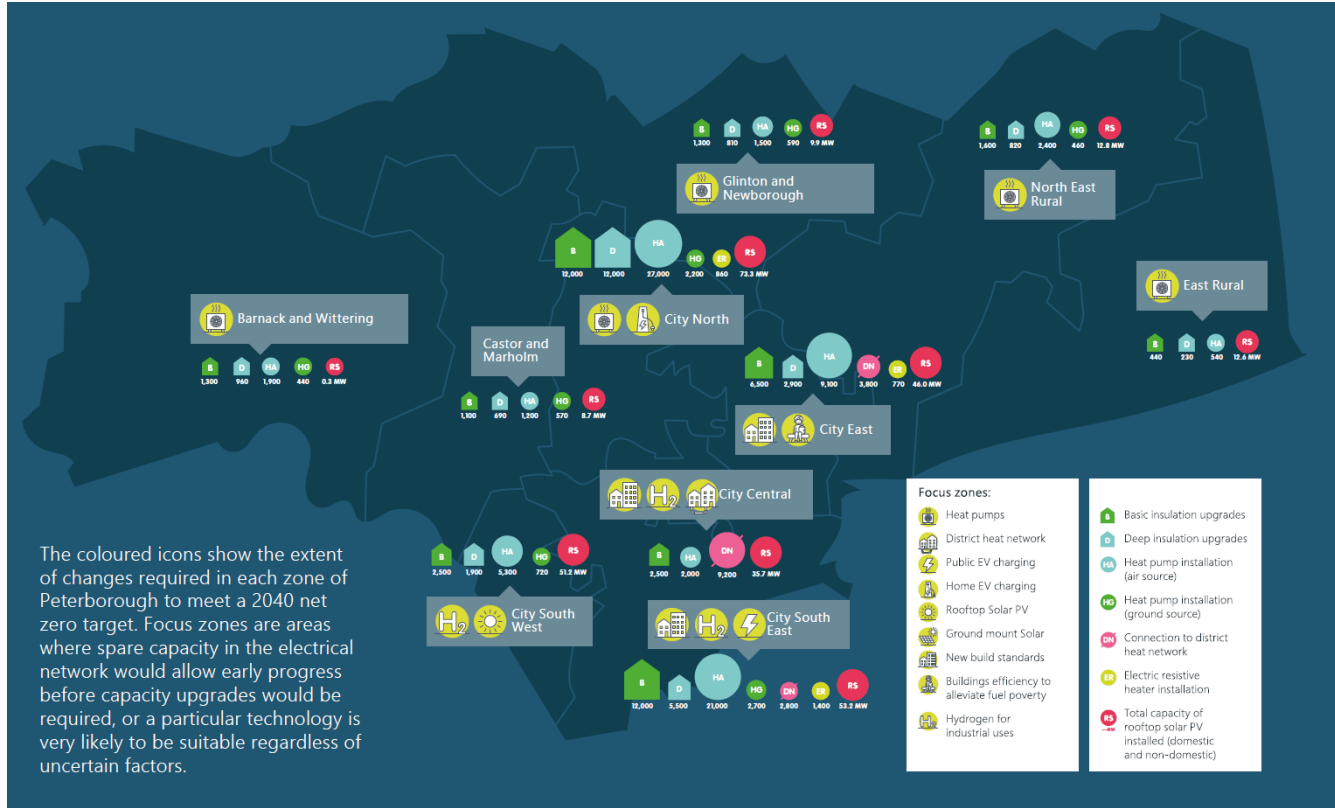


Cynllunio ar gyfer system ynni carbon isel sy'n fwy integredig

Planning for a more integrated low carbon energy system



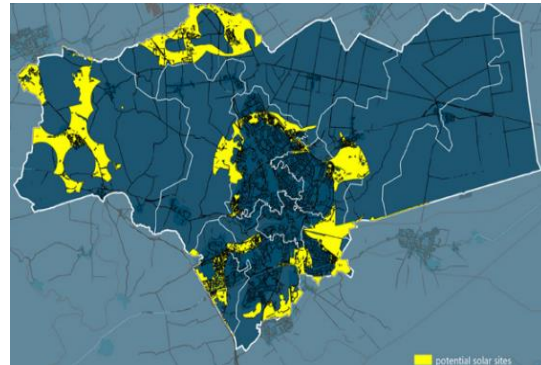
LAEP OUTPUT EXAMPLES – WHAT, HOW MANY, WHERE, AND WHEN



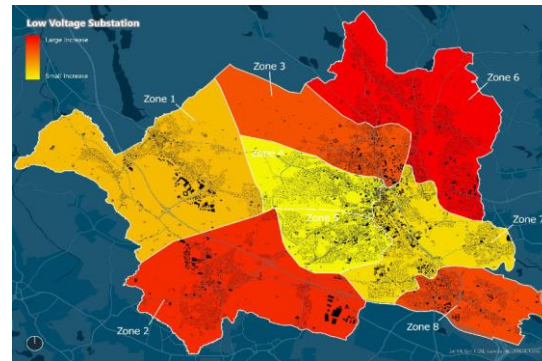
Plan on a Page – showing the “what, how many, and where” of the plan



