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ONSHORE WIND CONFERENCE 2024

3 & 4 SEPTEMBER | EDINBURGH

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Dan McGrail

Chief Executive

RenewableUK

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1A: State of the Nation – the future of onshore wind

Chaired by Dan McGrail, Chief Executive, RenewableUK

#ONSHOREWIND24

Dan McGrail
Chief Executive, RenewableUK

Dr Sarah Redwood
Director of Renewable Electricity Directorate, Department for Energy Security and Net Zero

Jon O'Sullivan
Director of Onshore Wind, Hydrogen and C&I Solar, EDF Renewables UK

Gillian Noble
Development Managing Director, ScottishPower Renewables

Heather Donald
Director of Onshore Wind, Solar & Battery (GB & Ireland), SSE Renewables

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2A: A golden opportunity – realising the economic impact of onshore wind

Chaired by Finley Becks-Phelps, UK Development Director, Fred. Olsen Renewables

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Robin Winstanley

Sustainability and Community Director

OnPath Energy

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What’s the benefit in that?

Onshore wind conference 2024

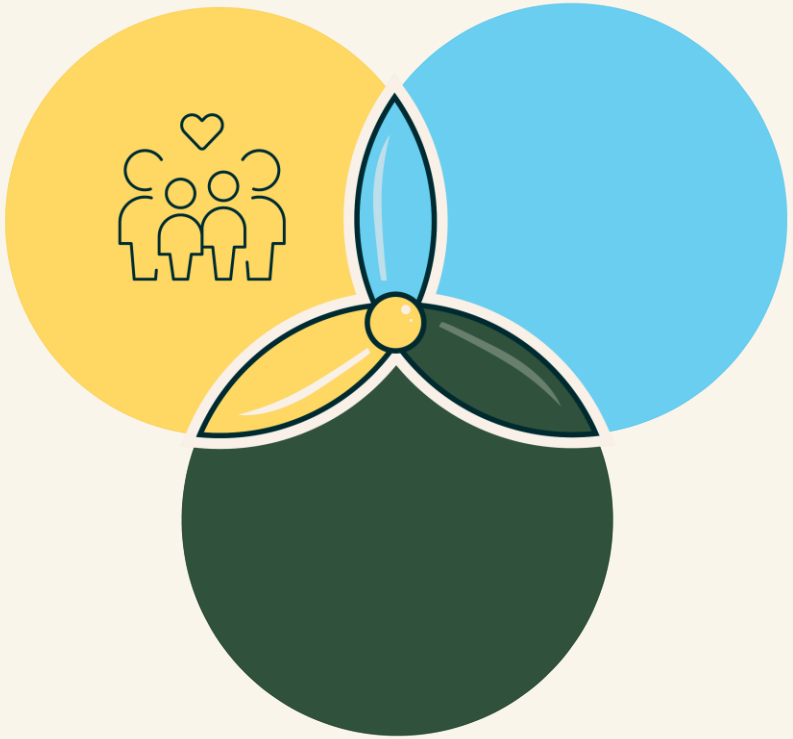
Is this the world's most sustainable infrastructure?

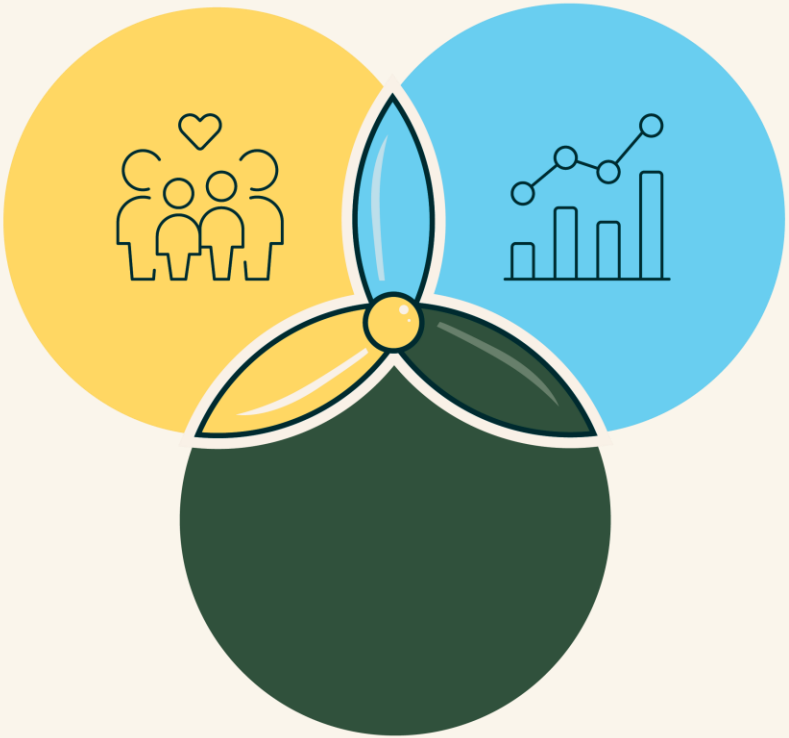
400MW

Community Shared Ownership

£2.5Billion

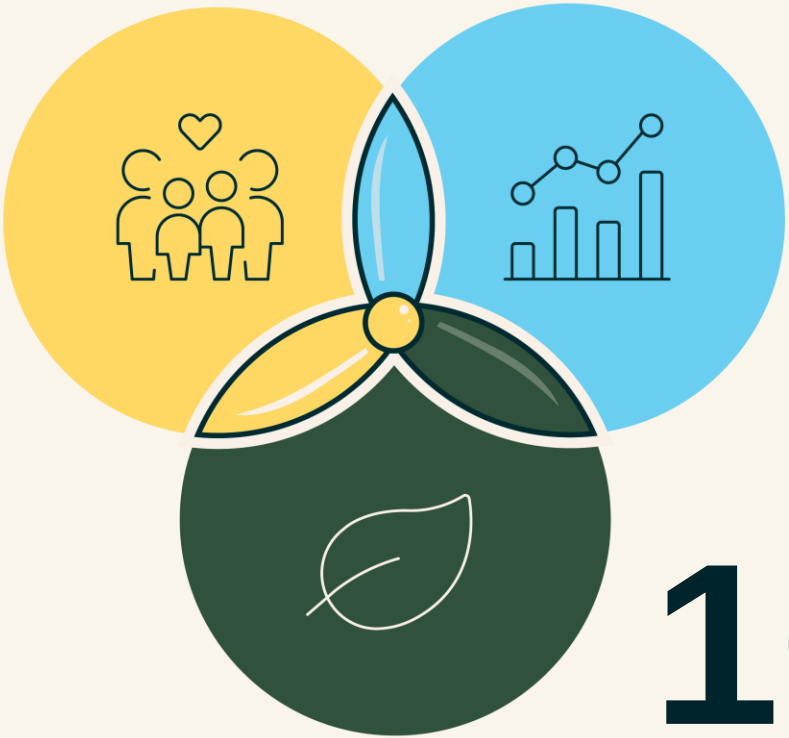
Community Benefit Payments





60%

TOTEX 60km



100%

BNG

How are community benefits evolving?

First projects

£2-5k/MW

Some shared revenue programs

Collaboration with local partners and planning authority e.g. REF

Funds local panels or local REF

Second generation

£5k/MW

Shared ownership offer of equity at a discount

Collaboration with local partners – Community partnerships formed

Targeted programs e.g. jobs

New applications

£5k/MW minimum

Shared ownership offer of equity
(free equity plus market share)

Collaboration with local partners – Community Bodies

Strategic fund focus: e.g. decarbonisation

> The UK-wide poll of 10,021 UK adults reveals that **61% would feel frustrated** if a local renewable energy project supported by the majority of the community was blocked from being built by a small number of objectors. Only 19% disagreed.

Joe Public

Currently WFH

59%

“ of UK residents say it would be acceptable to develop an onshore wind farm in their local area. This **increases to 68%** if residents have prior experience of an energy project.

“ When asked about the benefits of lifting the Onshore wind ban, **community benefit came 9th** and even then, they reference only energy discounts and no community fund or shared ownership

9th

Those who are **significantly more likely to say it's acceptable to develop an onshore wind farm in a local area** include:

- **Men** (64%)
- **Higher income households** (earning £41,000+) (70%)
- **Tertiary level educated** (65%)

Those more likely to say it's unacceptable :

- 55+ year old's (24%)

74% in favour of onshore wind

78% living within 20 miles were supportive

81% living within 10 miles were supportive

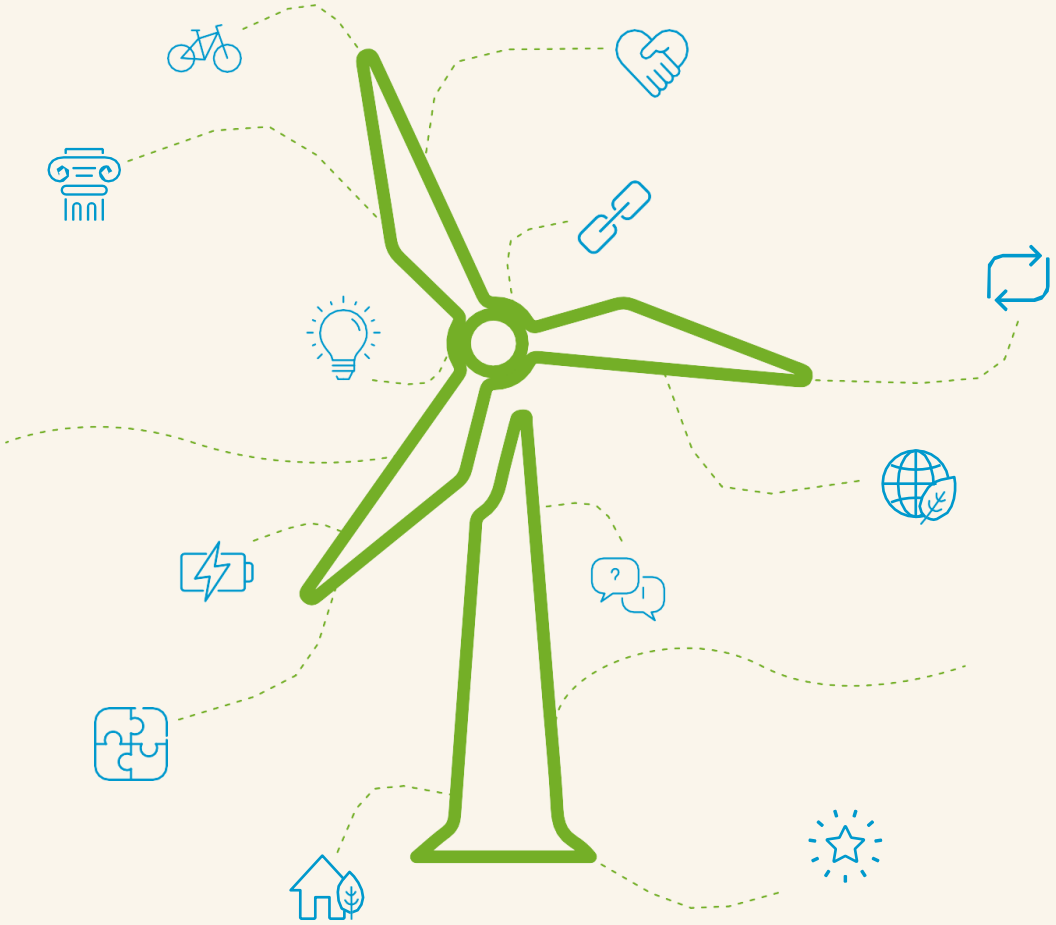
88% living within 5 miles said they were supportive

Four in five want *more information* of the benefits

Lots of opportunity…….

to show the story,
not *tell*

To *come to* our audience on *their terms*



How might we **really connect with people** on the benefits of this great product?

The end

Thank you!

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Shona Glenn

Director of Development

BiGGAR Economics

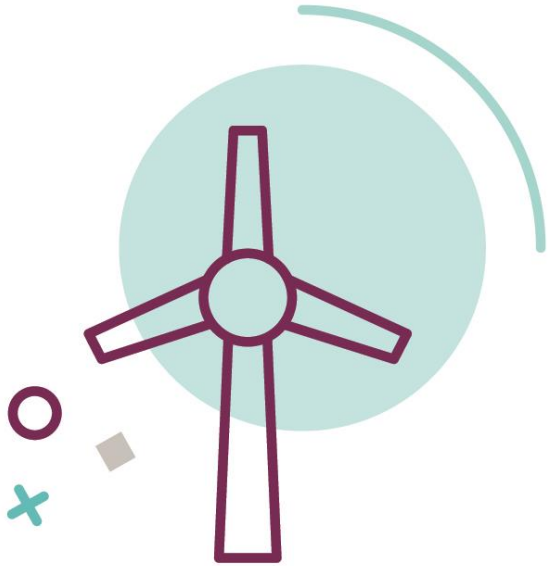
#ONSHOREWIND24

“Maximising” Net Economic Benefits

3rd September 2024

Shona Glenn

BiGGAR Economics



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Some Things Work Better in Real Life

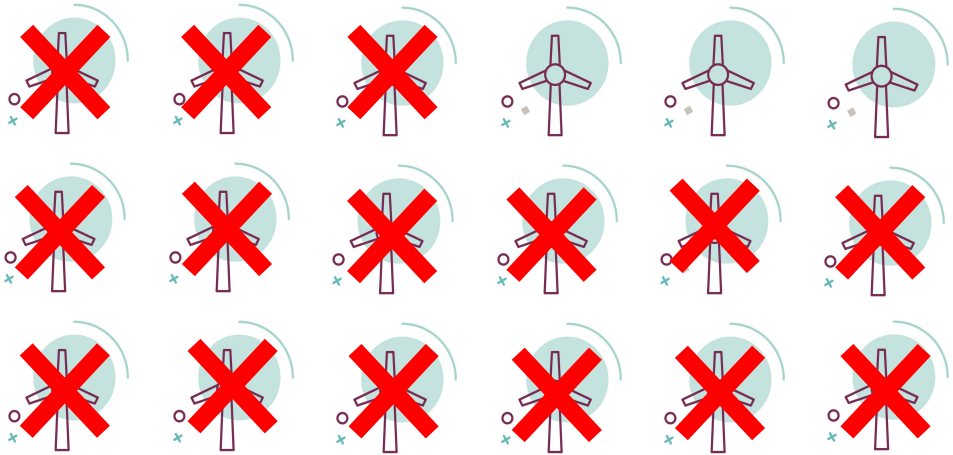
How you do things matters

- **Creative**
- **Innovative**
- **Collaborative**

Forget About Minimum Standards

One size fits all won't work

- **Benefits can only be 'maximised' if packages are tailored**
  - to the needs and aspirations of host communities and
  - the capacity of individual projects
- **The Highland Council's Social Value Charter could cost the Highland Economy £2 billion over 30 years**



Maximising Impact: Six Tests

How will you know if you've got it right?

1. **Rapid deployment** - is the project being rolled out at an optimal time-scale, consistent with achieving the 2030 deployment target?
2. **High local supply chain content –** have all reasonable steps been taken to maximise the value of supply chain expenditure secured by local businesses?
3. **Continued innovation –** are there novel elements within the design and/or implementation of the project designed to enhance local benefits and support the process of continuous improvement?
4. **Bespoke approach to workforce development –** have all reasonable efforts been made to ensure training and employment opportunities are accessible to local people?
5. **Fair community benefits –** has an affordable package of benefits been developed in accordance with best practice principles?
6. **Infrastructure contributions -** are arrangements in place to ensure that on completion of construction local infrastructure is restored to a condition at least as good as it was as before construction started?

Shona Glenn

shona@biggareconomics.co.uk

 —

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Frank Elsworth

Head of UK Market
& Site Development
Vattenfall

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Onshore wind - Improving Opportunities for the Local and Regional Supply Chain

Frank Elsworth - Head of UK Market and Site Development
Onshore Wind

The spend for the 240MW South Kyle Wind Farm

Development
£20m
(up to 20 years)

Geological and environmental monitoring

Project design

Stakeholder engagement

Planning services

Supply chain, procurement and contracting

Financing

Planning condition discharge

Construction
£225m
(2-3 years)

Balance of Plant

(electrical, civils)

Site clearance

Track construction

Turbine foundation construction

Trenches and cable laying

Substation and grid connection works

Forestry works

Tree clearance timber processing and replanting

Turbine supply

Manufacture, supply, transportation and installation and connection of turbines

Project management and environment services

Project managing all aspects of delivery, overseeing professional services

Environmental monitoring, surveys and assessments

Operations and Maintenance
£308m
(30 years)

Turbine maintenance

Road clearance

Groundworks

Comms and IT

Habitat restoration

Ecological monitoring

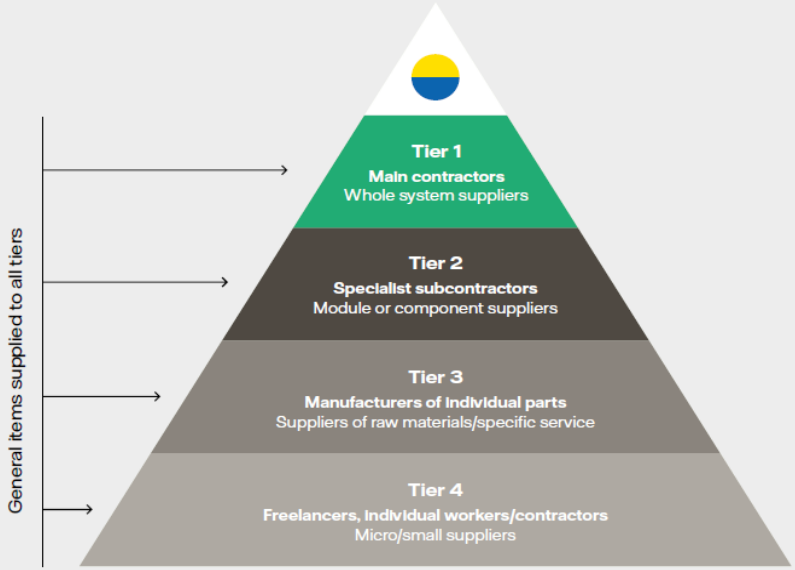
Logistics

HV services and grid maintenance
Community benefits

Landowner payments

Business rates

Navigating the supply chain structure



Tier 1

- Work directly for Vattenfall. In overall charge of delivery of whole package of work.
- Will usually be a large, very experienced business which is financially solid.
  - Must have a combined turnover which is 2-3 times the total value of the contract.

Tier 2

- Work for the main contractor. Contracted to deliver a specialised part of the works.
- Will include both large and small companies.

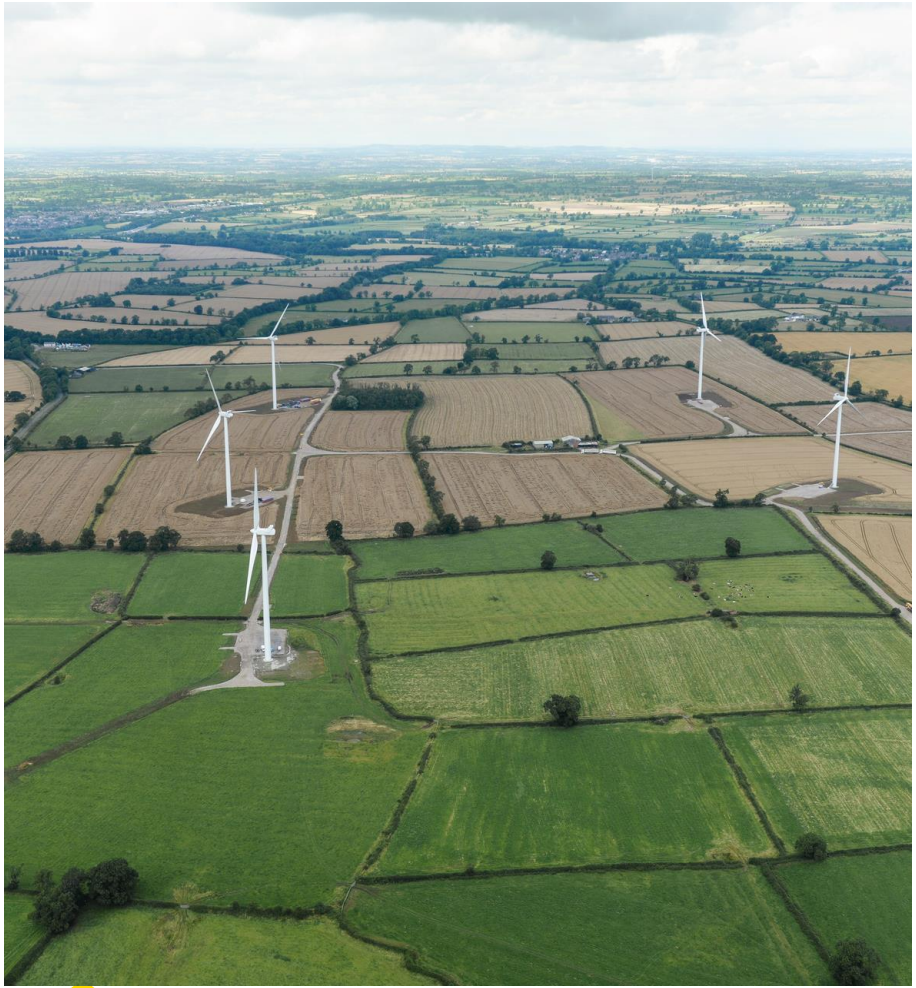
Tier 3

- Work for specialist subcontractors. Provide a service or parts/material connected to the contract.

Helping companies find where they fit

Some of the challenges…

- How do we get more suppliers into the industry?
- Are our procurement processes fit for purpose?
- SMEs consistently report the need for longer lead times
- Skills – is it time for an industry framework and approach similar to Offshore's needed to really scale up and deliver?
- How do we get and share the data that demonstrates our investment?
- What can we do now?



…some of the solutions…

- Developers
  - Adjust procurement processes
  - Make social value a key scoring criteria
- Tier1s
  - Engage early at the local and regional level to give the best opportunity to new SME entrants
  - Share the employment and economic data
- Industry Bodies
  - Ensure other Tier1s, not just turbine suppliers, are an integral part of supply chain workstreams.
  - Standardise the industry economic data requirements
- Government
  - Ensure reliable and timely consenting
  - Dedicate economic agencies to support supply chain engagement and industry entry for new

…and why is it so important?

With greater awareness of the economic benefits of Onshore Wind by the public and politicians, then there is greater chance for enduring political support.

Enduring political support is essential in enabling a stable market for investment in to the long-term.

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Megan Amundson

Head of Onshore Wind & Consenting

Scottish Renewables

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Implementing the Scottish Onshore Wind Sector Deal:

Maximising socio-economic benefit

Onshore Wind Conference, 3 September 2024

THE SCOTTISH ONSHORE WIND SECTOR DEAL

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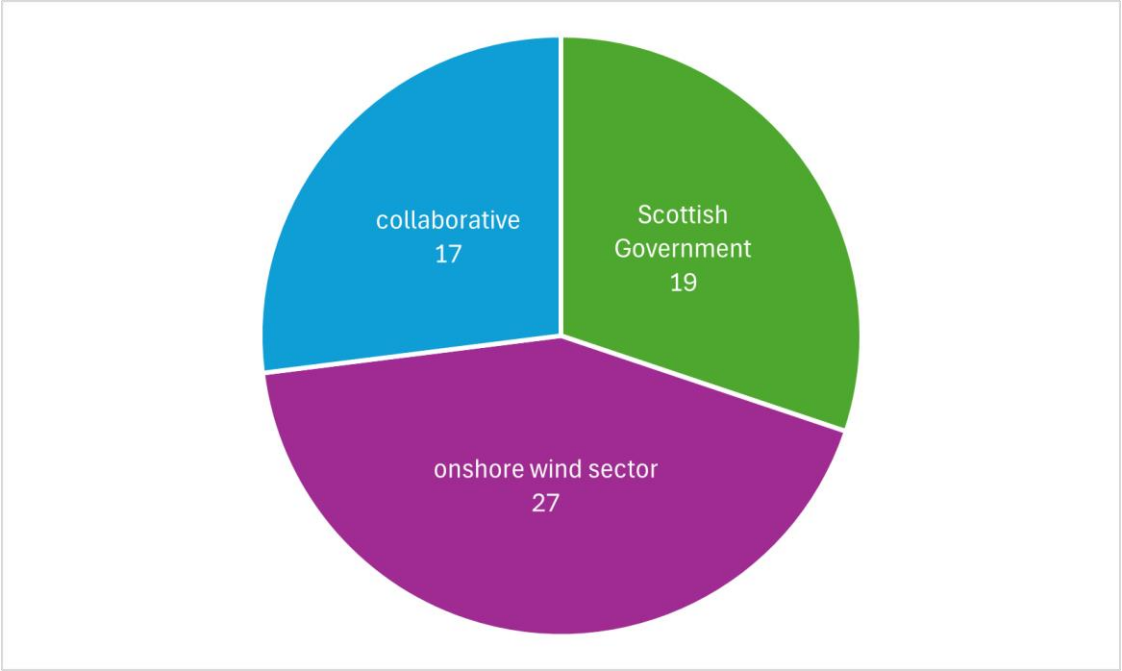
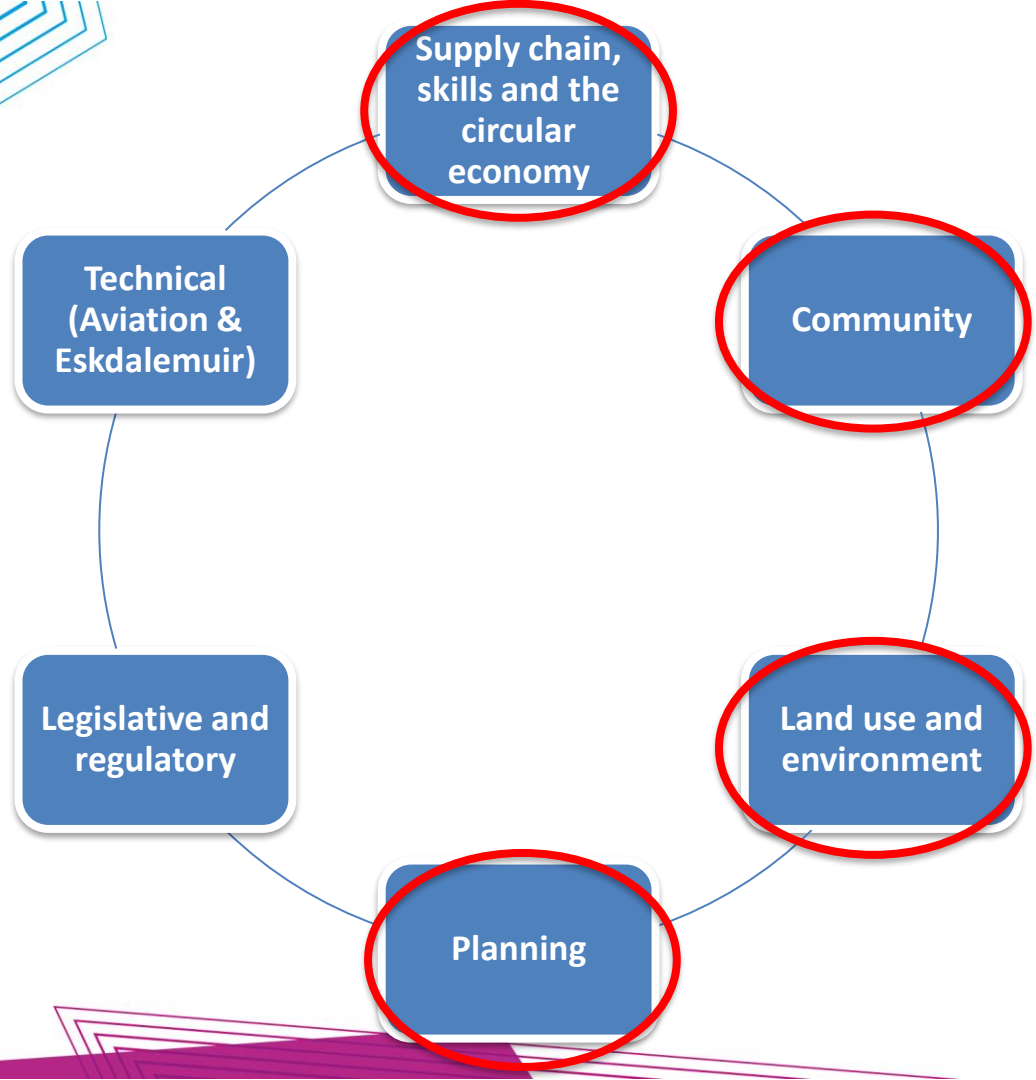
Signed in September 2023, there are 63 commitments in total:





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31 Sector Deal Commitments

Relate to Maximising Socio Economic Benefit

THE SCOTTISH ONSHORE WIND SECTOR DEAL: COMMUNITY COMMITMENTS

- Complying with the Scottish Government's Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments.
- Providing in-principle community benefit agreements before final investment decisions and collaborate around community benefit for larger impact.
- Community benefit and shared ownership agreements are maintained as a condition of sale or transfer.
- Offering shared ownership as early in the process as possible.

THE SCOTTISH ONSHORE WIND SECTOR DEAL: LAND USE AND ENVIRONMENT & PLANNING COMMITMENTS

- Creating and implementing a consistent national approach to Biodiversity Net Gain, in the form of a Scottish Biodiversity Metric.
- Providing monitoring data evidencing biodiversity and peatland enhancements.
- Coordinating planning and environmental considerations where onshore wind projects are located near each other.

THE SCOTTISH ONSHORE WIND SECTOR DEAL: SUPPLY CHAIN AND SKILLS COMMITMENTS

- Publishing annually the local content data on projects at the point of commissioning.
- Creating a central portal for supply chain opportunities to increase local content in projects.
- Published a skills needs report for the onshore wind industry through 2030.
- Analysing educational and training needs to increase the skilled workforce to meet onshore wind needs through 2030.
- Collaborating with the higher and further education sector to ensure sufficient educational and training opportunities.

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Megan Amundson
Head of Onshore Wind & Consenting
mamundson@scottishrenewables.com

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ONSHORE WIND CONFERENCE 2024

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2B: Establishing standards – addressing the operational challenges of a mature and growing industry

Chaired by James Robottom, Head of Policy, RenewableUK

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Esbjorn Wilmar

Country Director UK

Boralex

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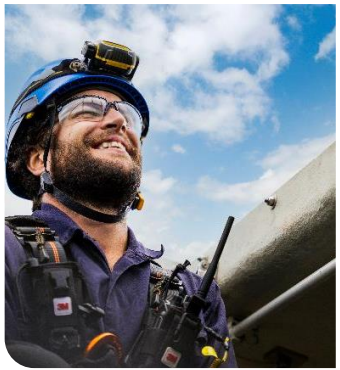


Addressing Operational Challenges
Esbjörn Wilmar, Country Director UK

3 September 2024

Introduction

- ✓ Esbjörn Wilmar, Country Director UK for Boralex
- ✓ Boralex:
  - Pure renewable energy player
  - Shares are listed in Toronto, Canada
  - Over 3 GW operational portfolio
  - Onshore wind, solar, BESS and hydro
  - Top one IPP position in Canada (Quebec) and France
  - Growth markets UK and USA
- ✓ Boralex acquired Infinergy 2 years ago

Levelized costs of energy (LCOE)

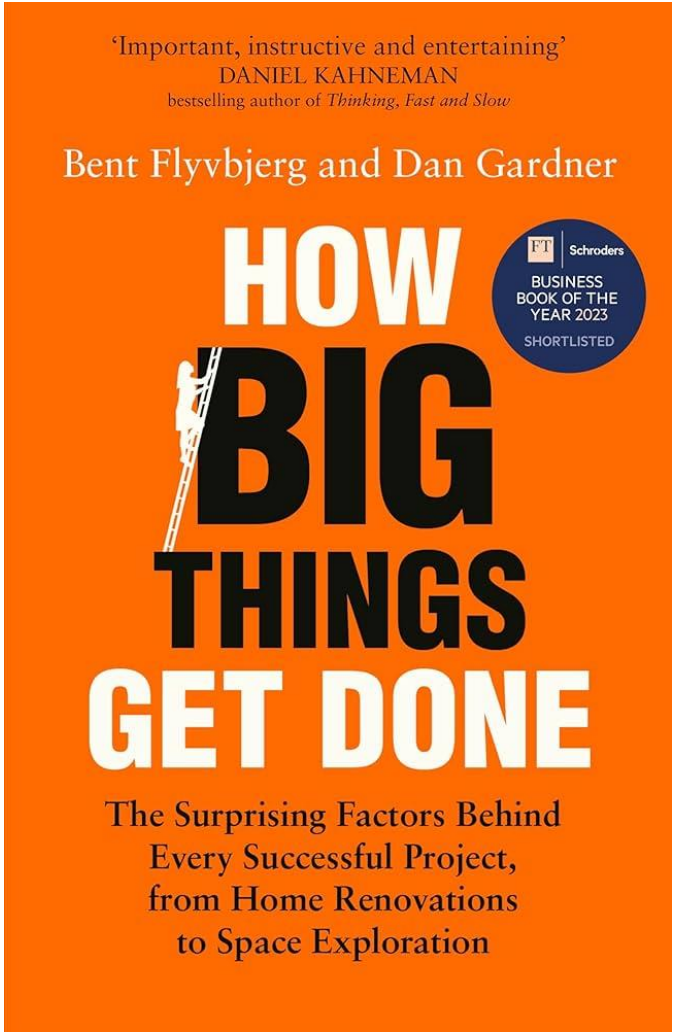
WE WILL HAVE TO BECOME MORE PROFITABLE (AGAIN)!

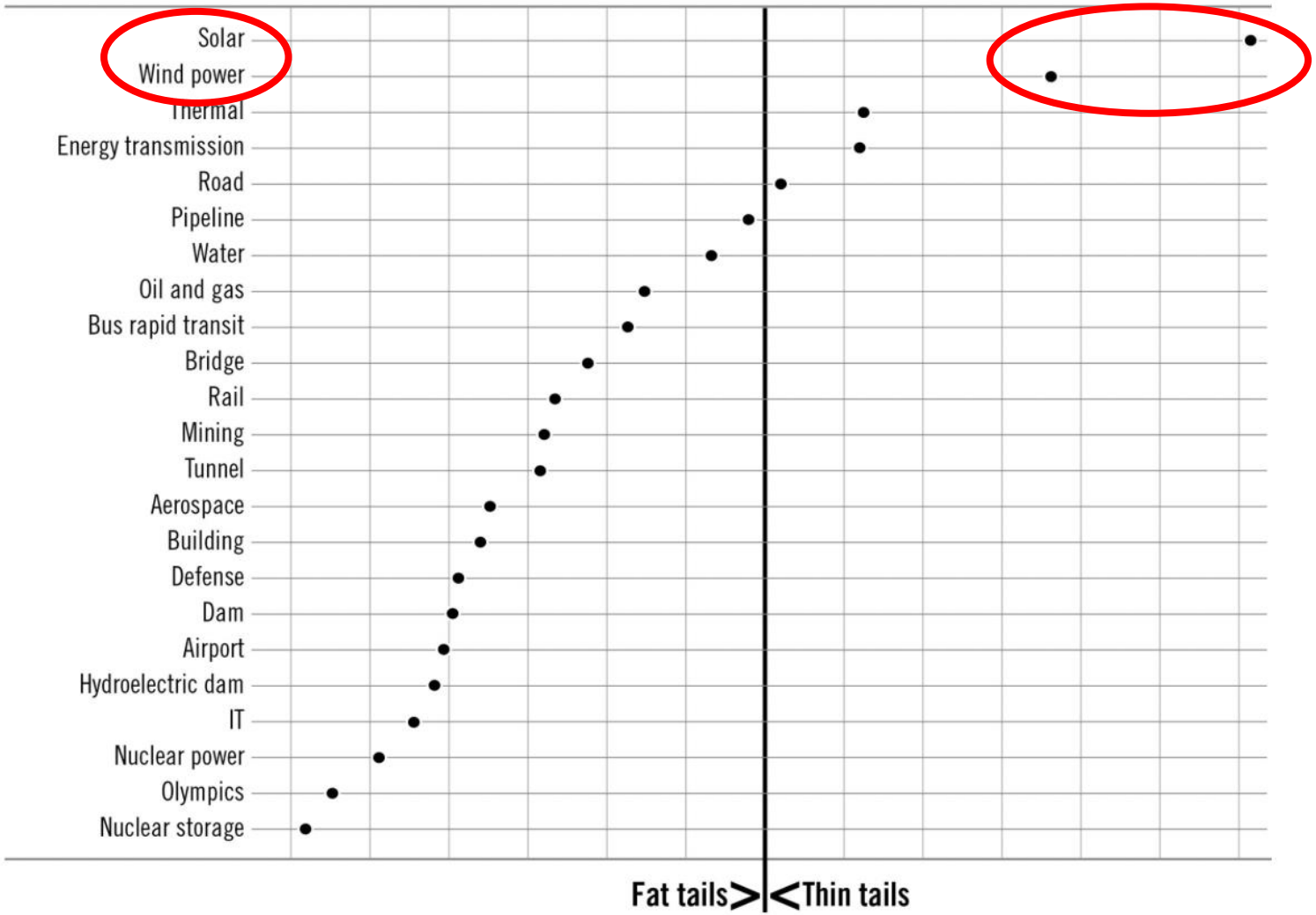
Versus

Levelized costs of energy (LCOE)

WE WILL HAVE TO BECOME MORE PROFITABLE (AGAIN)!

- ✓ Our industry is going through a tough time
  - ✓ Investment money is flowing out
  - ✓ Projects are not being build
- ✓ We will have to improve our project economics, but without generous subsidies or indeed high power prices…..
- ✓ We will have to bring our costs down and our efficiency up
- ✓ And we have to do this at the backdrop of a difficult environment, for example turbine prices and staff shortages


'Important, instructive and entertaining'
DANIEL KAHNEMAN
bestselling author of *Thinking, Fast and Slow*
Bent Flyvbjerg and Dan Gardner
HOW BIG THINGS GET DONE
FT Schroders
BUSINESS BOOK OF THE YEAR 2023
SHORTLISTED
The Surprising Factors Behind Every Successful Project, from Home Renovations to Space Exploration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Thermal
Energy transmission
Road
Pipeline
Water
Oil and gas
Bus rapid transit
Bridge
Rail
Mining
Tunnel
Aerospace
Building
Defense
Dam
Airport
Hydroelectric dam
IT
Nuclear power
Olympics
Nuclear storage
Fat tails>
<Thin tails

What makes wind and solar projects so good?