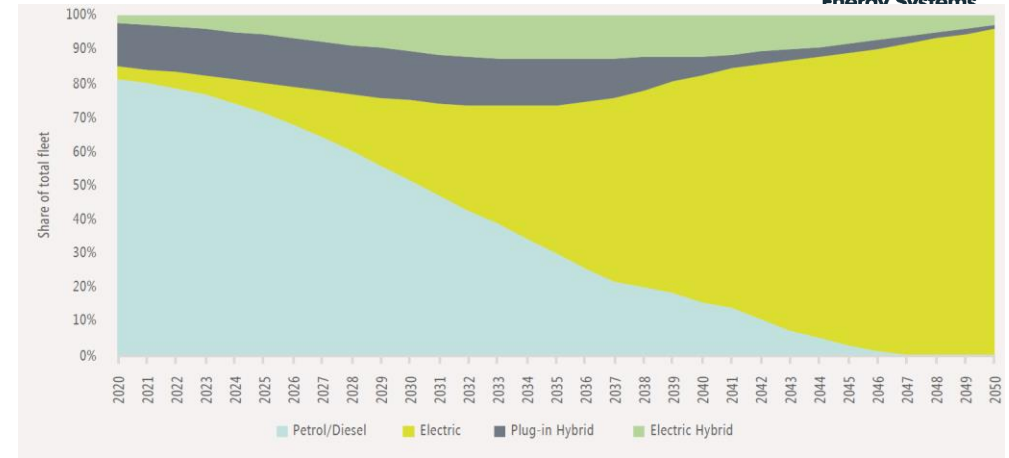
Fabric retrofit focus zone



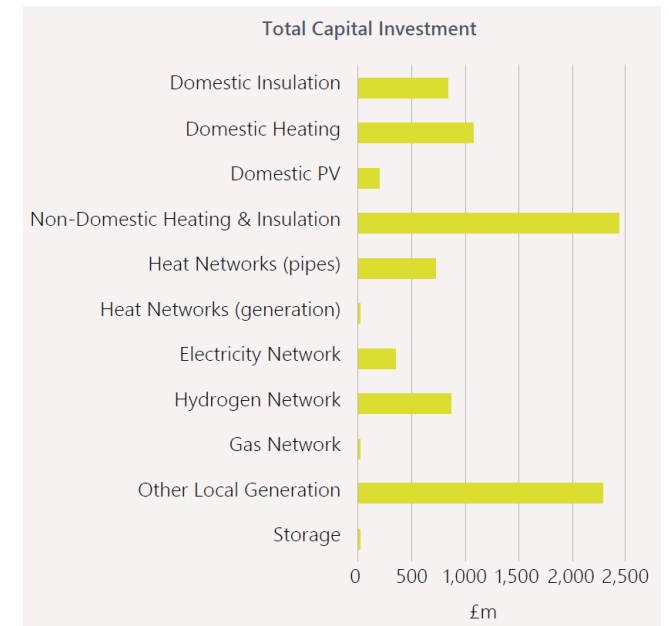
Large scale renewables opportunity areas



Energy network impact



Electric vehicle uptake over time



Investment Breakdown

Example outputs from previous LAEP work

Manteision posibl - Potential Benefits

Cyfle i integreiddio sectorau a sicrhau nifer o ganlyniadau

Y gallu i edrych yn hirdymor

Opportunity to integrate sectors and deliver multiple outcomes

Ability to take a long term approach

Sicrhau'r gwerth gorau yn gyffredinol

Ymwneud democrataidd ac atebolrwydd

Achieve best overall value

Democratic involvement and accountability

Cyflwyno tystiolaeth am fuddsoddiad mewn prosiectau a rhaglenni

Creu sicrwydd

Deliver evidence for investment in projects and programmes

Create more certainty

Overview of Regional Energy Strategic Planner decision



A new regional strategic planning role, delivered by the FSO

RESP will develop a strategic plan in each region, that is cross-vector and reflective of the regional context



We will introduce a governance mechanism for RESPs to embed democratic representation and accountability within the process

Between 10 and 13 RESP regions across GB



Cynllunydd
System Ynni
Rhanbarthol
Ofgem

Ofgem
Regional
Energy System
Planner



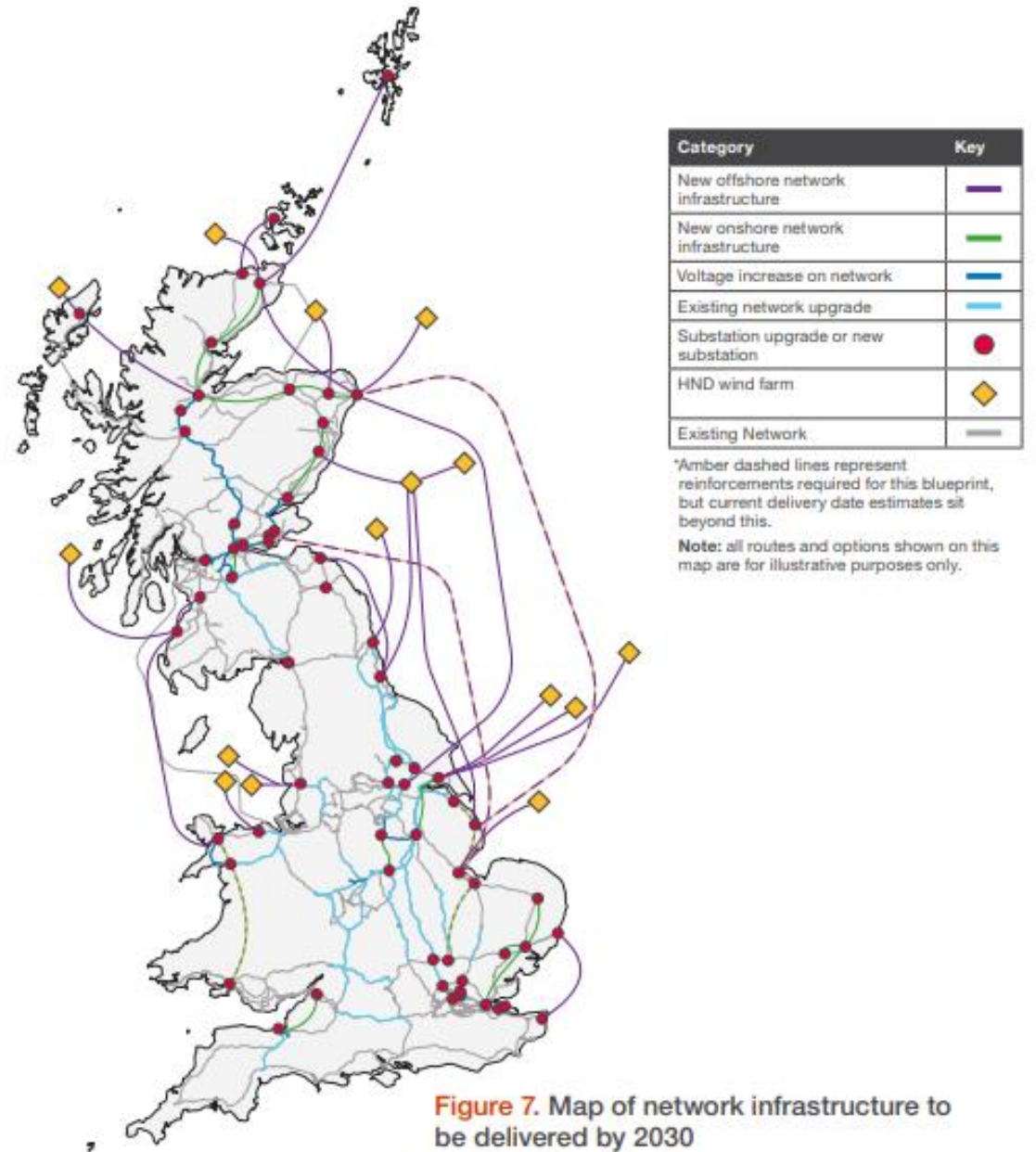
March 2024

Beyond 2030

A national blueprint for a decarbonised
electricity system in Great Britain

Dylunio Rhwydwaith Cyfannol - y tu hwnt i 2030 Beyond 2030 - holistic network design

Grŵp Cyngori Annibynnol
Independent advisory group



Clean Power 2030

Advice on achieving clean power
for Great Britain by 2030



Cynllun Ynni Gofodol Strategol

Strategic Spatial Energy Plan



Department for
Energy Security
& Net Zero

Cabinet Secretary for Net Zero and Energy
Gillian Martin MSP

Rebecca Evans AS/MS
Cabinet Secretary for Economy, Energy and Planning
Ysgrifennydd y Cabinet dros yr Economi, Ynni a
Chynllunio

Fintan Slye, Director of NESO
National Energy System Operator NESO
Faraday House
Warwick Technology Park
Gallows Hill
Warwick, CV34 6DA

Dear Fintan,

We, the energy ministers of Scotland, Wales and the United Kingdom, are commissioning you today to produce the first ever spatial plan for energy across Great Britain. This Strategic Spatial Energy Plan (SSEP) will be a comprehensive blueprint for the energy system, land and sea, across Great Britain.

A more strategic approach to energy infrastructure planning will speed up the transition away from fossil fuels and towards homegrown clean energy. The SSEP will be instrumental in achieving clean power and net zero. We require a plan that works for all of Great Britain,

Michael Shanks MP
Department for Energy Security & Net Zero
55 Whitehall
London
SW1A 2HP

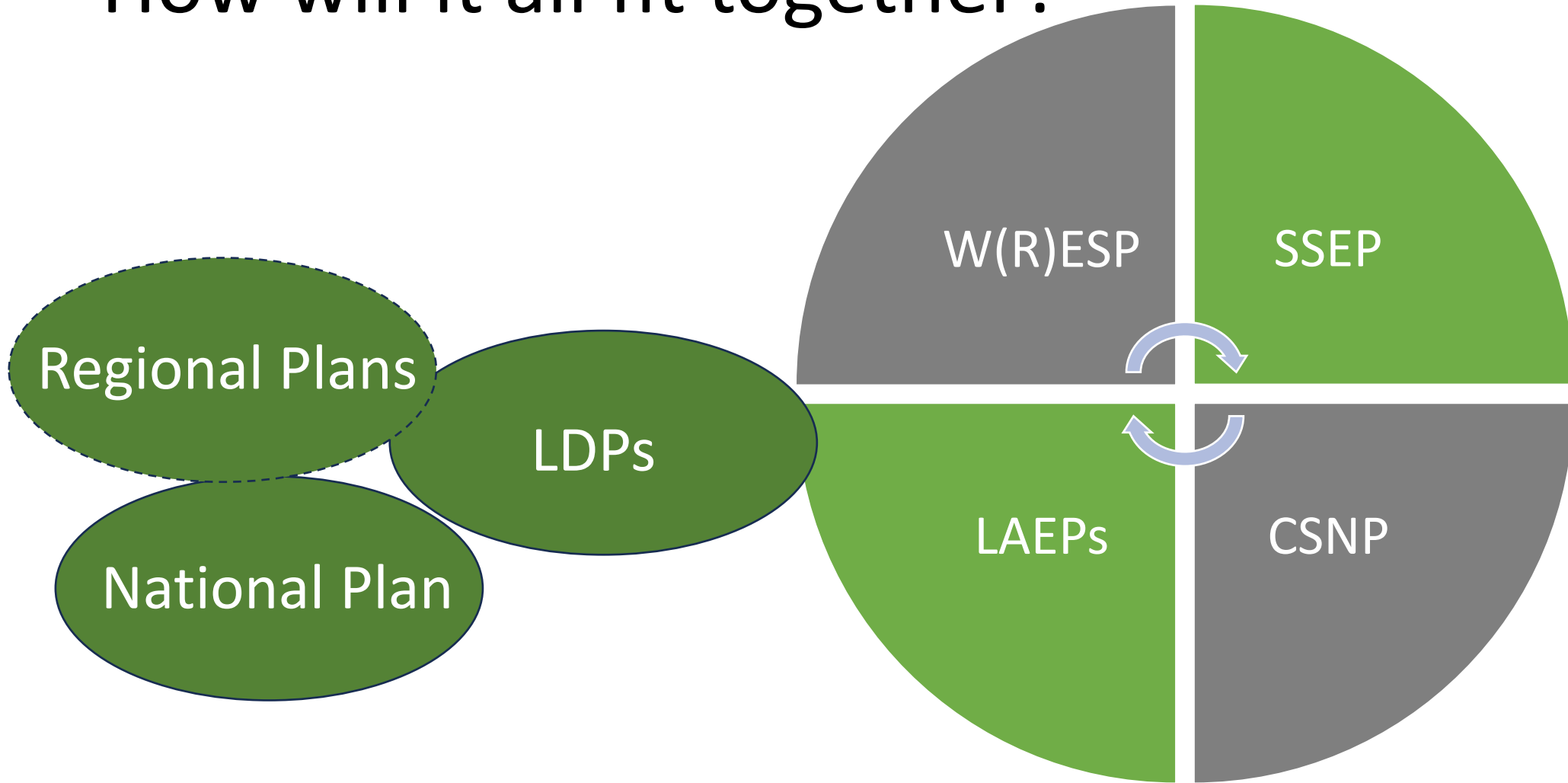
 Scottish Government
Riaghaltas na h-Alba