- ✓ The research of Bent Flyvbjerg and Dan Gardner looked into delivery of projects in line with budget and programme (time)

- ✓ Wind and solar project are ‘the winners’, i.e. have a very small change of a budget or time overshoot (construction stage)

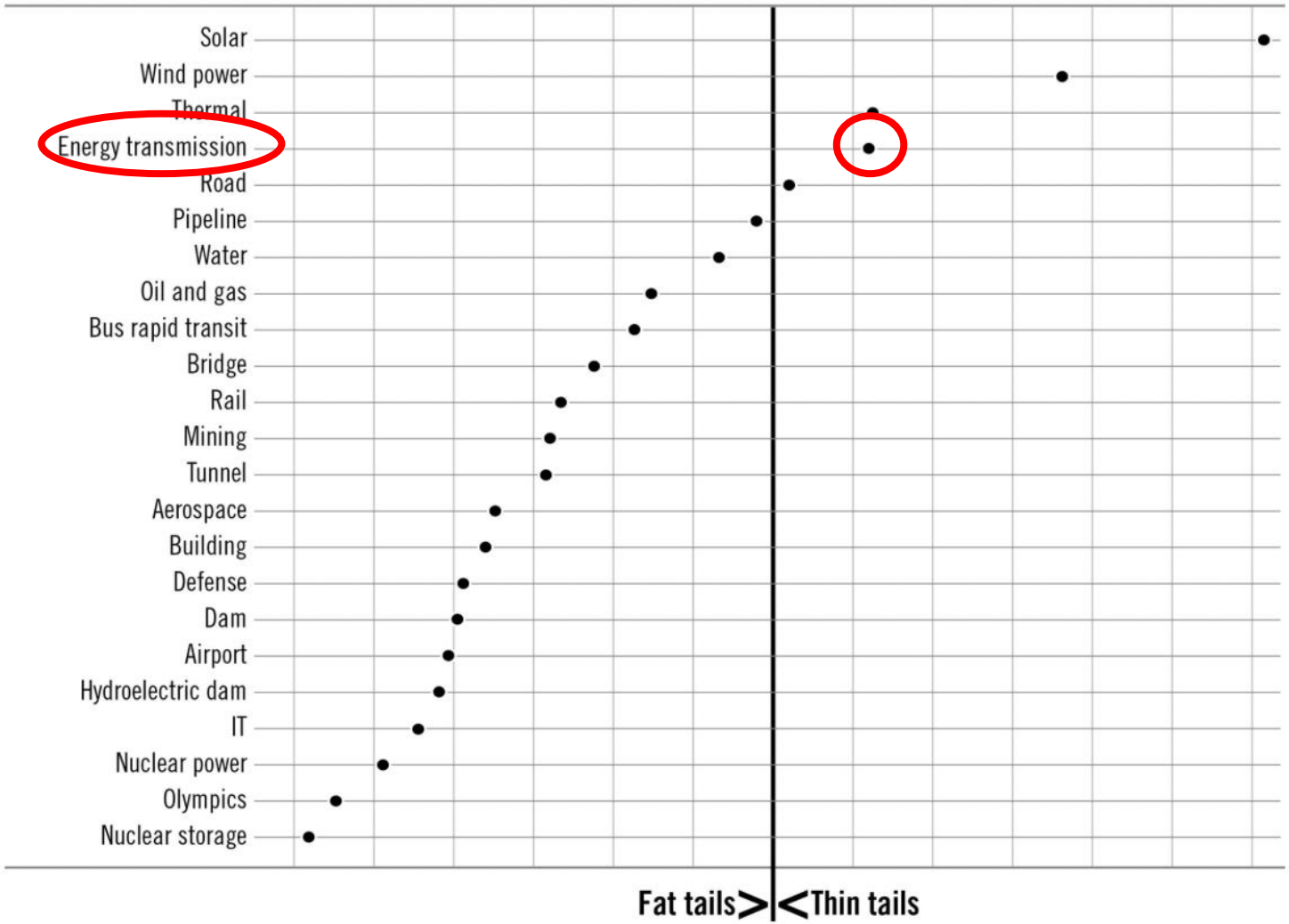
Why?

1. <u>They are modular</u>
   - ✓ Made up of the same building blocks, not reinventing the wheel all the time.

2. <u>Think slow, act fast</u>
   - ✓ Have a clear plan and programme before you start to construct, but once you got started, go fast (to prevent ‘events dear boy, events’)

Is there room for improvement?

- ✓ If wind and solar is already doing so well, is there room for improvement?
- ✓ Or should I say, make sure we stay successful and don't make it even harder (drive LCEO up)
- ✓ Make sure we keep our top position and build on our strength
- ✓ Don't change the system (too much). REMA! Finance is one of our modular building blocks
  - ✓ Localised or zonal pricing is a very bad idea
  - ✓ We need more wind in Scotland to meet our net zero targets
  - ✓ Not revolution but evolution is what we need
  - ✓ Don't rock the boat with investors, it will drive the costs of capital up
  - ✓ And we need more investments in grid, soon!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Fat tails>
<Thin tails

Health and Safety and Community Engagement

Are base jumpers a health and safety risk or a great community engagement opportunity?

- ✓ Community Engagement perspective: great opportunity
  - ✓ Don’t deter but accommodate it!
  - ✓ If you can’t beat them, joint them
  - ✓ Annual base jumper event
  - ✓ Open one turbine up for base jumpers

Base jumpers, the outcome?

Health, Safety and Operational reasons did win in the end.

- ✓ Better locks on doors
- ✓ Turbines alarmed
- ✓ Video control
- ✓ Signs

In conclusion

WHAT ARE THE TAKEAWAY MESSAGES

1. **We can’t compromise on Health and Safety**

2. **We need to become more profitable, by starting to not making project finances worse (no localised or zonal pricing!)**

We are a great industry, but we should make it even better!

Danny Hasledine

Director, Sales – UK and Ireland

Nordex

#ONSHOREWIND24

Nordex Group

Market Growth: Operational & Logistical Challenges

D. Hasledine 3/9/24

Agenda

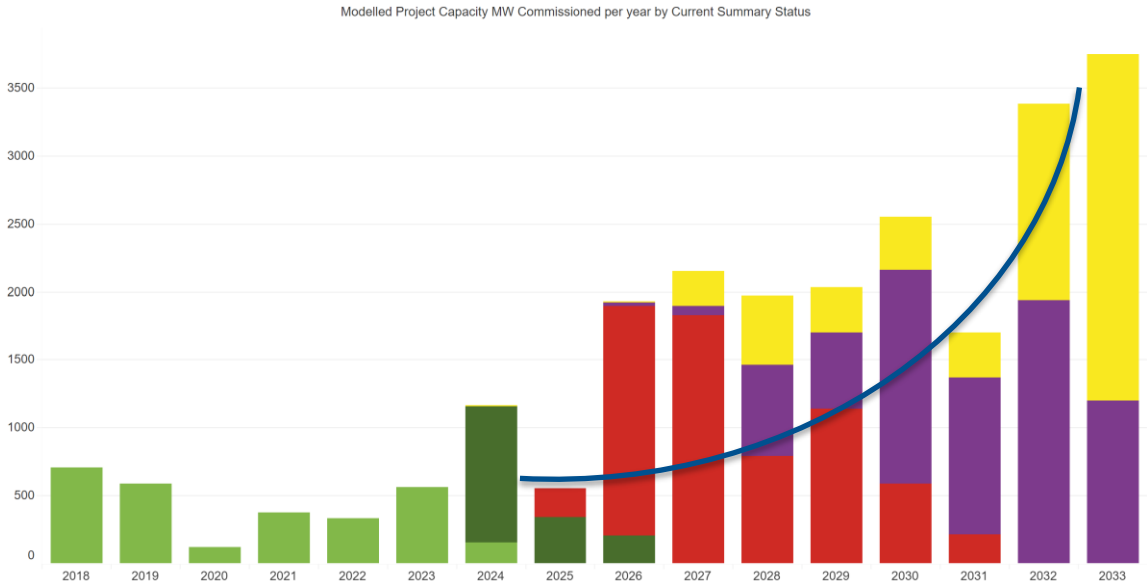
Safe and Sustainable Growth

Logistics Challenges

Issues and Solutions

Market Growth

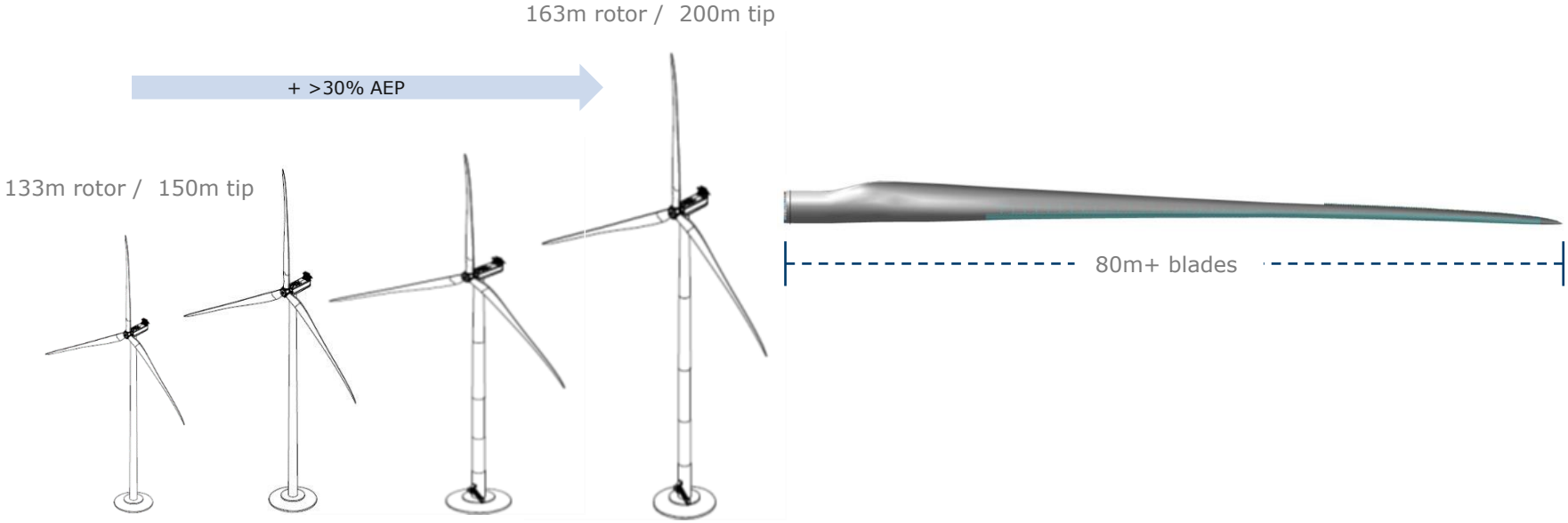
SOURCES INDICATE RAPID GROWTH IN TERMS OF COMMISSIONED ONSHORE MW



- Post-2017 UK market around 0.5GW / year
- Analyst data & Project Data from R-UK EnergyPulse anticipate +2GW/year from 2026
- UK **Onshore is BACK**…. BUT…
  - Sudden step up in volume creates challenges when it comes to safety and efficiency
  - Project delays, e.g. to planning or grid mean non-linear growth and make forecasting difficult; hence investment and resourcing

Delivering Safely & Efficiently: e.g. Logistics Challenge

MODERN TURBINES BRING GREATER EFFICIENCY, BUT LARGER COMPONENTS, AND REQUIRE SPECIALIST TRANSPORT SOLUTIONS:



- > rotor diameter = more W/m²
- > Tip Height = stronger, cleaner wind

Transport Challenges and Solutions

MOVEMENT OF ABNORMAL LOADS REQUIRE POLICE ESCORT. EQUIPMENT USED TO TRANSPORT LONGER BLADES TO SITE IS RELATIVELY NEW TO UK.

- Police have limited resource available for escorting, which is not considered 'regular operations'
- Resource can be stretched over multiple projects in the same region at the same time:
  - Example in 2023 where 4 different projects were being delivered by three different OEMs,
  - Each programmed for 3 x escorted movements
  - But only single pool of police resource available to escort

Blade Lifter

Scissor Lift

- Variety of transport solutions available, e.g. *Scissor Lift can transport from port to site at reasonable speed, without need for transition areas.*
- Police are still becoming familiar with capabilities of new equipment and currently only permit a single unit to move at a time
- UK is behind European partners, where the technology is more commonplace and would regularly see movement of convoys of 3 units rather than one

Take Aways

Positive Shift Toward Modern Turbine Technology

- Huge **benefits in AEP and LCOE**
- Latest technology being deployed globally
- More cost-effective turbines

Transport Solutions Available

- Multiple options to suit most sites
- Requires early engagement with OEM to properly **programme** deliveries and execution
- Planning ahead also necessary to **secure capacity** of equipment which is still relatively scarce in UK

Innovation Required Around Escorting of Abnormal Loads

- Good engagement already with Police Scotland under Sector Deal and via Govt. Taskforce
- Unavailability of escorts can disproportionately delay projects and cause significant cost overruns
- Can be Compounded by other delays, such as grid connections, which can cause deliveries of multiple sites to be bunched together
- As we gain confidence in using blade lifters etc, we should expect to see movement of more than a single unit at a time

Thank you for your attention

Heather Chambers

Chair

SafetyOn

#ONSHOREWIND24

Establishing standards - addressing the operational challenges of a mature and growing industry

Heather Chambers, Head of Health, Safety and Environment, BayWa r.e.

Chair of SafetyOn

www.safetyon.com

In partnership with the energy institute

Introducing SafetyOn

In partnership with the energy institute

SafetyOn

- SafetyOn is the health and safety organisation for the onshore wind industry
- Inspiring a safer and healthier onshore wind industry
- Enabling an effective safety leadership, culture and practices within the onshore wind industry by providing individuals, organisations and wider stakeholders with knowledge, tools and support to create and sustain improvements in Health and Safety performance
- Facilitated through the Energy Institute

Who are Members of SafetyOn

In partnership with the energy institute

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Who are Associate members of SafetyOn

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Who are Associate members of SafetyOn

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Leadership in health and safety for the onshore wind industry

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SafetyOn

- Focus on the real issues affecting the onshore wind industry, e.g. work under suspended loads
- Developing and delivering on workstreams that add value to health, safety, engineering and asset management
- Recognise the critical role this industry plays and will play in the drive towards Net Zero and as part of the Green Recovery
- An inclusive and diverse membership, including owners, operators, developers, manufacturers and key supply chain companies

Four Key Themes

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- How the onshore wind industry maintains high standards of health & safety and how we must look for continuous improvement

Incident data reporting

Good practice guidelines

Safe by Design workshops

Safety release

Hand Injury Video Campaign

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Looking Ahead – how workstreams are decided

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Incident data	• Evidence base for future work programme • Monitor H&S performance, risks and identify trends
Wider industry	• Engage with industry partners • Stakeholder Forum to discuss industry issues
Associate members	• Engagement events • Identify issues members are facing
Technical advisory committee	• Identify risks that onshore wind industry are facing • Set up workstreams to address these risks
Leadership Board	• Support industry collaborative approach to H&S • Provide direction and resources to TAC

Membership

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Member

Member participation in SafetyOn is open to:

- Owners/operators with a minimum 200MW installed capacity in the UK;
- O&M Service Provider/Contractors with a minimum 200MW portfolio;
- OEMs with a minimum of 200MW delivered and operational capacity; and
- Signatories to the SafetyOn Collaboration Agreement outlining further qualifying criteria

Benefits include:

- Representation on the Leadership Board and Technical Advisory Committee representation, with voting rights
- Opportunity for employees to participate in workgroups and support the development of work plans, subject to approval by Technical Advisory Committee and Leadership Board
- Gain industry recognition as a Member on the SafetyOn website

For further information, please get in touch

Associate Member

Associate Member participation in SafetyOn is open to:

- Owner/operators of onshore wind generation with less than 200MW installed capacity in the UK;
- O&M Service Provider/Contractors to the Onshore Wind Sector that do not qualify as Members;
- OEMs and supply chain operational in the Onshore Wind Sector that do not qualify as Members;
- Signatories to the SafetyOn Associate Member Terms and Conditions outlining further qualifying criteria

Benefits include:

- Join an open network of health and safety experts, professionals and stakeholders and provide health and safety leadership and direction to the industry
- Actively contribute to SafetyOn workgroups (by invite) to deliver health and safety products for the industry and attend general SafetyOn events like Annual Stakeholder Days
- Gain industry recognition as an Associate Member on the SafetyOn website

For further information, please get in touch

– **Find out more:**

Thank you


Get in touch!
@safetyontweets
@safetyon
safetyon@energyinst.org
www.safetyon.com
www.publishing.energyinst.org

Peter Lo

Head of Onshore Renewables and Storage Sector &
Head of Digital Innovation
ITPEnergised

#ONSHOREWIND24

ITPEnergised Part of SLR

Trusted Technical Advisor

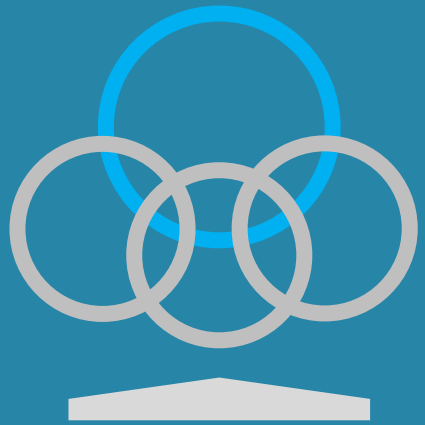
Onshore Wind Conference
Harnessing Digital to Optimise Net Zero Decision Making

Peter Lo
Head of Onshore Renewables Sector and Digital Transformation

"We believe passionately in the world's transition to net zero. We are a team of trusted technical advisors who meet and exceed our clients' aspirations."