Llywodraeth Cymru
Welsh Government

22nd October 2024

Sut bydd popeth yn cyd-fynd â'i gilydd?
How will it all fit together?





Llywodraeth Cymru
Welsh Government

Gwasanaeth Ynni Energy Service



Power to prosper

credit: Marc Pell

Renewable energy will give Wales the power to prosper.
In our nation, people and nature will work together for a brighter, cleaner future.

Ynni Cymru programme

Focused on developing
Smart Local Energy
Systems

PROJECT

Ynni Cymru: capital grant funding programme 2024 to 2025

Support for locally owned renewable energy projects.

Part of: L

First published: 3

Last updated: 6

Ynni Cymru supports community-owned renewable energy and Smart Local Energy Systems (SLES). SLES bring together energy generation, storage, demand, and infrastructure in a local area. This improves efficiency and delivers the greatest local benefits.

We have created a £10 million capital grant funding programme. Organisations, and small and medium-sized enterprises (SMEs) looking to develop SLES in Wales can apply for funding.

Projects will need to be completed by 31 March 2025.

Applications for the Ynni Cymru Capital Grant will close at 5pm on 18 October 2024.

**Diolch am
wrando**

**Thanks for
listening**

Jennifer Pride
jennifer.pride1@gov.wales



Ynni Cymru

What's been achieved so far and what's next?

15/11/2024

Steve Keating

Director - Climate, Local Partnerships

<https://localpartnerships.gov.uk/our-expertise/ynni-cymru/>



What is Ynni Cymru?

Launched in August 2023 Ynni Cymru is complementary to but distinct from WGES, CEW, Trydan Gwyrdd Cymru

Ynni Cymru's objectives

- To expand **locally owned** renewable energy used and generated in Wales.
- To optimise the efficiency and effectiveness of locally owned renewable energy use and generation projects.
- To accelerate the transition and deployment of Smart Local Energy Systems (SLES) across Wales.
- To facilitate a just transition to net zero, retaining the benefits for Welsh communities.

Locally owned

'Locally owned' installations are defined as 'Energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales'. This includes the following categories:

● *Businesses, Farms and estates* ● *Households and other domestic scale generation* ● *Local Authorities and other public sector organisations* ● *Registered Social Landlords* ● *Third sector organisations including social enterprises and charities, their subsidiaries, trading arms and special purpose vehicles (incl. Co-ops etc).*

This matches the [Local and shared ownership of energy projects: guidance](#) issued by Welsh Government.

What has Ynni Cymru been doing?

- In August 2023 the **Ynni Cymru funded Community Energy Resource Grant** allocated £750,000 to 11 projects to boost capacity within community energy organisations to expand their work and to develop new projects.
- **Recruited a team** to develop and deliver Ynni Cymru's objectives.
- Launched a '**Health Check**' Service for Local Renewable Energy Projects and identified SLES opportunities.
- **Developed expertise** in areas identified by communities for priority support:
 - Local Energy Supply, routes to market and Power Purchase Agreements (PPA's)
 - Smart Local Energy Systems (SLES), Distributed Energy Resource Management Systems (DERMS), Aggregation of generation & Virtual Power Plants (VPPs).
 - Heat Decarbonisation
 - Battery Energy Storage Systems (BESS)
 - Electricity Grid issues
 - Ultra Low Emissions Transport
 - Supply Chain & Skills
- Undertaken **Stakeholder Engagement** – Strategic and Community stakeholder groups.
- **Launched a £10 million capital grant scheme** to fund SLES projects.

The Ynni Cymru definition of a SLES:

(Via analysing recognised UK SLES definitions, reviewing 'smartening' outputs from health check process, stakeholder feedback, socialising with the team and WG, and optimising for Ynni Cymru and Wales)



A Smart Local Energy System (SLES) joins up different energy generation, storage, demand, and infrastructure assets in a local area, making them operate more intelligently and deliver local benefits.

- **Smart** - projects utilise data and controls to ensure that energy is used more efficiently and effectively, at the right place and at the right time (e.g. control systems and software for monitoring, automation, artificial intelligence, and/or trading energy).
- **Local** - projects will be locally owned, they will recognise that different places and communities in Wales have different needs, and benefits will accrue locally (e.g. local ownership, carbon, financial and wider environmental and social benefits).
- **Energy System** - projects use multiple types of technology (e.g. a combination of local renewable energy generation to facilitate renewable power use, low carbon heating, cooling and hot water, ultra-low emission transportation, demand reduction, co-located renewable energy generation technologies, optimised use of grid capacity, and energy storage).



Welsh Community SLES

(technologies, systems, markets and business models that communities could deploy)

MENU

Please select a renewable energy generator, some low carbon heat, ultra-low emission transport with sides of energy efficiency, behavioural change, systems, markets and business models that make a SLES work

Available now

Solar photovoltaic (PV)	£POA
Wind power	£POA
Hydro power 'run of the river' or 'diversion'	£POA
Heat pumps	£POA
Solar thermal	£POA
Biomass	£POA
Heat network (district heating)	£POA
Direct electric heating	£POA
Hybrid heat pump/boiler	£POA
Storage Heating	£POA
Electric Immersion Water Heating	£POA
CHP	£POA
Fuel Cells	£POA
Biofuels	£POA
Lead Acid Batteries	£POA
Lithium ion (Li-ion) Batteries	£POA
Battery Electric Vehicles (BEVs)	£POA
Energy Efficiency	£POA
Behavioural Changes	£POA
Smart meters / real time systems	£POA
Demand Response	£POA
Vehicle-to-Grid (V2G)	£POA
Smart microgrids	£POA
Virtual Power Plants (VPPs)	£POA
<small>(aggregation likely to be performed by a service provider not the community)</small>	
DERMS (likely by service provider not community)	£POA
DER Aggregators (likely by service provider not community)	£POA

Future or more advanced menu items

Hydro power impoundment	£POA
Tidal flow/range	£POA
PV-Thermal	£POA
Anaerobic digestion	£POA
Hydrogen electrolysis	£POA
Nickel-Cadmium Battery (NiCd)	£POA
Nickel-Metal Hydride (NiMH)	£POA

Future or more advanced menu items

Hydrogen storage	£POA
Flow Batteries	£POA
Mine Gravity Battery	£POA
Sodium Sulphur (NaS) Batteries	£POA
Sodium Nickel Chloride Batteries	£POA
Hydrogen Fuel Cell Electric Vehicles (HFCEVs)	£POA
Low Voltage electricity grid monitoring (likely by utility company not community)	£POA
LEM Operators and Platforms (likely by service provider not community)	£POA

Off the community menu for now

Hydro power pumped storage and generation
Wave generation
Geothermal electricity generation
'Green' gas boilers
Concentrated Solar Power
Nuclear Fusion
Biomass or waste gasification
Hybrid solar/geothermal
Methane pyrolysis
Biogenic gas reforming
E-Fuels production
Sustainable Aviation Fuel (SAF) production
Blue Hydrogen production
Artificial Photosynthesis
Magnetohydrodynamic Generators
Thermochemical Water Splitting
Flywheels
Compressed Air Energy Storage
Liquid Air Energy Storage
Pumped Hydro Energy Storage
Pumped Heat Electricity Storage
Supercapacitors
Superconducting Magnet Energy Storage (SMES)
Hydrogen Internal Combustion Engine Vehicles (HICEVs)
E-Fuelled/SAF fuelled Transport
Active electricity Network Management (by utility company not community)

Near term routes forward for Ynni Cymru

Primarily, Ynni Cymru is now is about delivery

- **Ynni Cymru £10 million capital funding** to support delivery of local SLES projects. The application window closed on the 18th October and was heavily oversubscribed (a positive sign there is a need). Grant awards to be made early December 2024, followed by project deployment.
- **Expand the Ynni Cymru ‘Health Check’ engagement process** continuing to work with locally owned generation assets on a geographical basis (4 economic regions of Wales) and consider clustering of assets.
- **Deliver a pipeline of SLES projects** identified via the grant fund or engagement ‘health check’ processes.
- **Highlight available Routes to Market, Power Purchase Agreements, and Local Energy Supply options** and identify market failure (e.g. lack of licenced supplier engagement in local energy supply), support change, monitor and influence developments (e.g. Ofgem, NESO/RESP).
- **Develop Ynni Cymru low carbon heat and battery storage lookup tools.**
- **Provide the Wales Energy Storage Tool (WEST)** to assess BESS viability and available revenue streams.

Low Carbon Heat and Battery Storage Lookup Tools

Ynni Cymru's Excel based **Heat and Battery Energy Storage System (BESS) Lookup Tools** to support clients in navigating the evolving energy landscape and in transitioning to low-carbon energy solutions.

Initially developed for Ynni Cymru team use but to be made available to the local energy sector

Heat Tech Look Up

1. Dropdown selections for data pull choice
2. Data pulled from database

User to choose which data is pulled from the Heat Technology database by selecting the criteria from the dropdown selections.

Source Look Up 1: Air Source Heat Pumps (ASHP)

Data Pull Choice

Benefits: Relatively easy to install, can provide both heating and cooling, and are more affordable than ground source heat pumps.

Complexity: Complexity can decrease in extreme cold weather.

Description: panels, battery storage systems, sma

Cases: on with smart grid technologies, time

Carbon Intensity: posts: Variable based on electricity pri

Benefits: al heating systems.

Barriers: ion Costs: Moderate, but can vary bas

SLES Compatibility: cture.

SLES Integration Strategy: nance Costs: Moderate, with regular in

Best Paired Technology in SLES

Scalability

Market

Costs

Instructions

Source Look

Heat Replacement Tool

1. Dropdown selections for data pull choice
2. Data pulled from database

User to choose original heat source/tech, the tool will give a list of potential low carbon replacements. The table below gives information for each of the potential replacements. User can use this information to decide which technology would be the most appropriate replacement. User then selects the optimum replacement from the Replacement Choice.