Net Zero Accelerator ®

Optimise Net Zero Decision Making



Board

Committees

Project Teams

Trusted Technical Advisor

Life Cycle Applications

A Package of Digital Optimisation Along The Life Cycle

1. **Feasibility**
   Site + Grid Route Optimisation
2. **Pre - FEED**
   Optimising Colocation Sizing Target Risk + Returns
3. **Operations**
   Faster identification of performance shortfalls

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Digital

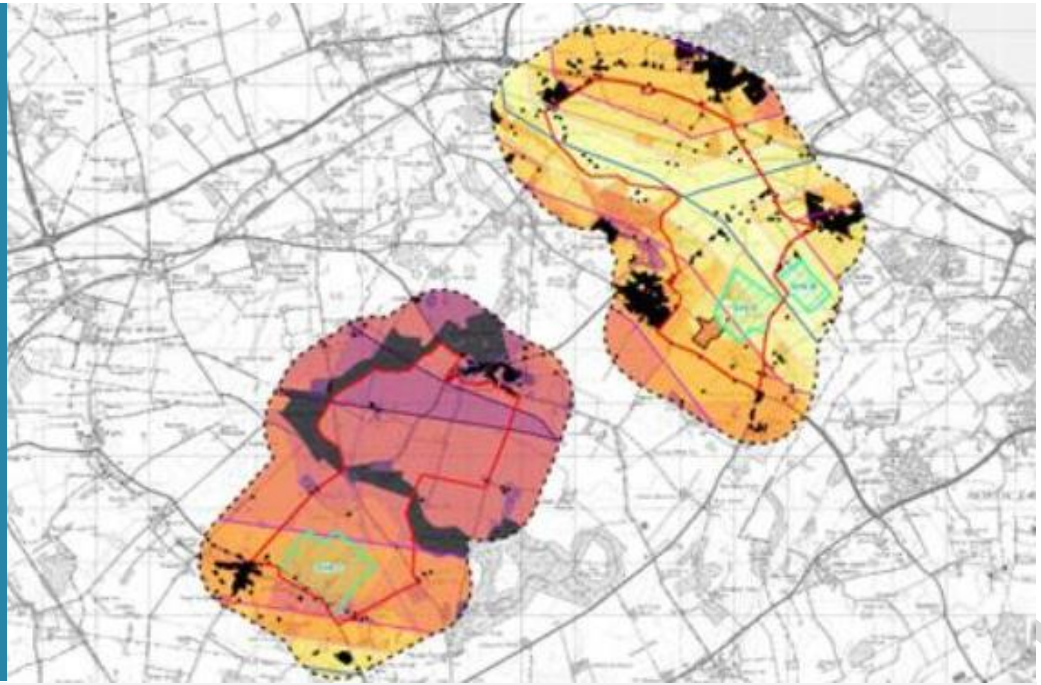
1. Site & Route Optimisation

Most Constrained Area

Least Constrained Area

Site Optimisation

1. Geospatial
2. Constraints Mapping
3. Potential Development Sites
4. Project Lifecycle Data Traceability
5. Climate Resilience Testing



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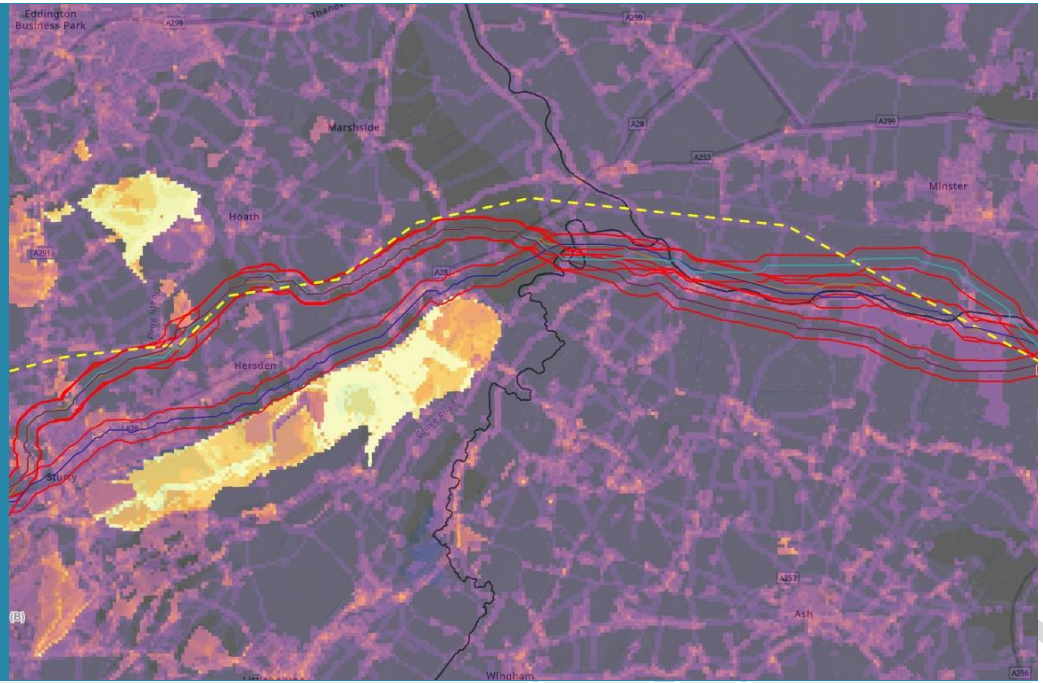
Digital

1. Site & Route Optimisation

Route Optimisation

1. Geospatial
2. Machine Learning
3. Potential grid connection routes
4. Automated Crossing Schedules
5. Automated Alignment Sheets



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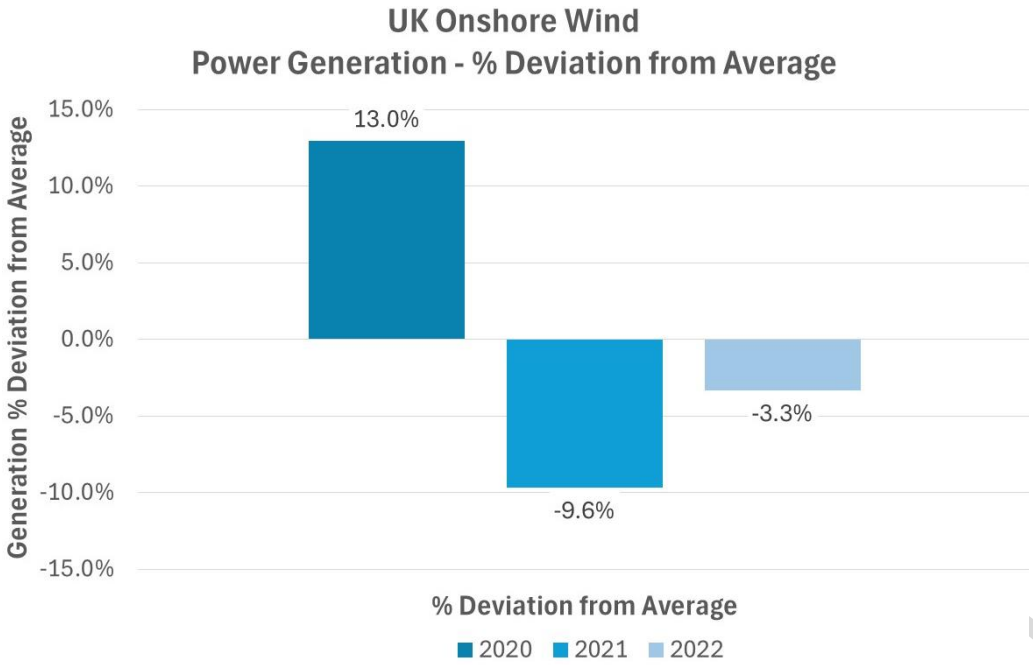
2. Optimising Risk-Return

Designing portfolios

1 Wind Resource Variation Risk

Indicatively wind was +13.0% and -9.6% v UK average

Indicatively solar PV in the same period was +2.7% and -2.6% v English average



ILLUSTRATIVE ONLY

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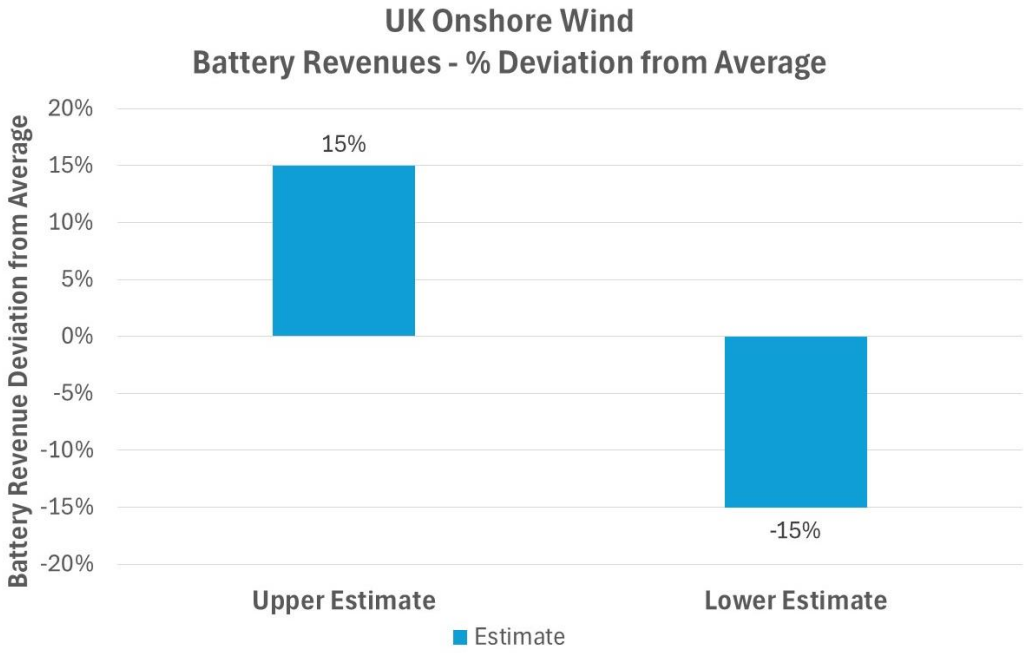
2. Optimising Risk-Return

Designing portfolios

2 Battery Revenue Risk

We have seen battery revenues and development premiums come down substantially since the highs of recent geopolitical events



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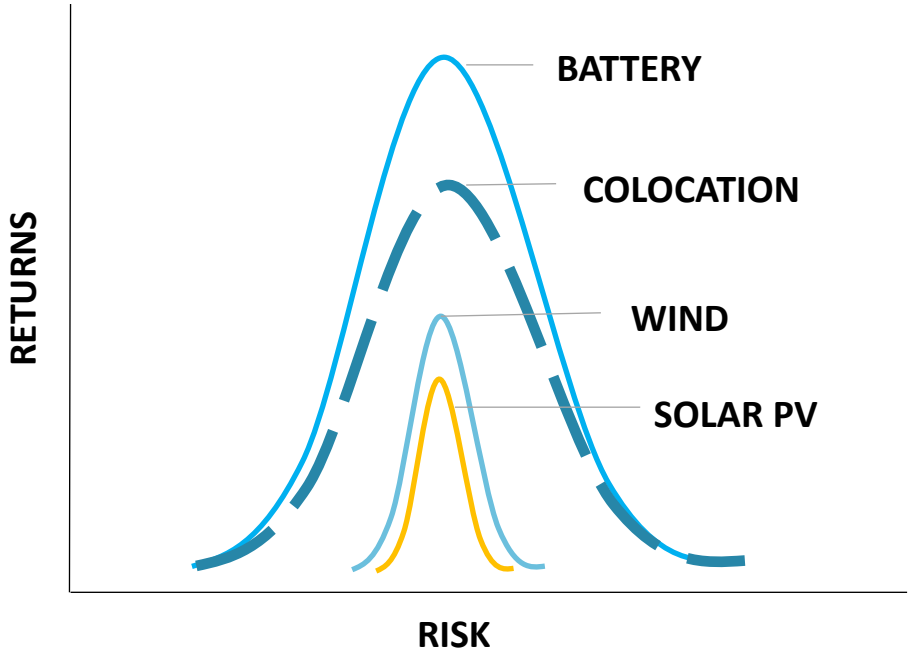
2. Optimising Risk-Return

Designing portfolios

3 Risk – Return Shapes

ILLUSTRATIVE ONLY

RISKS AND RETURNS CAN GO UP OR DOWN ACROSS ASSET CLASSES



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2. Optimising Risk-Return

Designing portfolios

3 Risk – Return Shapes

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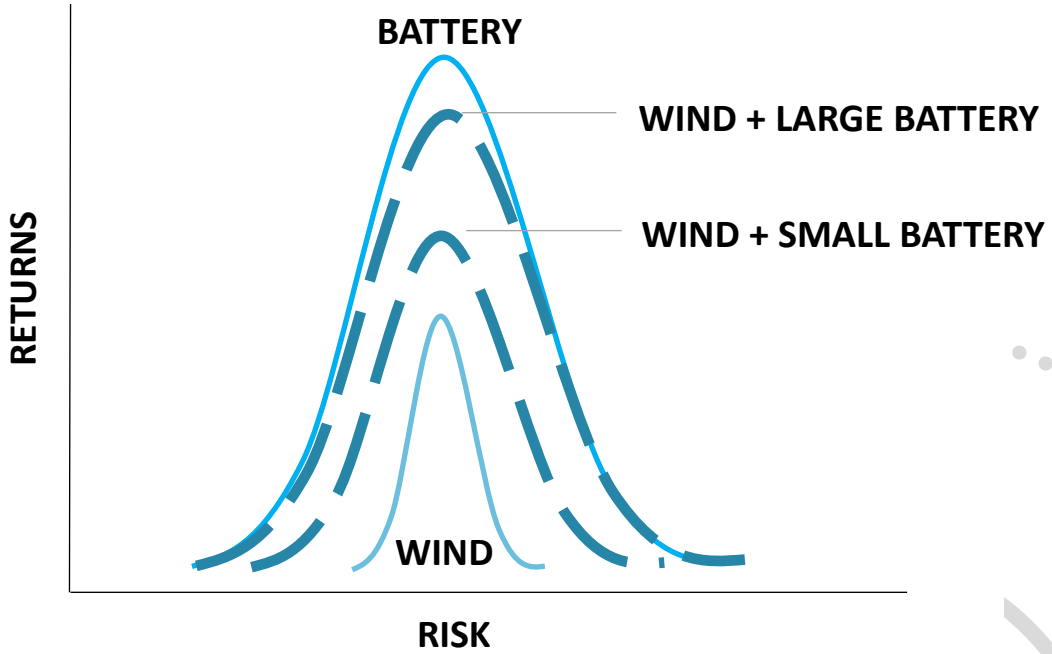
RISKS AND RETURNS CAN GO UP OR DOWN ACROSS ASSET CLASSES

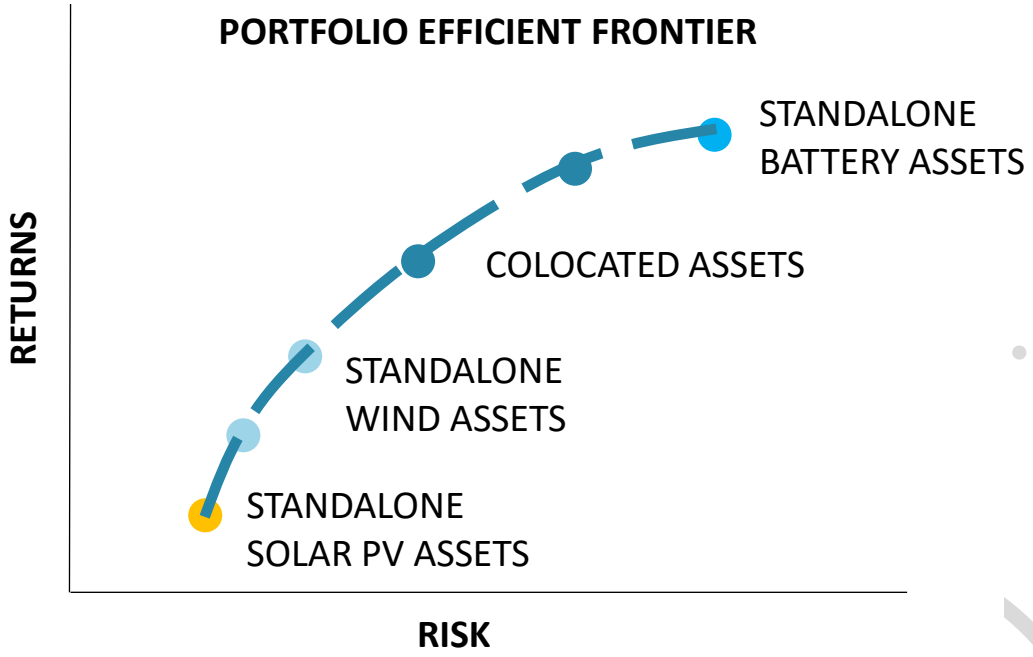


Trusted Technical Advisor

2. Optimising Risk-Return

Designing portfolios

3 Risk – Return Shapes



ILLUSTRATIVE ONLY

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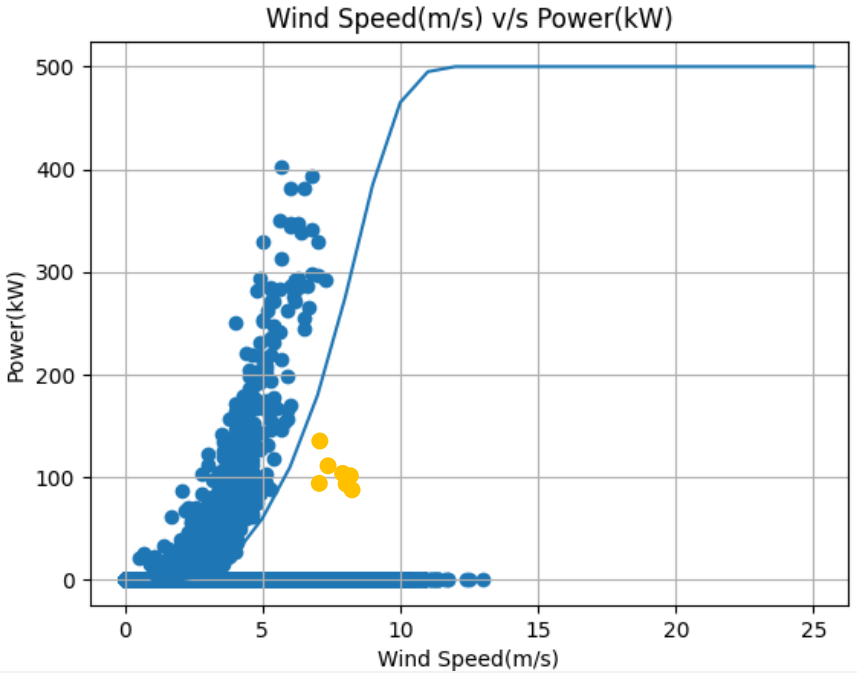
3. Optimising Operations

Performance Shortfalls

1. Data screening across entire portfolios
2. Automatic comparison to power curve
3. Faster performance correction



Trusted Technical Advisor

Contact Us

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Thank You

We would value continuing our net zero optimisation conversation with you.

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Chair, SafetyOn

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3A: How do you solve a problem like grid?

Chaired by Peter McCrory, Policy Manager, RenewableUK

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Peter McCrory
Policy Manager, RenewableUK

Jack Presley Abbott
Deputy Director, System Planning and Connections, Ofgem

David Wellard
Head of Regulatory Affairs UK, Ørsted

Amy Norman
Associate Director, Public First

Joe Dunn
Head of Grid & Regulation, ScottishPower Renewables

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reNEWS

3B: Biodiversity positive projects – how onshore wind can address the climate and nature crises

Chaired by Megan Amundson, Head of Onshore Wind & Consenting, Scottish Renewables

#ONSHOREWIND24

Mark Mulqueeney

Ecology Manager

SSE Renewables

#ONSHOREWIND24

Scottish Renewables Onshore Wind Conference 2024

Peatland Expert Advisory Sub-Group

03/09/2024

sse Renewables

PEAG Subgroup Remit

1. Short term - Review and co-produce delivery of an updated version of Advising on peatland, carbon-rich soils and priority peatland habitats in development management.

2. Medium term – Review SEPA 2012 Guidance on the assessment of peat volumes, reuse of excavated peat and the minimisation of waste and 2017 Guidance on developments on peat and offsite uses of waste peat.

3. Long term - Prepare the framework for a Scottish Peatland Standard - a package of guidance for development on peatland that covers the full mitigation hierarchy.

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Guidance Crossover and NPF4 Definitions

An action from the Peat Expert Advisory Group to the Sub-Group is to define terminology used in NPF4 requirements to ensure consistency throughout the guidance documents. This will cover:

- Carbon rich soils and how peat / peat soil(s) are defined;
- Clear definition (NPF4) of Peatland habitat and priority peatland habitat.
- Mitigation hierarchy
- Compensation, Enhancement and Impacts.
- Use of excavated peat (revegetation, re-instatement, restoration)
- Waste (links back to SEPA Guidance).