Original Source: Natural Gas

Replacement Choice: Water Source Heat Pumps (WSHP)

Replace With....	How to introduce this
Air Source Heat Pumps (ASHP) Ground Source Heat Pumps (GSHP or Geothermal Heat Pumps) Water Source Heat Pumps (WSHP) Absorption Heat Pumps Sunlight (Solar Thermal) Biomass Steam Methane Reforming (SMR) Electrolysis Centralised Heat Networks Decentralised Heat Networks	Site Assessment: Identify suitable water sources and assess their potential. Technology Selection: Choose appropriate WSHP models based on local conditions. Funding and Incentives: Secure funding and take advantage of available incentives or subsidies. Community Outreach: Inform the community about the benefits and environmental impact. Installation: Hire skilled contractors for proper installation and setup. Training Programs: Provide training for local technicians and maintenance personnel. Performance Monitoring: Continuously monitor the system's performance and efficiency.

Barriers to transition: Site Specificity: Requires proximity to a suitable water source.

Cover Page | Instructions | Source Look Up | Replacement Look Up | DB_HeatTypes

Wales Energy Storage Tool (WEST)

Part 1 - Battery Storage Decision Tree

Entering key system and site parameters into the Excel based the WEST battery Storage Decision Tree helps clients identify project viability.

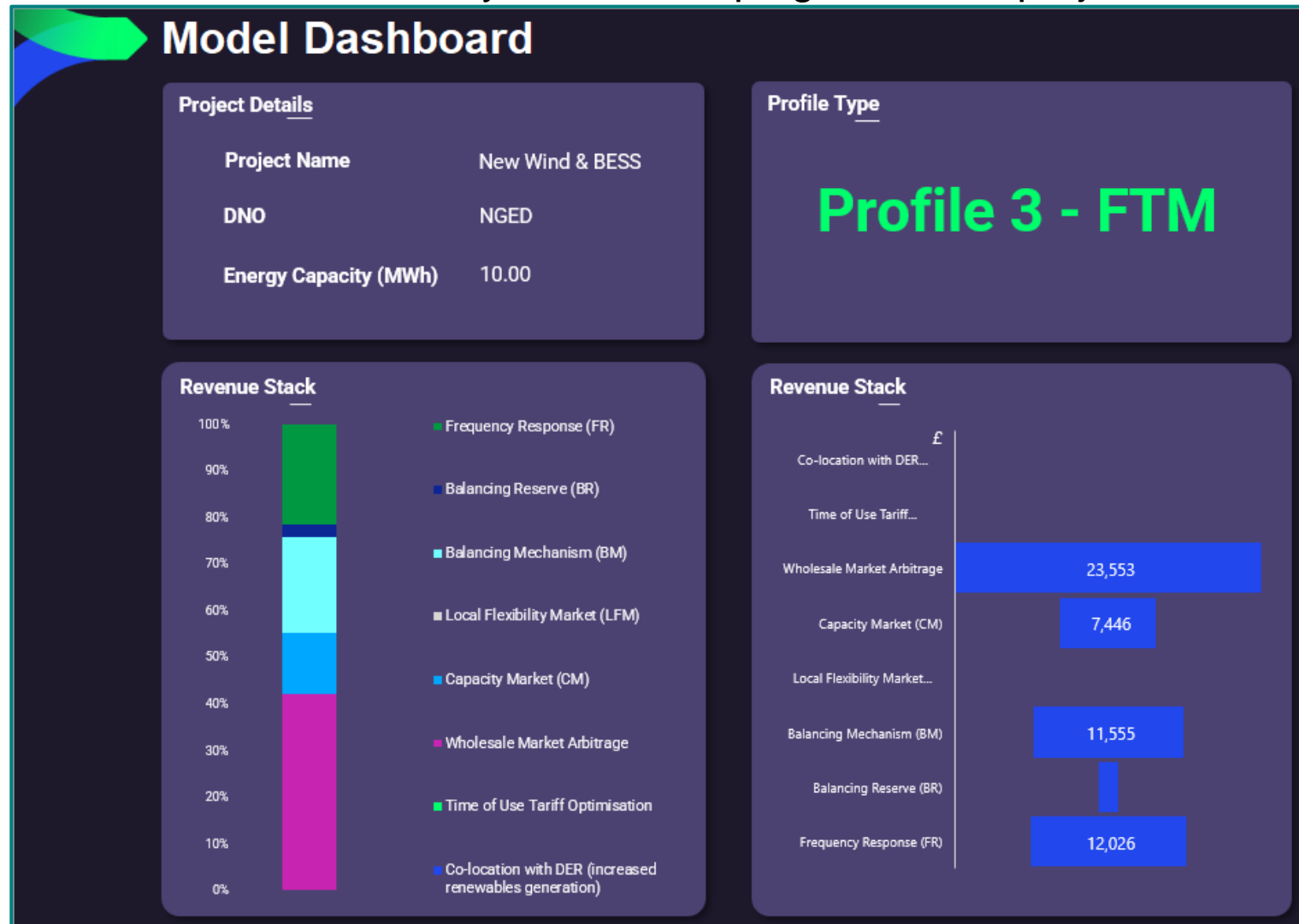
1. Site Suitability		
Consideration	Answer from Decision Tree	Outcome
What is the size of the available footprint for the battery?	Space available could fit a battery greater than 9.5 by 20+ foot battery (approximately 3 by 6+ meters).	This would be enough space for a large commercial BESS, which would be greater than 100 kWh to 500+ kWh.
How is the site accessed?	Accessible via a main trunk road (or close proximity to a main trunk road).	It is highly likely that the site is fully accessible for the development of a BESS.
Does the site currently have a connection agreement in place for existing renewable assets? If so, does this exceed the rating of any renewables assets installed?	Yes, a connection agreement is in place which exceeds the rating of the renewables assets installed	Increased likelihood of a connection agreement being granted for a BESS, assuming there is headroom on the local network.
Is the planned BESS in an area of significant grid constraints?	No/limited local grid constraints	Where there is headroom on the local network, timeframes and costs associated with connection to the grid will be reduced.

2. Summary of markets available	
Capacity markets	T-1 Capacity Auction T-4 Capacity Auction
BTM Services	Increased renewable generation utilisation Demand charge management (Dynamic/TOU tariff optimisation) Network charge avoidance Backup power
Wholesale market arbitrage	Intraday wholesale market Day-ahead wholesale market SPEN DSO flex services NGED DSO flex services
Local flex markets	Fast reserve (FR) Short term operating reserve (STOR)
Ancillary services	Balancing reserve (BR) Slow reserve Quick reserve Dynamic Containment (DC) Dynamic Moderation (DM) Dynamic Regulation (DR) Static Firm frequency response (FFR) Balancing mechanism Net imbalance volume (NIV) chasing

Wales Energy Storage Tool (WEST)

Part 2 - Revenue stack model

Following a viable outcome in the Decision Tree, this high-level cashflow model offers key insights into available revenue streams from various battery markets helping to assess project economic viability.



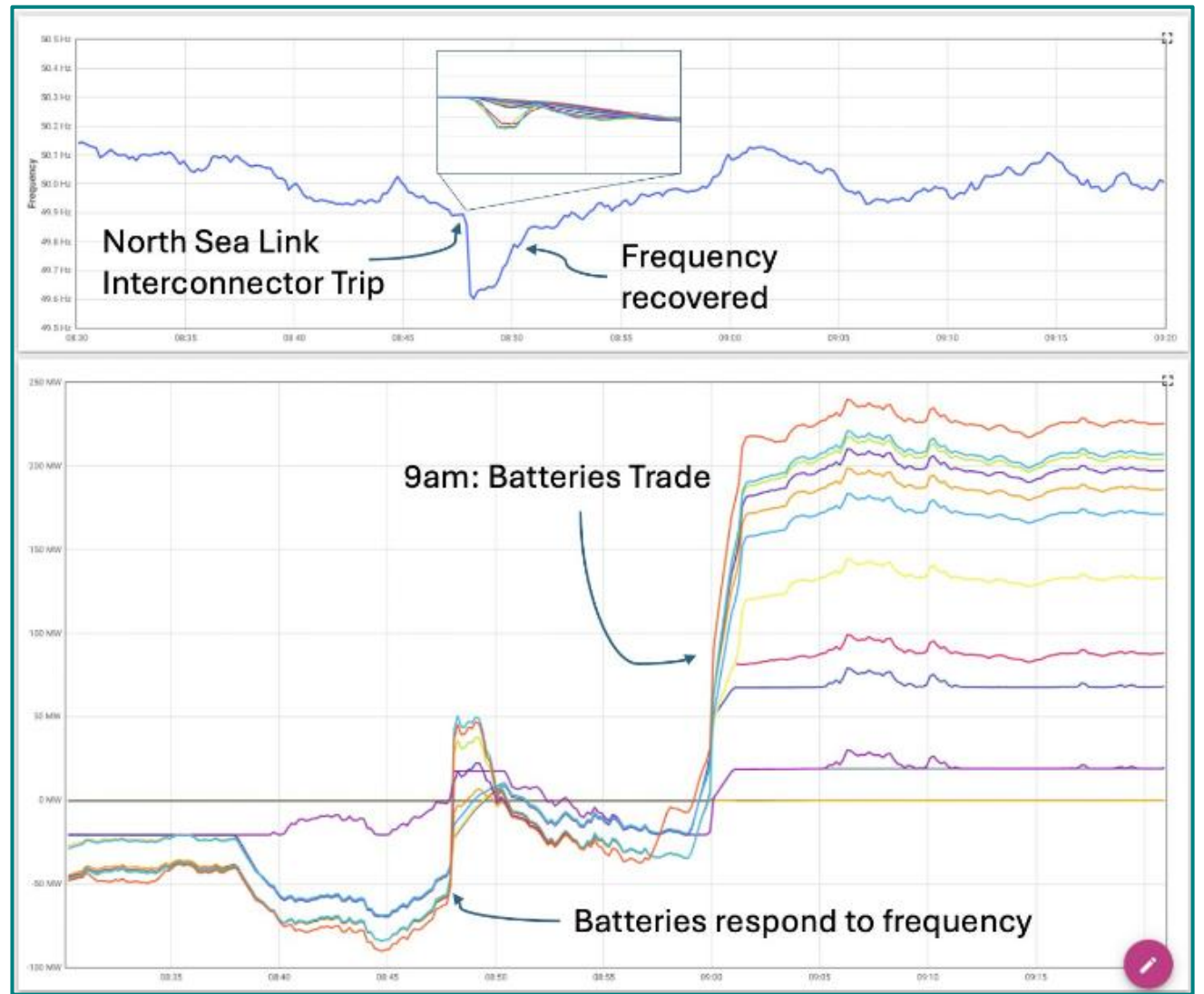
Near term routes forward for Ynni Cymru

- **Provide grid expertise and give communities a voice** to influence future decisions to be made around the UK's transmission & distribution network that affect development of new generation, balancing, flexibility and trading.
 - Ynni Cymru will provide use-cases for the £10 million SIF funded 'Powering Wales Renewably' project led by NESO that aims *"to create a digital twin of the whole Welsh energy transmission and distribution systems to provide a digital common interface to accelerate the integration of renewable generation, by enhancing locational visibility of system challenges and whole energy system status"*.
- **Continuation of Shared / Local Ownership workstream** – i.e. deriving benefits to localities from all renewable energy projects in Wales.
- **Continuation of Skills & Supply Chain** workstreams.
- **Continuation of webinars** and dissemination of knowledge gained – Power Purchase Agreements and routes to market, SLES, BESS, etc.
- **Continuous stakeholder engagement** - review and co-ordination with WGES, CEW, TGW, WG, GB Energy.