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Progress and Next Steps

NatureScot 2023 Peatland Guidance

Agreement on:
- Better alignment with the EcIA process
- Oversimplification of complex conditions and need to involve professional judgement in a meaningful way
- Lowering indirect buffers based on condition and Montane Blanket Bog

Live discussions on:
- Priority peatlands.
- Identifying when impacts may raise issues of National Interest.
- the competing pressure for land.
- The offsetting compensation ratio 1:10.

sse Renewables

Dr Simon Zisman

Director

Net Zero Ecology

#ONSHOREWIND24

Cara Shields

Consultant Ecologist

DNV

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Wind Farm Developments in Northern Ireland

Google maps

Curlew. Photo taken from BTO.org


Peatland habitat (Glenveagh National Park, Doneg

Cara Shields, Consultant Ecologist, BSc, MSc

Email: cara.shields@dnv.com / cshields@enviroguide.ie

Dr Katie Medcalf

Environment Director

Environment Systems

#ONSHOREWIND24

What's happening in Wales

Dr Katie Medcalf, Environment Director Cenv, MCIEEM, MBSSS

CLIMATE CRISIS

BIODIVERSITY CRISIS

Well-being of Future Generations (Wales) Act 2015

Climate Change (Wales) Regulations 2018 and 2021

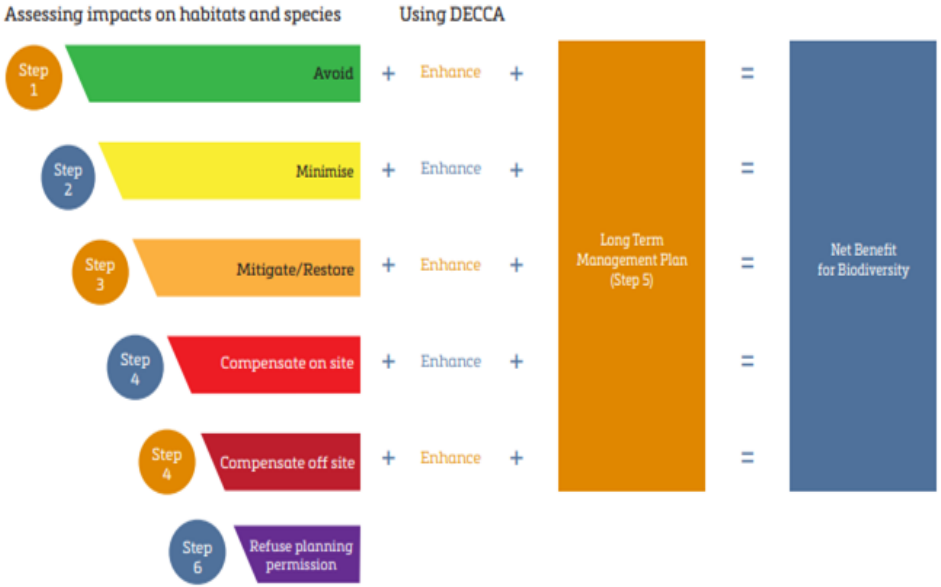
Environment (Wales) Act 2016

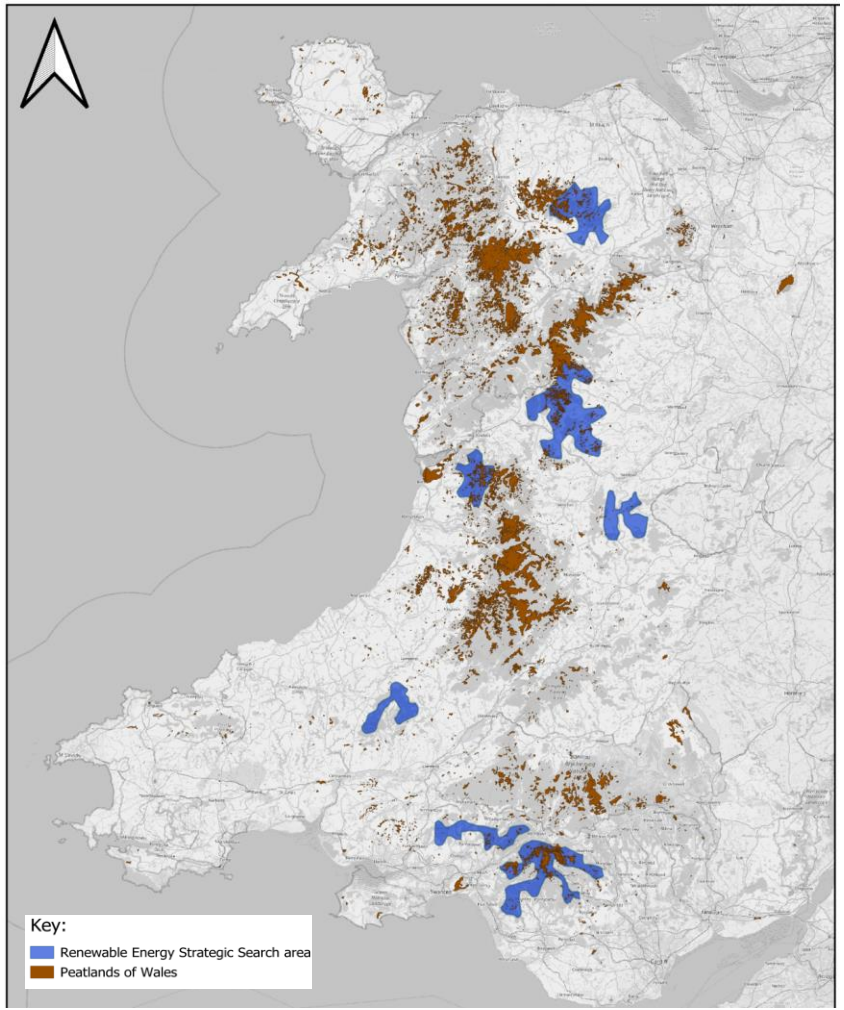
Section 6 Duty
"maintain and enhance biodiversity"

PPW 12th Edition (February 2024) "the planning system must ensure development results in a net benefit for biodiversity and ecosystem resilience to enhance well-being"

Wind energy is very important: Welsh Government target, by 2035 = 100% consumption

The Stepwise approach

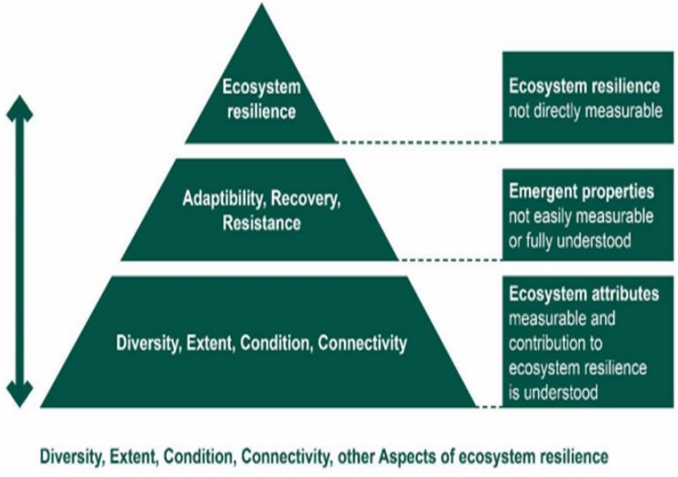




Irreplaceable habitats

- Ancient woodland, hedgerows, wet woodland and veteran trees,
- ***Peatland, blanket bog, lowland fen***
- Species rich grassland, long undisturbed soils
- Sand dunes, Salt marsh

The DECCA ecosystem resilience principles



How can the wind industry benefit from this approach?

Building with nature:

- Enhance stakeholder benefits
- Enhance company reputation
- Reduce expensive risks

Aedán Smith

Head of Policy and Advocacy

RSPB

#ONSHOREWIND24

Megan Amundson
Head of Onshore Wind & Consenting, Scottish Renewables

Mark Mulqueeney
Ecology Manager, SSE Renewables

Dr Simon Zisman
Director, Net Zero Ecology

Cara Shields
Consultant Ecologist, DNV

Dr Katie Medcalf
Environment Director, Environment Systems

Aedán Smith
Head of Policy and Advocacy, RSPB

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4A: Supplier showcase – succeeding in the sector

Chaired by James Robottom, Head of Policy, RenewableUK

Sinclair Browne

Chief Executive

Port of Inverness

Port of INVERNESS

- Operates as a Trust Port – Act of Parliament 1847
- Around 200 ship visits annually
- Renewable energy hub
- 350+ complete wind turbines over last 10 years
- Founding member of the Inverness and Cromarty Firth Green Freeport

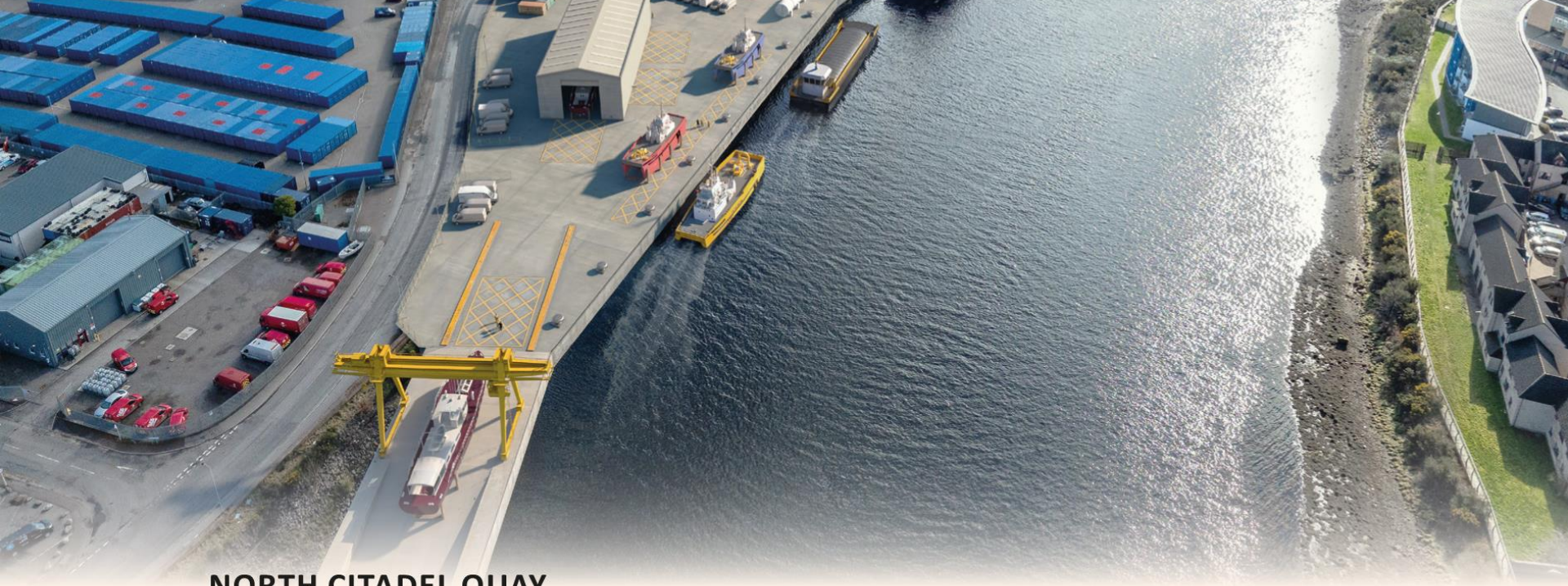
Inverness & Cromarty Firth Green Freeport
a free trade zone

Transforming the Highland Economy and **Delivering** National Energy Security

HARBOUR GAIT PHASE 1:

- 9-hectare site – consenting process underway
- Extensive laydown space
- New 150m quay
- Allow transhipment onto barges
- Blue economy hub

Port of INVERNESS



NORTH CITADEL QUAY

- Offshore workboats: ship assembly/repair
- 100m quay and 1 - hectare site
- Dedicated boat hoist
- EV bus terminal
- Blue economy hub/workshops

Port of INVERNESS

OTHER IMPROVEMENTS

- New entrance – 80m long blades
- Shore power
- Future fuel development – LNG/HVO
- Further infill land available – 15/20 hectares

Port of INVERNESS

WATERFRONT LANDHOLDING

- Total 38ha approximately
- Phased development
- Both sides of Kessock Bridge
- Capable of extending with adjoining landholders

Port of INVERNESS

Louise Downing

Founder

BizGive

Maximising Positive Community Impact

Using Software to Transform Developer-Community Relationships

BizGive

Louise Downing, Founder

What is BizGive?

Mission: To maximise the positive impact of assets in host communities.

What: Software to **understand**, **create** and **report** the full socio-economic impact of assets.

How: A scalable, transparent and collaborative process for:

- Understanding local needs and priorities
- Discovering projects that address them
- Capturing and reporting the positive impact of those projects
- Sharing that impact within the community

Use Cases:

- Community Engagement & Consultation
- Community Benefits
- Strategic Impact (e.g. skills, academic research)

NEXTENERGY CAPITAL GREENCOAT UK WIND Renewco POWER octopus energy generation nuveen INFRASTRUCTURE voltalia

E: louise.downing@bizgiveworld.com

T: +44 7905 470951

Challenges

Community Engagement

- Reaching a broad cross-section of the community
- Uncovering objections before planning submission
- Asset documentation is inaccessible for many community members
- Collaborative, transparent design story
- Engagement fatigue
- Demographics change from planning to ops
- Ensuring promises are fulfilled

Community Impact

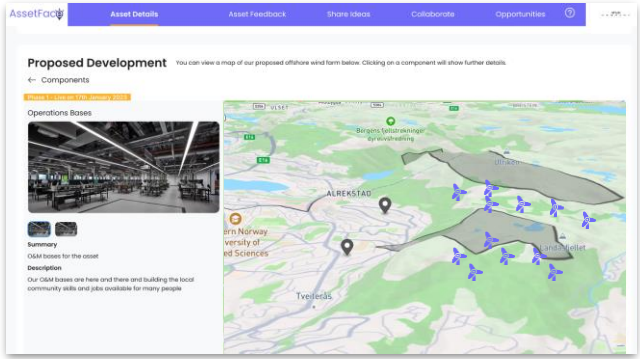
- Lack of local projects to spend money on
- Inconsistent systems and processes
- Not always collaborative, transparent or democratic investment decisions
- Lack of impact data, content for reporting
- Data protection and security
- Lack of awareness of impact achieved
- Needs and priorities of community change

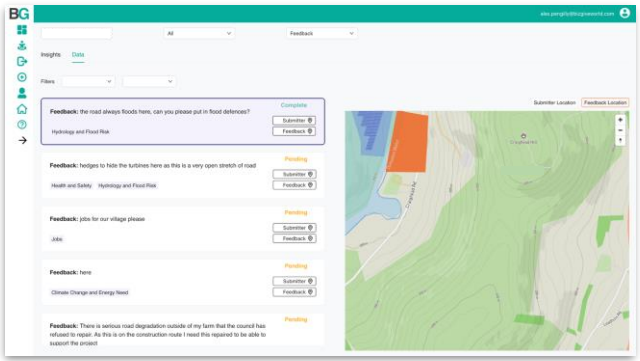
Our Solutions

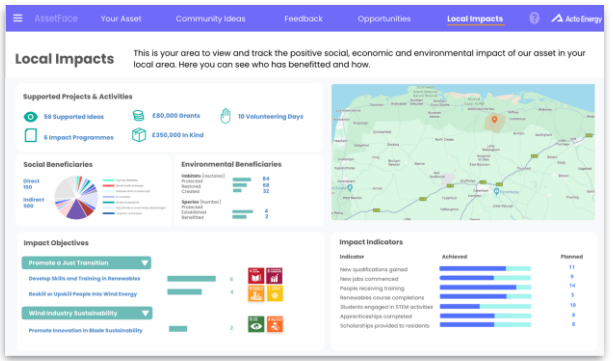
1) Community Engagement: AssetFace & AssetChat

One place for developers and communities to collaborate on asset plans and benefit designs.

- Interactive Asset Details
- Ideas Generation
- Supply Chain Collaboration
- AssetChat: Bespoke GenAI tool for asset stakeholders to query asset-specific documentation







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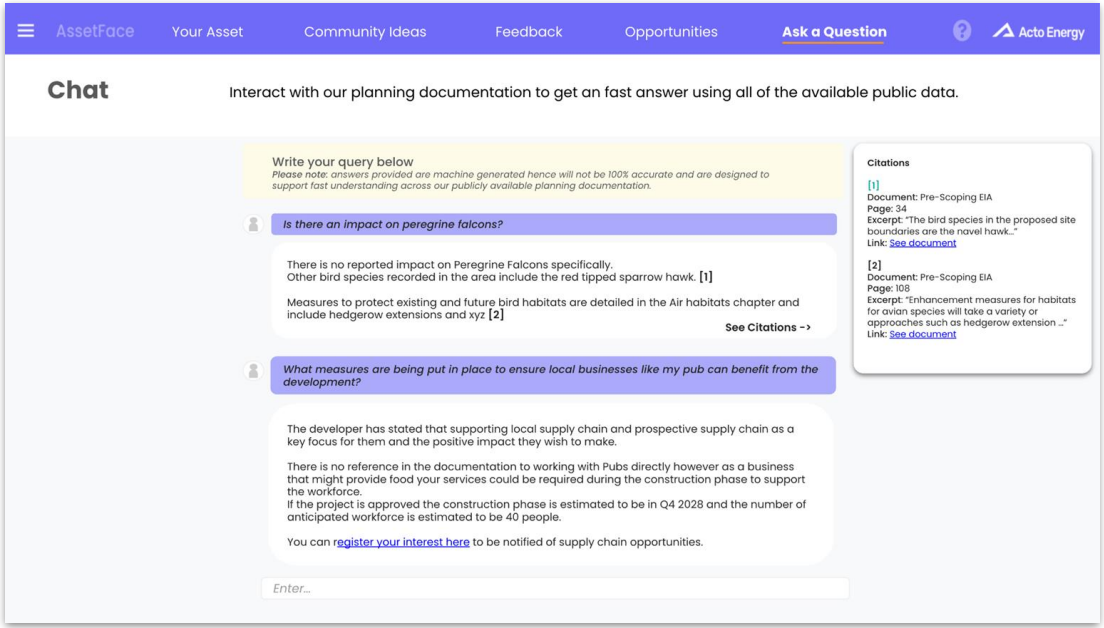
Our Solutions



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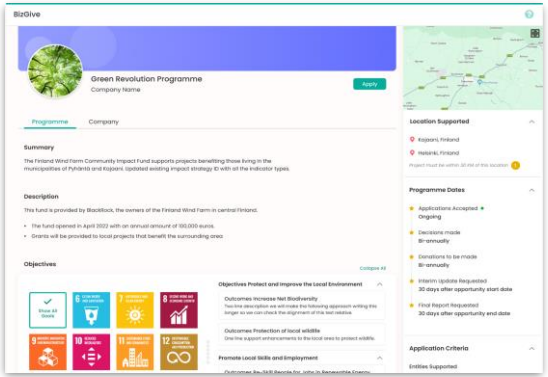
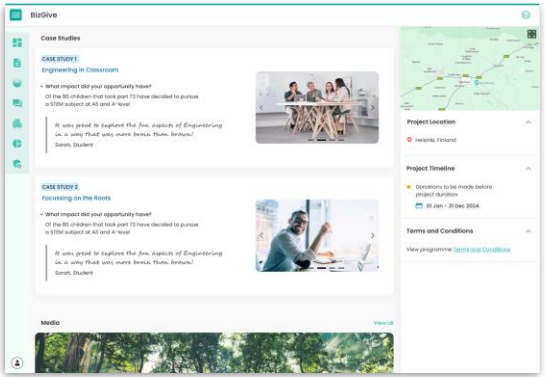
Our Solutions

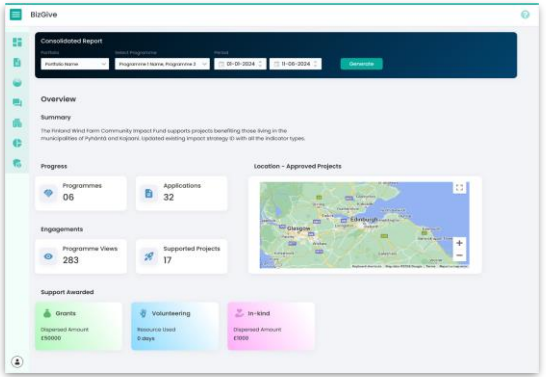
2) Community Impact: BizGive

End-to-end impact creation and reporting system aligned to community needs and priorities.