How SLES can build energy system resilience

Aspect	Impact on Energy System Resilience	Explanation
Decentralisation	Enhances resilience through distributed generation	SLES distribute energy resources (e.g., solar panels, wind turbines) locally, reducing reliance on centralised grids and minimising the impact of large-scale outages.
Microgrid Capability	Enables continued operation during wider grid failures	SLES often incorporate microgrids that can operate independently, maintaining energy supply even if the main grid fails.
Local Control and Autonomy	Improves response time and crisis management	Local communities manage their energy resources directly, enabling faster responses to disruptions or emergencies compared to a centralised grid.
Flexibility	Increases adaptability to fluctuations in demand and supply	SLES integrate various renewable sources and energy storage systems, allowing dynamic response to changes in consumption or generation, thus stabilising the grid.
Integration of Renewable Energy	Reduces dependency on fossil fuels and external energy supplies	By maximizing the use of local renewable resources, SLES reduce vulnerability to fuel price fluctuations and external supply chain disruptions.
Energy Storage Solutions	Enhances reliability and stability	Incorporating battery storage and other storage technologies in SLES helps balance supply and demand , ensuring a reliable energy supply during peak usage or outages.
Reduction in Transmission Losses	Increases overall efficiency and resilience	Local generation and consumption reduce the need for long-distance transmission, minimising energy losses and vulnerabilities associated with transmission infrastructure.
Data-Driven Optimisation	Optimises system performance and pre-emptively manages risks	SLES use smart technologies and IoT for real-time monitoring and predictive maintenance, improving system performance and anticipating potential failures.

How SLES can build resilience - BESS example



On 8th October 2024, the NSI suddenly stopped exporting power to UK at around 8:47 AM. 1.5GW of batteries across NESO's network were able to inject power into the grid during the disruption recovering grid frequency to acceptable limits (49.8 – 50.2Hz) in seconds.

Batteries casually keeping the lights on whilst also playing in multiple markets to maximise revenue. Nine markets and services are being participated in by these 12 batteries during this 50 min window alone.

[Batteries step in after interconnector trips \(current-news.co.uk\)](https://www.current-news.co.uk), [Arenko LinkedIn post 9th Oct 2024](#)



Diolch / Thank You

GB Energy: the commitments

so far /

**Ynni Prydain Fawr: yr
ymrwymiadau hyd yma**

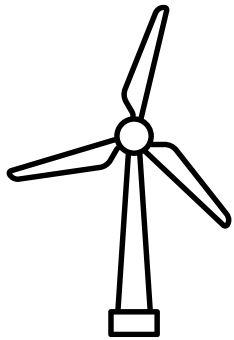
Background / Cefndir



Headquartered in Aberdeen /
Pencadlys yn Aberdeen



Backed by £8.3 billion of new money / Wedi'i gefnogi gan
£8.3 biliwn o arian newydd



Intended to ensure UK taxpayers, bill payers and communities
reap the benefits of clean energy / Fe'i bwriedir i sicrhau bod
trethdalwyr, talwyr biliau a chymunedau'r DU yn mwynhau
manteision ynni glân

Main commitments / Prif ymrwymïadau

- **Project investment and ownership** - investing in projects alongside private sector
- **Project development** - leading projects through development stages
- **Local Power Plan** – support local energy generation projects
- **Supply chains** – building supply chains across the UK
- **Great British Nuclear** – considering how GB Energy and GB Nuclear will work together
- **Buddsoddiad a pherchnogaeth prosiectau** – buddsoddi mewn prosiectau ochr yn ochr â'r sector preifat
- **Datblygu prosiectau** – arwain prosiectau trwy gamau datblygu
- **Cynllun Pŵer Lleol** – cefnogi prosiectau cynhyrchu ynni lleol
- **Cadwyni cyflenwi** – datblygu cadwyni cyflenwi ar draws y DU
- **Niwclear Prydain Fawr** – ystyried sut y bydd Ynni Prydain Fawr a Niwclear Prydain Fawr yn cydweithio

The Local Power Plan / Y Cynllun Pŵer Lleol

“...the Local Power Plan will roll out small and medium-scale renewable energy projects, using established technologies, to develop up to 8 GW of cheaper, cleaner power. This will include shared ownership projects in partnership with private developers. This will support a more decentralised and resilient energy system, with more local generation and ownership.”

- Gb Energy founding statement

“...bydd y Cynllun Pŵer Lleol yn cyflwyno prsiectau ynni adnewyddadwy bach a chanolig eu maint, gan ddefnyddio technolegau sefydledig, i ddatblygu hyd at 8 GW o bŵer rhatach a glanach. Bydd hyn yn cynnwys prosiectau rhanberchnogaeth mewn partneriaeth â datblygwyr preifat. Bydd hyn yn cefnogi system ynni fwy datganoledig a gwydn, â mwy o gynhyrchu a pherchnogaeth leol.”

- Datganiad sefydlu Ynni Prydain Fawr

**How can GB Energy support the development
of the community energy sector? /**

**Sut all Ynni Prydain Fawr gefnogi datblygiad y
sector ynni cymunedol?**





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