- Collaborative benefits administration workflow
- Impact data and case studies
- Data aggregated per asset and across all assets
- All communications and impact auditable for transparent governance







Platform Offer

Software

- Annual subscription fee per asset
- Customisable
- UK and international
- Ongoing enhancement and new features
- GDPR compliant, data secure, powered by AWS
- 4000+ impact makers in our community

Service

- Local outreach
- Guaranteed impact projects & reported data
- Full support for applicants and users

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Benefits for Onshore Wind

Engagement

- Reach a wider cross-section of the community
- Collaborate more deeply, unlock local impact opportunities
- Shift engagement narrative from mitigations to positive impacts
- Evidence impact throughout asset lifetime
- Make planning documentation more accessible

Impact Implementation

- Transparent process for auditing and governance
- Impact data aligned to global reporting standards
- Consistent approach across portfolio
- Outcomes-based impact approach
- Seamless end-to-end workflow for future asset owners and investors

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BizGive

Jacynthe Menard

Business Development Manager

Spoor AI

Enabling nature and industry to coexist

Jacynthe Menard - Business development manager

Onshore wind conference - Edinburgh

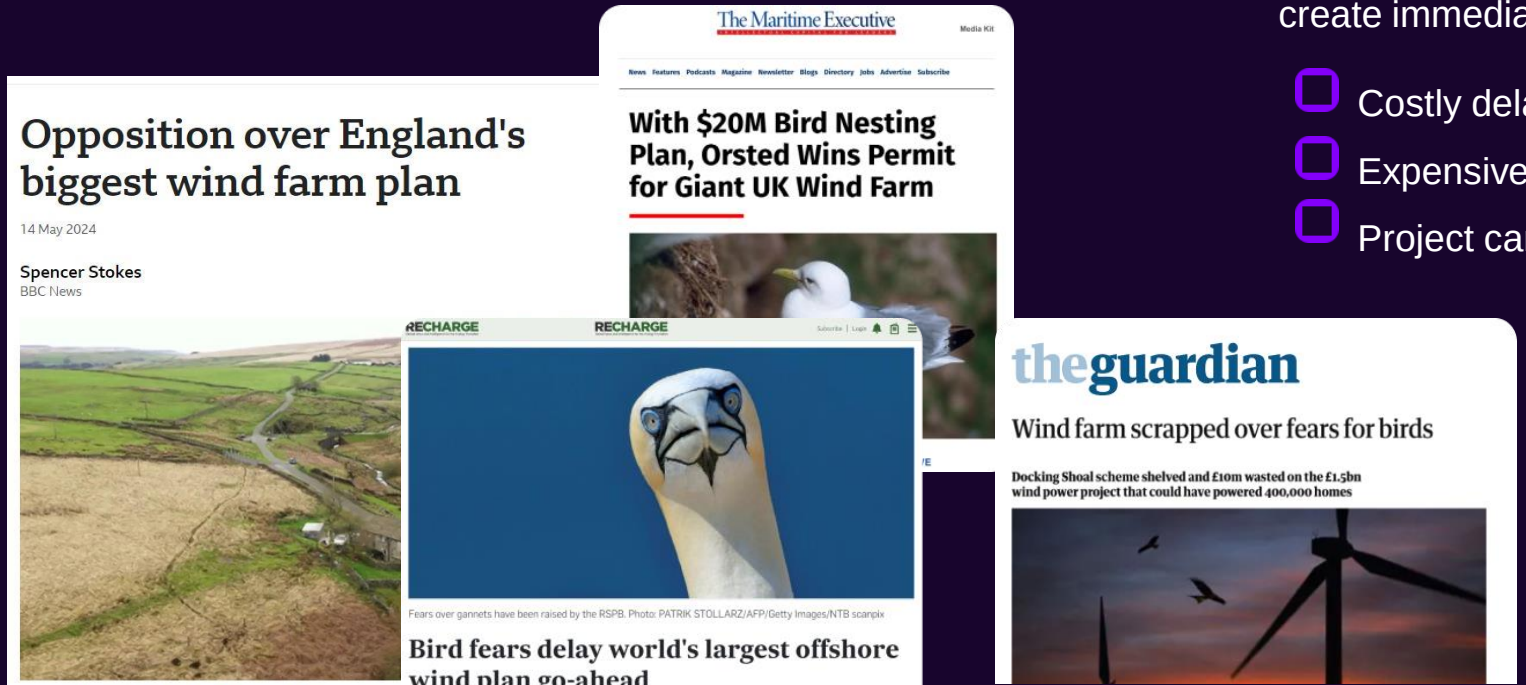
spoor

THE CHALLENGE

Concerns for birds and wildlife are a principal bottleneck

Tightening regulations create immediate pressure

- Costly delays
- Expensive mitigation measures
- Project cancellations



Opposition over England's biggest wind farm plan

14 May 2024

Spencer Stokes
BBC News

The Maritime Executive

With $20M Bird Nesting Plan, Orsted Wins Permit for Giant UK Wind Farm

RECHARGE

Fears over gannets have been raised by the RSPB. Photo: PATRIK STOLLARZ/AFP/Getty Images/NTB scanpix

Bird fears delay world's largest offshore wind plan go-ahead

theguardian

Wind farm scrapped over fears for birds

Docking Shoal scheme shelved and £10m wasted on the £1.5bn wind power project that could have powered 400,000 homes

spoor

AI based bird monitoring

Perspectives

Automated data collection methods provides:

1. Higher data **quantities** and statistical power, i.e. less uncertainty in assessments
2. Higher degree of **objectivity**
3. Higher degree of **comparability**
4. Reduces supply chain bottleneck and **safety** risk of human observers.
5. **Realistic chance of complying** with pre - and post-construction monitoring on planned wind farms and other infrastructure projects

spoor

LET’S CONNECT

THANK YOU

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spoor

Dr Charlotte Stamper

Strategic Partnerships Manager

European Metal Recycling

emr

Recovering VALUE by reusing & recycling YOUR renewable assets

emrgroup.com

HOW DO WE RECOVER THE MOST VALUE FROM OLDER

WIND TURBINES?

AND UNLOCK NEW CAPACITY

3.3GW

Of the UK onshore **wind fleet will be older than 20 years** by 2030

We are EMR

WE PROVIDE AN

END-TO-END SERVICE

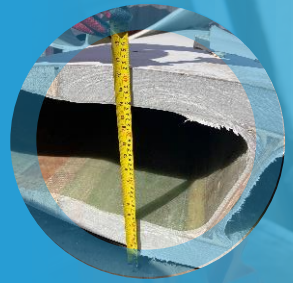
OFFERING A HIGH VALUE

LOW CARBON DECOMMISSIONING PATHWAY FOR WIND TURBINES AND ASSOCIATED INFRASTRUCTURE

We are EMR

OUR WIND TURBINE PROCESSING CENTRE

in Glasgow specialises in reclaiming valuable components and materials for reusing, repurposing, and recycling



We are EMR

THANK YOU

For more information please contact

Dr Charlotte Stamper | Strategic Partnerships Manager
Charlotte.stamper@emrgroup.com

EMR Group, Sirius House, Delta Crescent, Westbrook, Warrington, WA5 7NT

Fiona Lindsay

Managing Director

ReBlade

REBLADE

“What happens when wind turbines come to the end of their operational lives?”

Waste Hierarchy	Reblade Service Provision	
PREVENT REUSE	Consultancy • New Site Strategies • Asset Optimisation	
RECYCLE	On-site Works • Decommissioning Plans • On-site downsizing and removal	
RECOVER DISPOSE	Material Management • Recirculation of parts • Recycling • Reuse and Repurposing • Recovery	

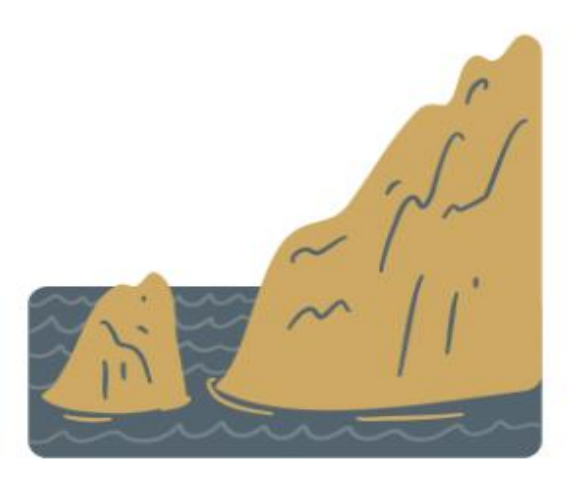
REBLADE

Challenges from the **Clients' Perspective**...

...pragmatism, transparency and building trust is essential!

REBLADE

Challenges from the **Innovators' Perspective**...



...supporting early adoption, skills, and diversity is essential!

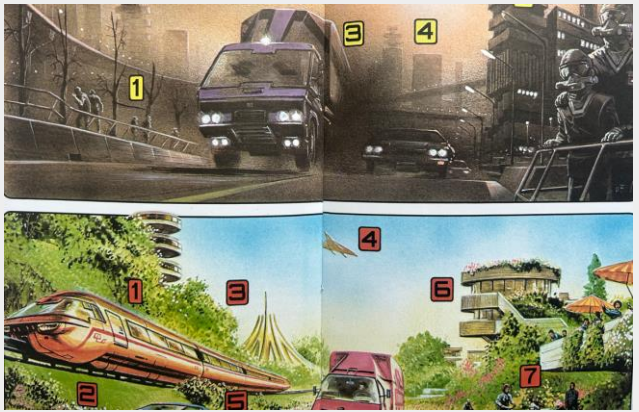
REBLADE

How can we **live** and **work** for the benefit of future generations?

The 19th Century

The 21st Century

Two trips to the 22nd Century...?




REBLADE
Contact us
fiona@reblade.co.uk
reblade.com

Dr Sabrina Malpede

CEO

ACT Blade

ACT Blade

The wind turbine blade for a NET-ZERO future

Sabrina Malpede
ACT Blade CEO

03 September 2024

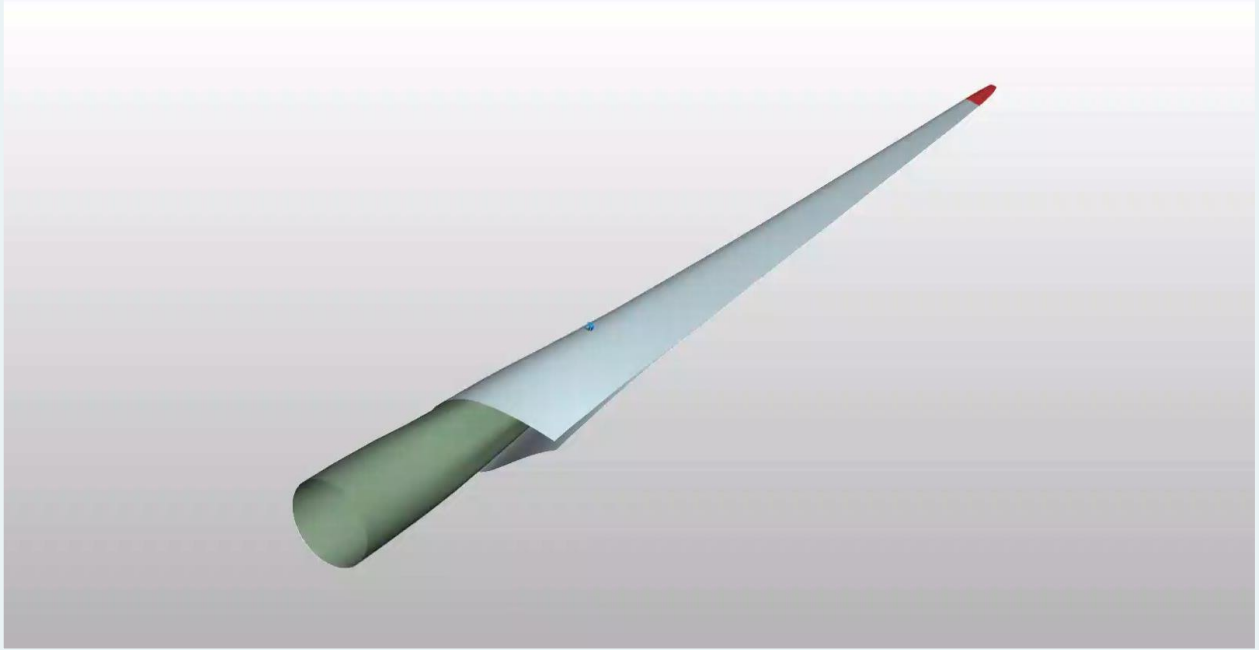
ACT blade

ACT blade

A slim composite structure covered by engineered textile

Lightweight >> longer blades >> +10% energy

Small tools, no painting >> -385 tons of CO2



Data are per turbine, per year (based on a 5MW turbine)

ACT blade

ACT blade IP position

Three main innovations

Manufacturing method

PATENT GRANTED

> China, US, INDIA

> Europe (Validated in DK, Fra, Ger, Ita and UK)

Integrated shape control system to reduce blade loads

PATENT GRANTED

> China, US, INDIA

> Europe (Validated in DK, Fra, Ger, Ita and UK)

Lightening Protection System

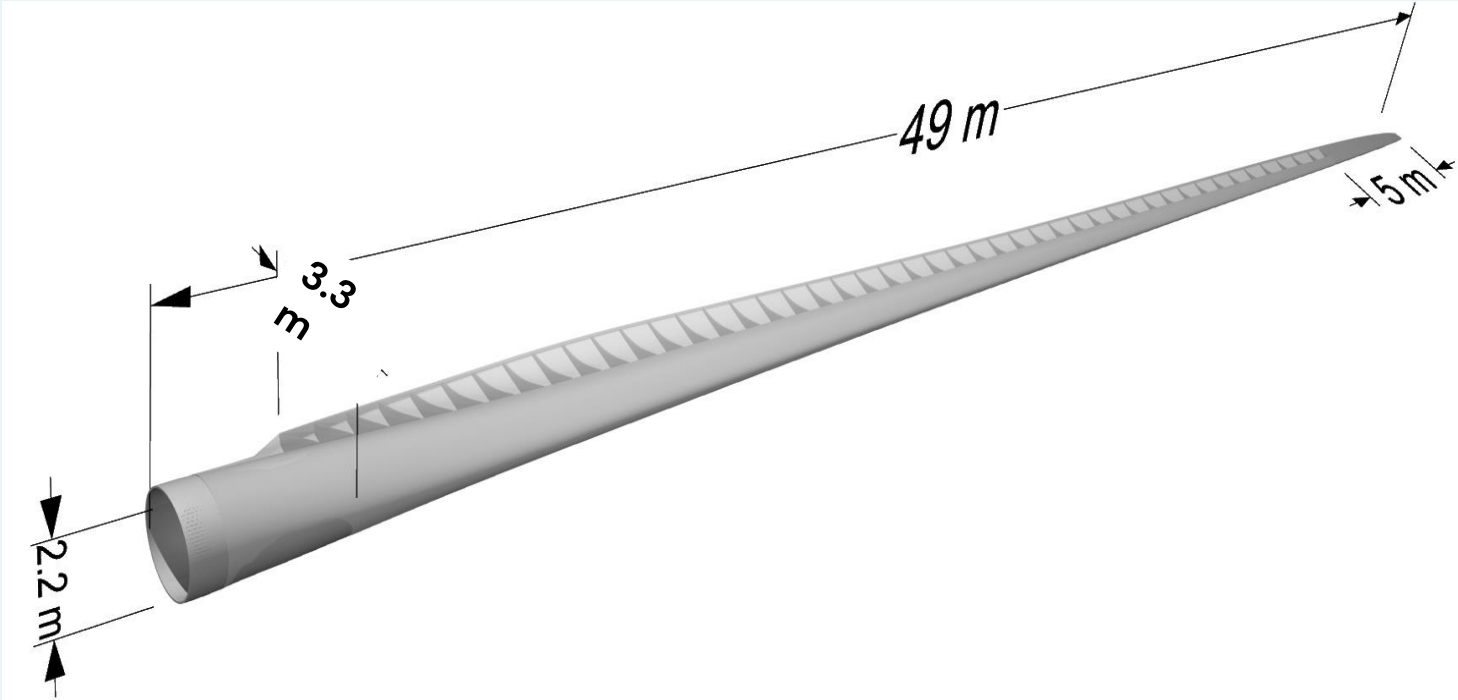
UK Green Channel application filed Jan 2024

ACT blade

ACT27 Prototype test – Myers Hill Jul 22 >> Feb 23

ACT100: the blade for 2MW turbines

Length	9%
Energy	8%
IRR	15%
Life	5yrs



ACT blade

ACT100
Product Certifications

Component Certification: IEC61400-23 (on going)

Lightening Protection System Certification IEC61400-23

Oct 2024

Installation on an MM92 – Dec 2024

Measurement campaign

Load component certificate

Green Power

ACT100 Static test completed – Aug 2024

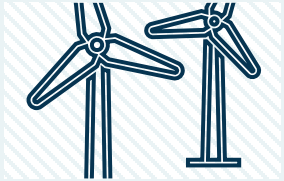
Why ACT blade

> Experienced team

> Full scale test completed in 2023

> Early adopter Enel Green Power

> Wider ecosystem



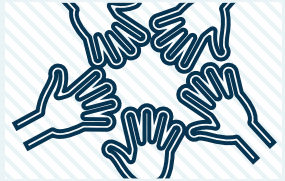
Game changer wind energy technology

> Novel patented wind turbine blade

> Engineered textile built for offshore

> Light longer blade → + energy

> Low footprint → most sustainable



Strong Mngt and R&D Team

> Founders have >20yrs experience in innovation, sale, finance

> Team of specialists in blade design, composite and production

Wide UK and Europe ecosystem

> UK and EU supply chain for material and components

> Collaboration with UK and EU universities, research and test centres

Significant traction

> Award winner technology from the UK and EU gov

> EIT InnoEnergy and ORE Catapult supported company

> Full scale tested prototype

ACT blade

Thank You

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ACT blade

David Youngs

Co-founder and Program Director

LiveLink Aerospace

New Technology for Aviation Enablement, Dark Skies Preservation & Happier Planners!

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LiveLink aerospace

SECURING THE SKY

ARMED FORCES COVENANT

CYBER ESSENTIALS CERTIFIED

A MEMBER OF ADS

The Problem

- Planners (and the public) increasingly object to wind turbine applications involving aviation lighting (i.e. for all turbines over 150m)
- It is possible to make the lighting ‘smart’ so it only activates on aircraft presence – but this requires reliable aircraft detection

Potential historic solutions include:

Radar – but issues regarding coverage, cost, spectrum licencing, ongoing maintenance etc

Electronic Conspicuity (EC) – but not all aircraft have it, there’s no UK mandate to fit it universally, and requiring it for a specific area of airspace requires a formal CAA Airspace change proposal with associated time, complexity and associated cost

Solution

With the kind support of AIFCL, the CAA and the MOD (via DASA) LiveLink Aerospace have created a set of low cost sensors that can detect not just aircraft with transponders, but also ***all*** other key characteristics (eg: VHF transmissions, ADS-B, FLARM, engine noise, optical footprint etc)

Whilst still WIP, benefits for wind turbine operators:

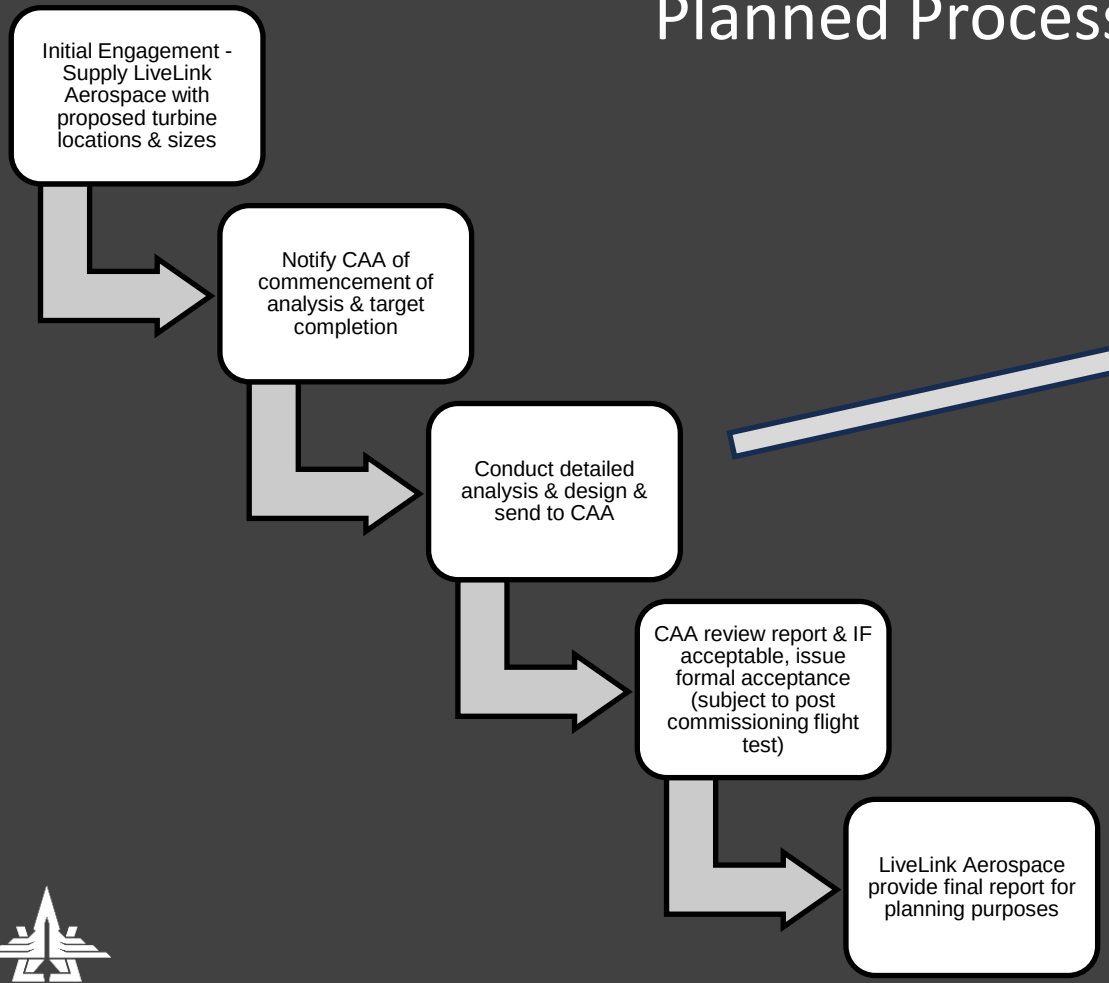
- Up-front analysis and solution design now possible pre-planning process
- Certainty regarding total cost and method of minimizing light pollution
- Significant timing savings in stakeholder engagement and consents
- Lower setup and potentially lower operating costs

Risks / Work Outstanding

1. Full flight trials are work in progress, and so there remains a theoretical risk of ‘surprises’ remaining

2. The CAA engagement has been very constructive, but nothing is agreed until everything is agreed (in writing)

Planned Process



a. Review of aviation specific risk factors, notably existing airfields, private landing sites, airspace, probable hang glider and ridge soaring locations.

b. Creation of a proposed sensor layout, specifying sensors and locations.

c. Creation of an overall heat map showing (to a specified confidence level) the distance and height that all key types of traffic should be detected to.

d. Analysis and/or mitigations for any areas where potential detection falls outside the chosen confidence factor for a 3NM detection – eg: a higher risk 'hot spot' for microlights appearing around a mountain into a known farm strip.

e. Proposed operations manual, specifying calibration and maintenance processes, data retention policy, proposed ongoing audit reports for CAA of KPIs.

f. Proposed installation plan and validation flights prior to 'go live'.

= target 12 weeks
(unless site or CAA have exceptional requirements)

LiveLink aerospace

OFFICIAL

THANK YOU & QUESTIONS

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LiveLink aerospace

Rafael Narezzi

Managing Director

Cyber Energia

cfp cyber energia

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Network Information Security Directive (NIS 2)

Real Life
Overview

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Satellite cyber attack paralyzes 11GW of German wind turbines

The communication channels affected are also used by photovoltaic systems.

MARCH 1, 2022 MARIAN WILLUHN

GRIDS & INTEGRATION TECHNOLOGY UTILITY SCALE PV GERMANY

In the event of a communication breakdown, solar and wind power plants automatically switch to a kind of "autopilot."

Image: Matthias Böckel/Pixabay

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Insight: Cyberattacks on renewables: Europe power sector's dread in chaos of war

By Nora Buli, Nina Chestney and Christoph Steitz

June 15, 2023 2:15 PM GMT-3 · Updated 10 months ago

[1/2] A view of the Roan onshore wind farm, as a Norwegian case over indigenous rights continues, in the Fosen region, Norway November 12, 2021. REUTERS/Nora Buli/File Photo Purchase Licensing Rights

Summary Companies

- Cybersecurity a growing concern for power companies
- Ukraine war has heightened risks, say executives
- Renewables, grids are more digitalized, connected
- Sector seeks cyber staff, expertise to fight threat

OSLO/LONDON/FRANKFURT, June 15 (Reuters) - Saboteurs target a nation leading the world in clean energy. They hack into vulnerable wind and solar power systems. They knock out digitalized energy grids. They wreak havoc.

It's the stuff of nightmares for European power chiefs.

12:22

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CYBERSECURITY — FEATURED — READ THIS — NORDEX — RANSOMWARE — WIND TURBINES

Nordex hacked: Wind turbine giant shuts down IT systems globally

€5.4 billion wind turbine firm attacked months after rival Vestas...

THE STACK

April 4, 2022 . 12:38 PM — 2 min read

thestack.technology — Private

Equifax shares set to fall 13% after data hack

Renewables in the Global Market

By year-end, installed renewable energy capacity provides an estimated 27.3% of global electricity generation.

In most countries, producing electricity from wind and solar PV is more cost-effective than from new coal-fired power plants, leading to record-low bids in tendering processes.

Led by wind power and solar PV, more than 256 GW of capacity was added in 2020, an increase of nearly 10 per cent in total installed renewable power capacity.

Only 1% renewables energy firms have adequate cyber protection

Premium insurance reduction

24/7 MONITORING AND THREAT DETECTION, TO REDUCE THE LIKELIHOOD OF CLAIMS AND THEREBY POTENTIALLY LOWER INSURANCE PREMIUMS

THE REGULATORY LANDSCAPE IN EUROPE, HIGHLIGHTING UPCOMING REGULATIONS THAT NECESSITATE IMPROVED CYBERSECURITY MEASURES

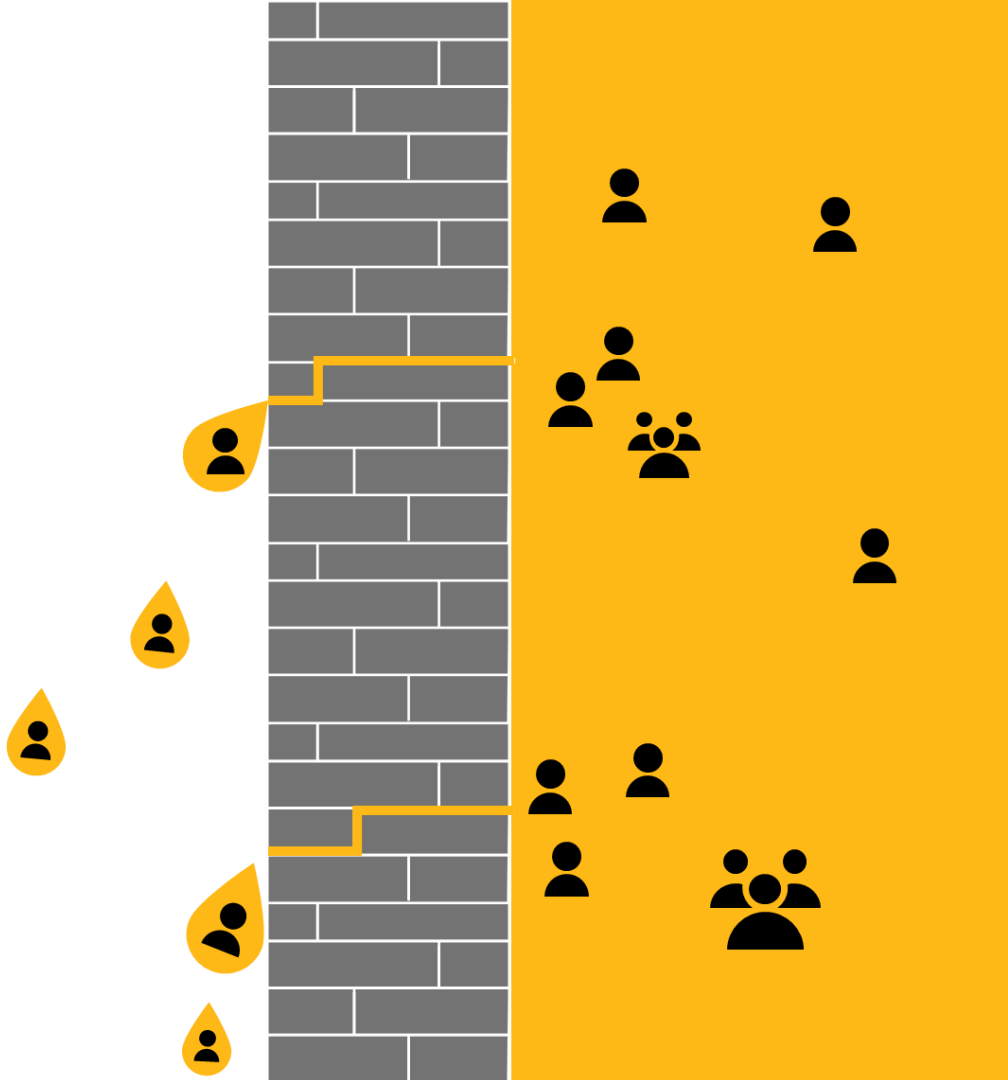
FOR EXAMPLE, WITH INSURANCE COVERAGE WORTH £5 MILLION ON A £250,000,000 POLICY, ONE WOULD EXPECT TO PAY £100,000. HOWEVER, USING CENTRY TO MITIGATE RISK AND IMPLEMENT MONITORING CAN DECREASE YOUR INSURANCE COSTS, AS IT REDUCES THE OVERALL RISK.

Attackers are like water

Attackers take path of least resistance to achieve objectives

- Established paths/methods
- Easiest new openings

Attackers only bother when they get good ***return on investment (ROI)***

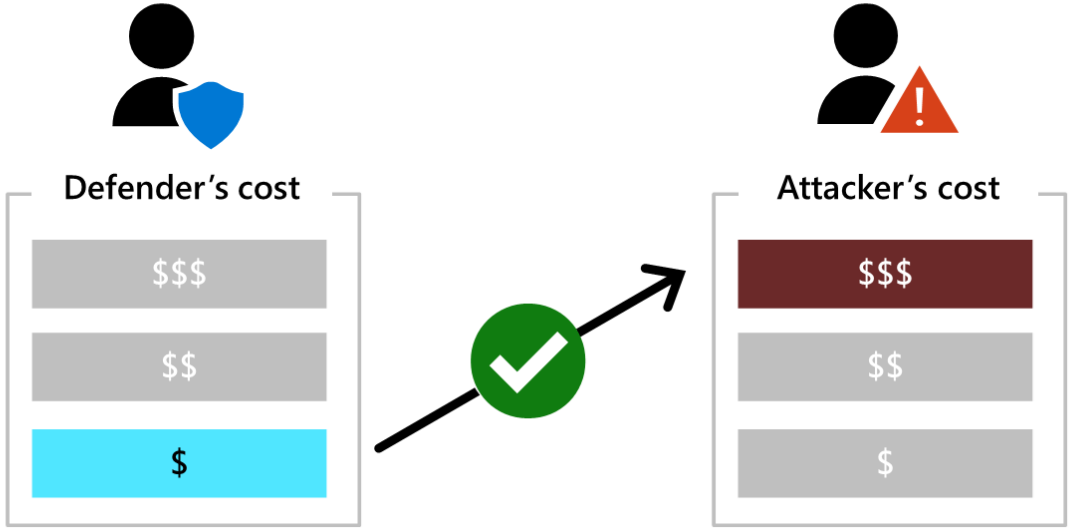


cfp energy

Security goal – Disrupt Attackers

Slow (or occasionally stop) attackers by disrupting return on investment (ROI)

Seek efficient means to disrupt attacks
Increase attacker costs with the least amount of resource investment



Evolving Threats
Consequences

These threats are constantly evolving and have potentially severe consequences such as:

1. Loss of production & revenue
2. Damage to assets & infrastructure
3. Leakage of sensitive commercial information & reputational damage
4. Regulatory non-compliance & fines
5. Health, safety and environmental (HSE) risk
6. Cyber security: Don't report on ESG without it

Typical Technical Gaps

With **VISIBILITY** into what devices and systems are on the network and how they communicate and operate, they can be easily and fully secured.

Renewables plants often include devices not designed for increased connectivity, so additional safeguards such as **NETWORK SEGMENTATION** should be considered.

Significant threat exposure from limited or no capabilities to **MONITOR ACCESS** to and from devices by authorised people and applications.

Lack of **AUTOMATION** to produce utilisation reports, lifetime patch status, recall and other essential capabilities.

Incomplete **SECURITY CONTROLS** to support inline, real-time prevention of cybersecurity threats without intrusive patching, downtime or service interruption.

Common People & Process Gaps

Accountability, ROLES AND RESPONSIBILITIES often need to be clarified.

GOVERNANCE is rarely well established, especially in identity access management (IAM), change management, and patch management, and does not often involve security.

There are often **GENERATIONAL SUCCESSION** issues coupled with staff that lack SECURITY EXPERTISE (limited pool).

Industrial device manufacturers' **PRODUCT DEVELOPMENT** processes often do not address or incorporate cybersecurity qualities or values.

Response plans do not ADDRESS CYBER EVENTS; the focus is on maintenance and repair operations (MRO), but security is not directly addressed.

The cybersecurity posture management portal

cyber energia

Cyber Energia, focused on OT Cybersecurity, guides Renewable Energy sectors to align with NIS 2 Directive standards. We specialise in creating incident response plans, performing risk assessments, and installing key security measures and solutions to ensure effective OT security.

WHAT WE DO

As shown previously, the NIS 2 sets out a number of cybersecurity requirements to the entities in scope.

The examples of our work demonstrate just a few examples of how we help and Fast-Tracking Your Progress

0207 3483510

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James Robottom

Head of Policy

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scottish renewables

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Chief Executive

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Dr Alasdair Allan MSP

Acting Minister for Climate Action

Claire Mack

Chief Executive, Scottish Renewables

Dr Alasdair Allan MSP

Acting Minister for Climate Action

5A: Meeting the demand – building the skilled workforce we need to deliver onshore wind and a just transition

Chaired by Morag Watson, Director of Onshore, Scottish Renewables

#ONSHOREWIND24

Adam Mackie

Head of Onshore Renewable Electricity

Scottish Government

#ONSHOREWIND24

Mapping the current and future workforce and skills requirements in Scotland's onshore wind industry

climate change

Scotland's centre of expertise connecting climate change research and policy

Adam Mackie

Head of Onshore Renewable Electricity

September 2024

Scottish Government
Riaghaltas na h-Alba
gov.scot

Onshore Wind Sector Deal commitment

Collaborative action in 'supply chain, skills and the circular economy' theme :

'established a working group and published a paper identifying the range of skills needed by industry to deliver our 2030 target. This paper will include a timeline indicating the number of jobs and roles required year on year to fulfil our 2030 ambitions. The purpose of this paper will be to provide the skills analysis from which the enhancement of the current skills and training provisions for further and higher education can be developed.'

Mapping the current and future workforce and skills requirements in Scotland's onshore wind industry (climatexchange.org.uk)

Key Recommendations

The report makes a number of recommendations to address the skills gap. Some key actions were:

- Addressing skills shortages requires a comprehensive approach, with collaboration between stakeholders (public, private and education sectors) will be crucial.

- Undertaking an awareness raising programme of career opportunities within the sector, the transferrable nature of the skills developed and that this is a sector that is a key contributor to achieving net zero, and will be active for a long time (potentially a whole life career).

- Targeted campaigns in rural areas where the majority of the new installations will take place, to demonstrate well-paid, highly skilled jobs for local people. This could also help address population decline, due to younger people moving to more populated parts of the country.

Next Steps

- We have now commissioned a second piece of research:

'Training provision assessment and opportunities for enhancement in Scotland's onshore wind and solar industries.'

- Aim is to provide recommendations on the opportunities for enhancing the current skills and training provision with a view to facilitating the supply of skills workforce that the two sectors will need.
- Due for completion this Autumn.

Jolanta Beinarovič
Strategy Consultant
Optimat

#ONSHOREWIND24

Mapping the current and future workforce and skills requirements in Scotland's onshore wind industry

Jolanta Beinarovičа, PhD
Consultant
4 September 2024

optimat

The purpose of this study

Deliver a commitment in the Scottish Onshore Wind Sector Deal (SOWSD):

Understand the jobs and skills requirements

Provide analysis to support the enhancement of current skills and training provisions

Workforce modeling methodology

Input

BVGA projection of onshore wind farm developments in Scotland to 2030 by:
- local authority
- MW installed capacity
- project stage

ITPEnergised workforce model of a simulated 90 MW wind farm across different project stages:
- job roles
- FTEs
- experience

Calculation

MW per project stage

X

FTE per MW

=

Output

FTEs per:
- project stage
- job role
- local authority
- year (to 2030)

Validated by stakeholders & Ramboll analysis of LCREE data

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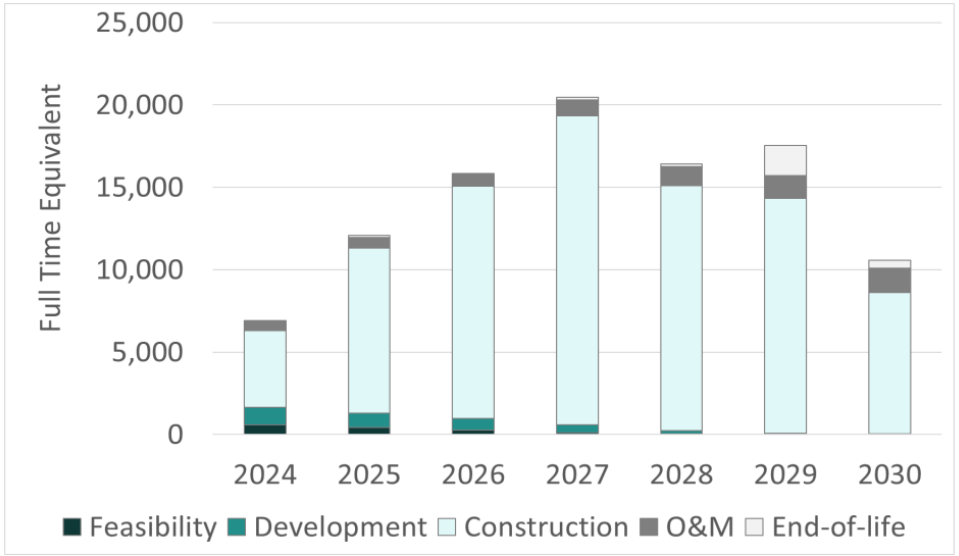
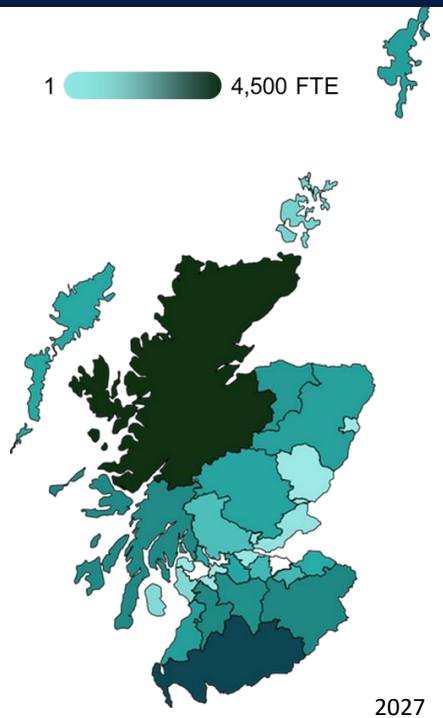
Total workforce requirements





2027

Heat map of projected job roles and FTE

Job roles	2024	2025	2026	2027	2028	2029	2030
Civils contractor							
Grid connection installation							
Crane/lifting contractor							
Transport operative							
Electrical balance of plant contractor							
Wind turbine technician							
Back-office support							
Environmental consultant							
Distribution network operator extra high voltage commissioning engineer							
Health & safety officer							
Turbine supply / original equipment manufacturer project delivery team							
Project manager							
Civil engineer							
Electrical engineer							
Logistics manager							
Financial analyst							
Planning officers							
Consultant - grid connection							
Asset Manager							
Distribution network operator case worker							
High voltage technician							
IT manager							
Consultant - energy yield and WindPro							
Consultant – site design and modelling							
Electrician							

- Across Scotland, FTE for electricity grid connection specialists will need to increase to 4,500 in 2027 (↑400%).
- The number of wind turbine technician FTE will need to increase to almost 1,200 in 2030 (↑ 258%).
- ~100 FTE planners and 434 FTE environmental consultants are estimated to be required across Scotland each year to enable wind farm developments between 2024 and 2030.
- Not addressing skill shortages is likely to have a severe impact on the 2030 ambition.
- Ongoing research is assessing current training provision.

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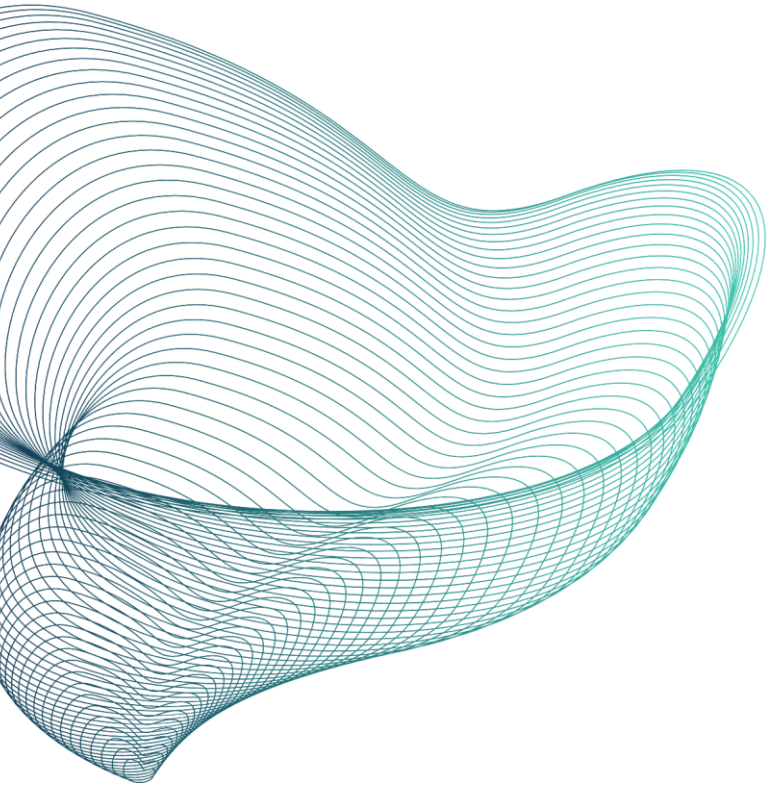

Thank You

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6A: Money makes the blades go round

Chaired by Andrew MacNish Porter,
Head of Economics & Markets, Scottish Renewables

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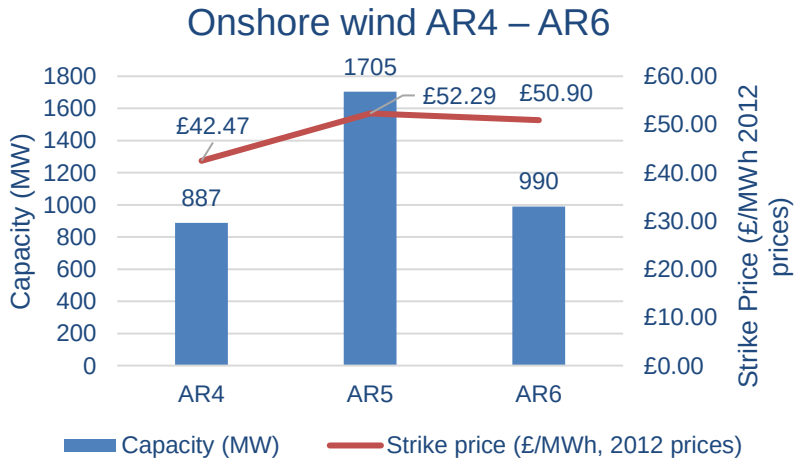
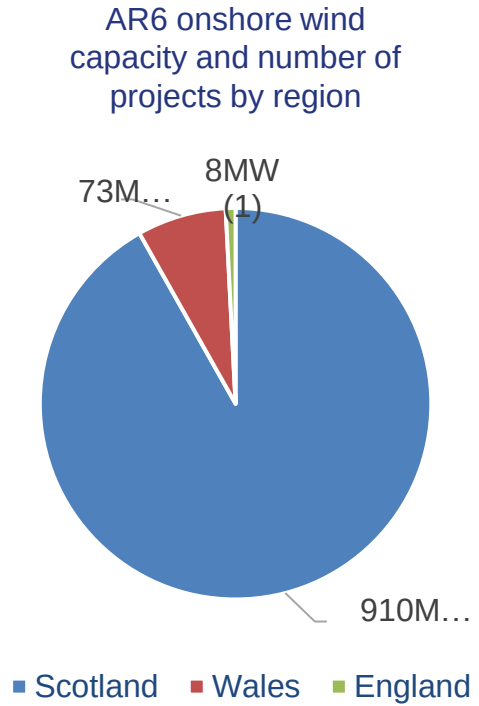
CfD ALLOCATION ROUND 6 RESULTS: ONSHORE WIND

- CfD AR6 delivered 990MW of onshore wind at a strike price of £50.90/MWh (2012 prices)





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Simon Gill

Energy Systems Consultant

The Energy Landscape

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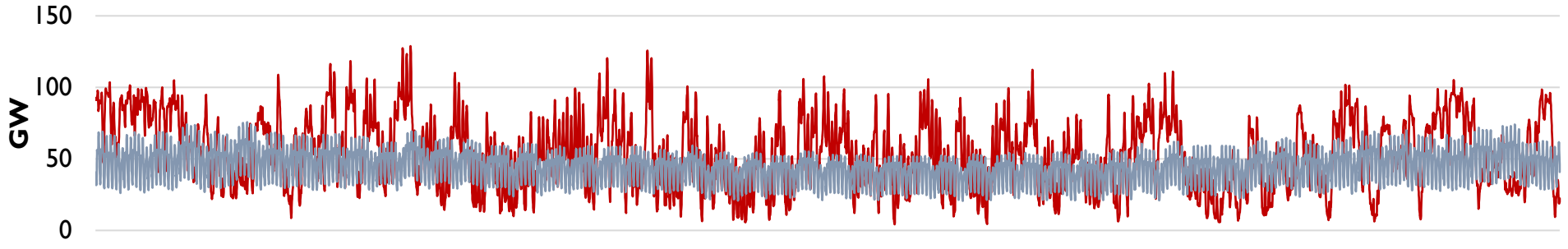
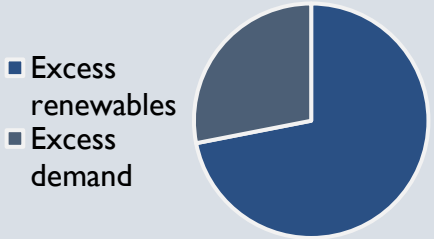
What is the role for wind farms in a net zero system?



Four numbers to describe 2035 based on the ESO's 2024 'Holistic Transformation' pathway

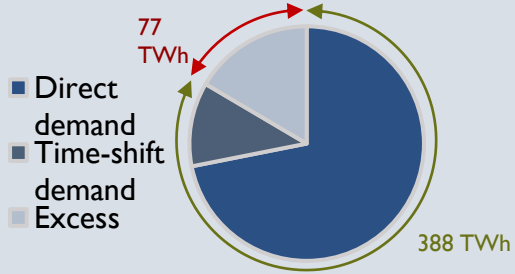
60%

Fraction of the year when renewable generation could outstrip demand



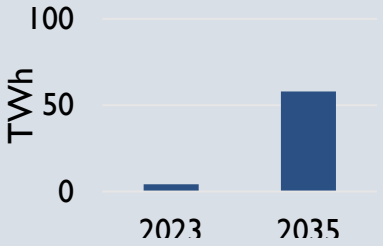
77 TWh

Annual renewable generation available *beyond GB consumption of electricity*



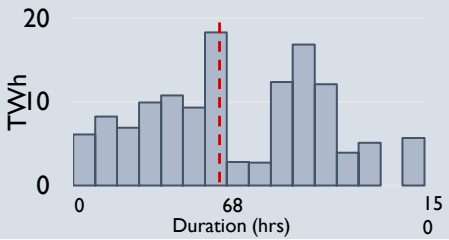
58 TWh

ESO's calculation of curtailment, compared with 4.3 TWh in 2023



68 hours

Duration of curtailment events where 50% of curtailed energy is in longer events and 50% in shorter



*Generation capacities, peak and annual electricity demand and estimated 2035 curtailment volumes taken direction from the ESO FES 2024 'Holistic Transformation' pathway. 2023 curtailment outturn from Drax Electric Insights

*Time serries and curtailment-duration analysis by TEL.

TEL the energy landscape

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6B: Co-existence – how aviation and wind should and can work together

Chaired by Heidi Douglas-Osborn, Senior Policy Analyst, RenewableUK

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Heidi Douglas-Osborn
Senior Policy Analyst, RenewableUK

Andy Wells
Policy Lead, Civil Aviation Authority

Joe Penrose
Head of Onshore Wind, Department for Energy Security and Net Zero

Sam Johnson
Senior Aviation Manager, RES

Andy Knill
Director, Extensity Consulting

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7A: No consent, no project – designing a planning system that doubles onshore wind by 2030

Chaired by Keith Grant, Partner, ERM

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Chris Mackie

Deputy Director for Onshore Electricity Policy and Energy Consenting
Scottish Government

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Jo Wotton

Associate Director

Environmental Planning

LUC

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Scottish Renewables: Onshore Wind Conference

4th September 2024

Onshore Wind Sector Deal: EIA Task and Finish Group Update

Prepared by LUC
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Onshore Wind Sector Deal for Scotland and Planning Objective

"The onshore wind sector deal sets out commitments from the Scottish Government and the onshore wind industry to deliver upon our collective ambition of 20 GW of onshore wind in Scotland by 2030 whilst delivering maximum benefit to Scotland."

Planning Objective:

"We will reduce the time it takes to determine Section 36 applications for onshore wind projects by increasing skills and resources and by ***streamlining approaches to scoping Environmental Impact Assessment Reports (EIARs) by using template formats and associated guidance****."*

OWSD EIA TFG Members

Consultees:

- SEPA
- HES
- NatureScot

Developers:

- SPR
- RES

Legal experts:

- Marcus Trinick, KC
- Eversheds

Consultants and EIA Practitioners:

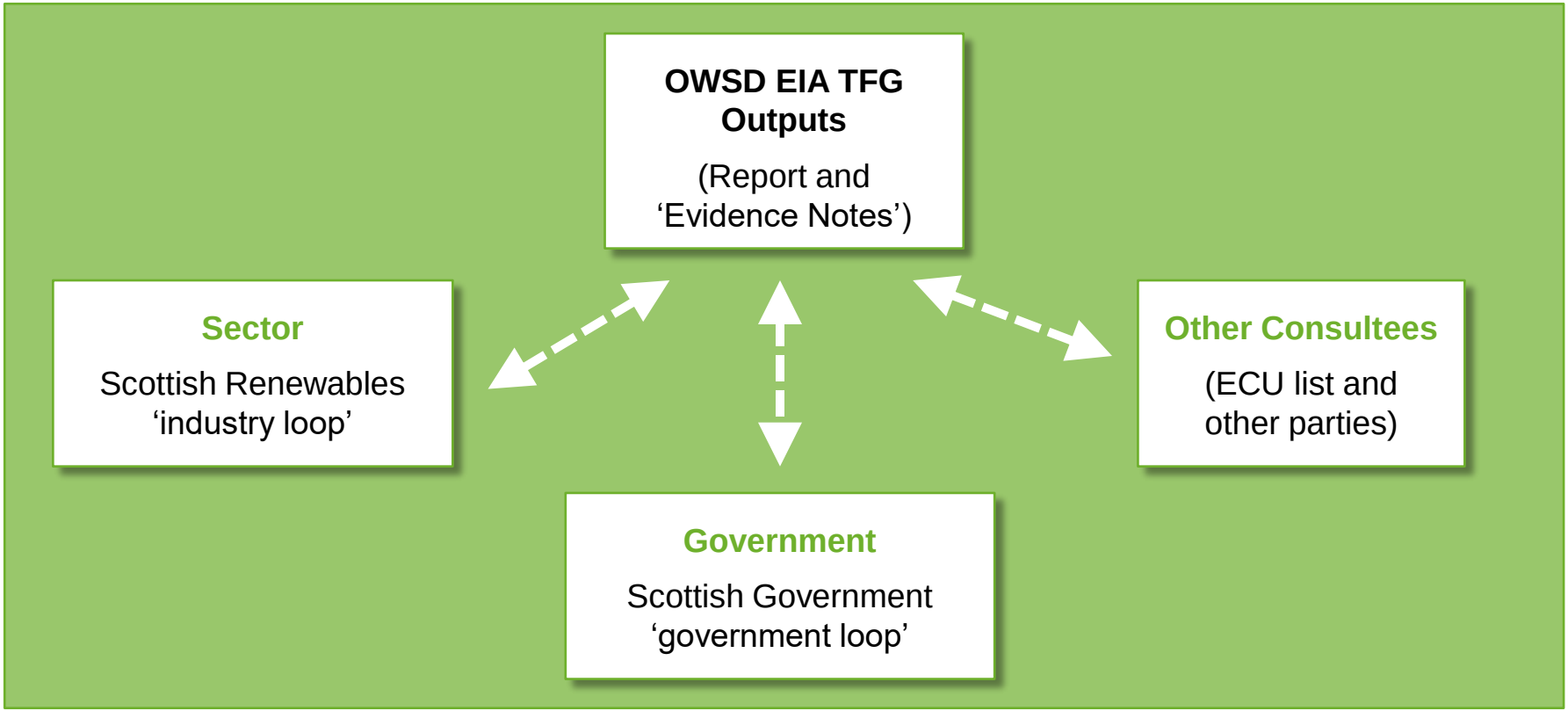
- LUC
- Ramboll
- RSK
- Savills

OWSD EIA TFG Expert Focus Groups

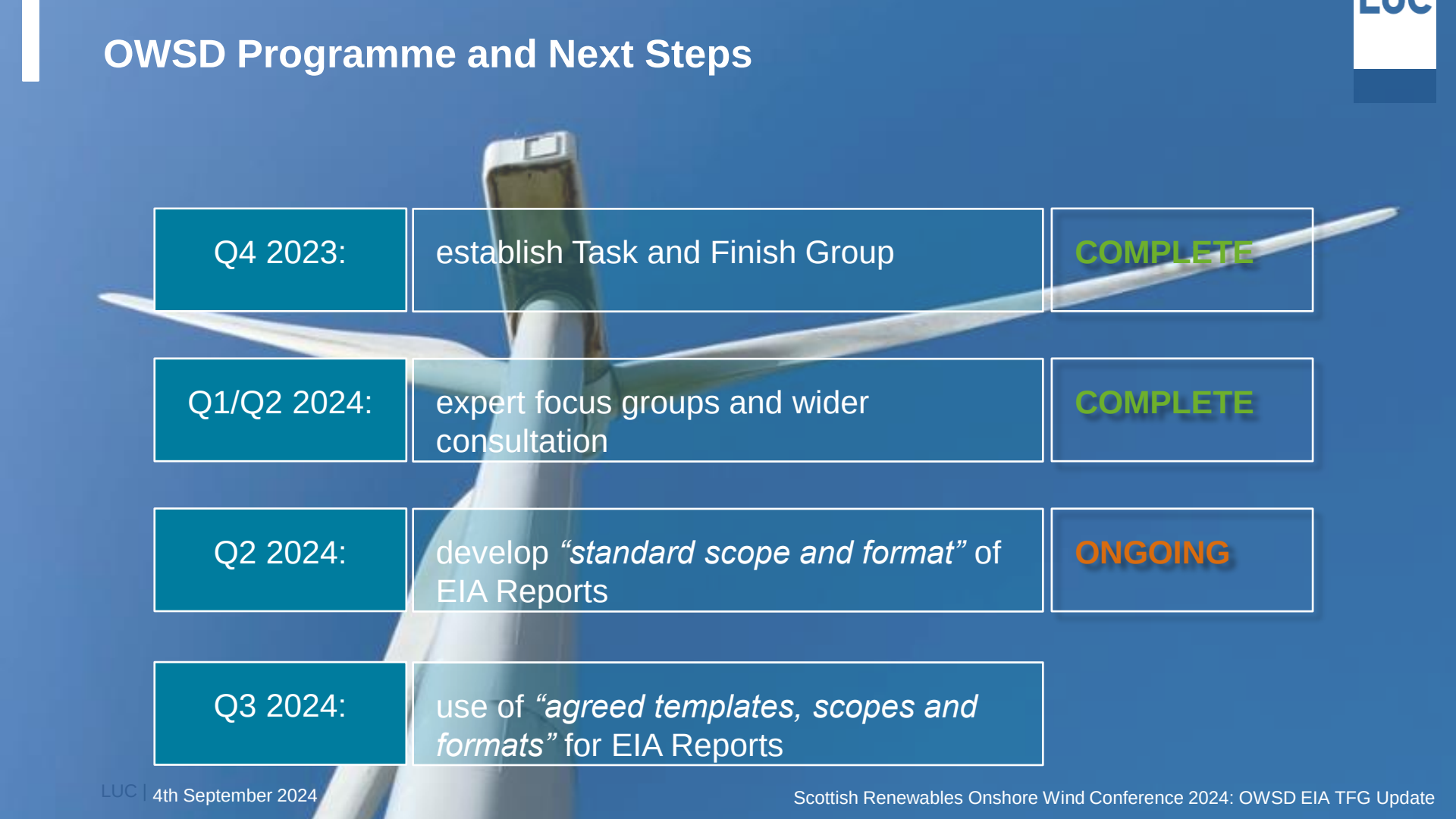
Focus groups:

- **LVIA**
- **Historic Environment**
- **Ecology and Ornithology**
- **Hydrology and Peat**
- **Noise**
- **Traffic and Transport**
- **Planning and EIA Report Presentation / Format etc.**

Task and Finish Group Outputs:
Consultation Process



OWSD Programme and Next Steps



Q4 2023:	establish Task and Finish Group	COMPLETE
Q1/Q2 2024:	expert focus groups and wider consultation	COMPLETE
Q2 2024:	develop *"standard scope and format"* of EIA Reports	ONGOING
Q3 2024:	use of *"agreed templates, scopes and formats"* for EIA Reports	

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ScottishPower Renewables

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Head of Onshore Wind & Consenting

Scottish Renewables

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