



ONSHORE WIND **CONFERENCE 2022** 7 SEPTEMBER 2022 GLASGOW



Claire Mack Chief Executive Scottish Renewables

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Màiri McAllan MSP Minister for Environment and Land Reform The Scottish Government A1 - Onshore wind - daring to be a force of nature

Chaired by: Claire Mack Chief Executive, Scottish Renewables slido.com #ONSHORE22 Stream A

Claire Mack Chief Executive, Scottish Renewables

Amy Keast Onshore Wind Policy Manager, The Scottish Government

Kate Turner

Director of Policy and Regulation, ScottishPower Renewables

Jim Brown Director, Energy Skills Partnership

Derek Hastings Head of Onshore Projects, SSE Renewables





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A2 - Onshore wind's route to market

Morag Watson Director of Policy Scottish Renewables

Neil Marshall Advisory Lead - Onshore Wind Natural Power

Working towards a future powered by renewable energy



Onshore wind route to market - PPAs

Neil Marshall, Advisory Lead – Onshore Wind Date: 07.09.2022



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INDEPENDENT SERVICES FOR RENEWABLE ENERGY PROJECTS

Planning & environment

- Environmental Impact Assessments
- Collision modeling
- Smart bat curtailment
- Development consulting
- Environmental and social governance monitoring

Construction

- Design optimization
- Pre-construction advisory
- Owner's engineer / Independent engineer
- Advisory during negotiation, tendering
- Geotechnical consulting

Technical due diligence

- Technical advisory in acquisition or sale of projects, portfolios, platforms
- Project finance (Lender's technical advisor)
- Corporate PPA advisory



Energy yield analysis

- Pre- and post- construction energy yield analysis
- Data management for met mast and lidar campaigns
- Monthly operational reporting

Operations

- Technical and commercial asset management, including ControlCentre
- Full servicing
- High tension switching
- Yaw alignment
- Predictive maintenance

Inspections

- Take-over
- Health checks
- End-of-warranty (full scope)
- Blade (Cornis, or with drones)



GLOBAL REACH, LOCAL EXPERTISE





Natural Power Advisory -PPA experience

o All common PPA types

- Fixed volume
- Virtual
- Pay as produced
- Network Rail PPA support

Several TWh of Nordic PPAs





The 'Nordic model'

- Op to 70% of P50 to be delivered according to production profile
- o Relatively low fixed prices
- o Shortfalls bought at spot price,
 - hourly settlement...



■ P50 ■ Hedge

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec





Lessons learned for UK?

- Fixed volume / baseload still popular with offtakers
- o Time series yield modelling
 - Time varying losses
 - Stochastic availability
- More representative modelling of real wind farm operation







Working towards a future powered by renewable energy

Thank you

natural power

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Suzanne Clifton Onshore Wind Principal Development Manager EDF Renewables



Onshore Wind'sRoute to Market

Suzanne Clifton

Principal Business Development Manager





At EDF Renewables UK and Ireland our goal is to combat climate change - we're passionate about creating a net zero future where clean energy powers our lives.

- 34 operational onshore windfarms made up of 368 turbines
- 1.2GW of projects in Scotland in planning and development with plans for further growth
- A target of 500MW of onshore wind in Wales by 2030
- EDF has multiple technologies with offshore, solar and battery storage projects operational alongside our onshore wind sites



My focus is bringing projects through from consent to financial investment decision

Planned		Consented		Investment Decision				on	In Construction				
								-					
Project Name	Region	Applicant	Technology Type	Size (MW)	Strike Price (£/MWh)	Delivery Year	No. of Phases	Pot					
Redcar Holdings Limited	England	REDCAR HOLDINGS	Energy from Waste (with CHP)	30.00	45.99	2024/25	1	1					
Cumberhead West	Scotland	CUMBERHEAD WEST WIND FARM I TD	Onshore Wind (>5MW)	119.70	42.47	2024/25	1	1					
Arecleoch Wind Farm Extension	Scotland	SCOTTISHPOWER RENEWABLES (UK) LIMITED	Onshore Wind (>5MW)	74.10	42.47	2024/25	1	1					
Kilgallioch windfarm	Scotland	SCOTTISHPOWER RENEWABLES (UK)	Onshore Wind	51.30	42.47	2024/25	1	1		Stranoch Wind Farm ~100MW CfD			
		LIMITED	(court)										
Stranoch Wind Farm	Scotland	LIMITED	(>5MW)	99.96	42.47	2024/25	1	1					
North Kyle Energy Project	Scouanu		Onchore Wind	212.00	42.47	2024/20							
Hagshaw Hill Repowering	Scotland	HAGSHAW HILL REPOWERING LTD	Onshore Wind (>5MW)	79.80	42.47	2024/25	1	1					
Broken Cross Wind Farm	Scotland	BROKEN CROSS WIND FARM LIMITED	Onshore Wind (>5MW)	48.00	42.47	2024/25	1	1					
Douglas West Extension	Scotland	DOUGLAS WEST EXTENSION LTD	Onshore Wind (>5MW)	71.50	42.47	2024/25	1	1					
High Constellation Wind Farm	Scotland	HIGH CONSTELLATION WINDFARM LIMITED	Onshore Wind (>5MW)	50.00	42.47	2024/25	1	1					
Chirmorie Wind Farm	Scotland	CHIRMORIE WIND FARM LIMITED	Onshore Wind (>5MW)	81.60	42.47	2024/25	1	1					
Litchardon Solar Farm	England	ND SOLAR ENTERPRISES LTD	Solar PV (>5MW)	49.90	45.99	2024/25	1	1					
Bishampton Solar PV	England	AURA POWER SOLAR UK 6 LTD	Solar PV (>5MW)	30.00	45.99	2024/25	1	1					
Rag Lane Solar	England	RAG LANE SOLAR LIMITED	Solar PV (>5MW)	42.00	45.99	2024/25	1	1					
Corner Copse	England	JBM SOLAR PROJECTS 1 LTD	Solar PV (>5MW)	49.90	45.99	2024/25	1	1					



Reducing the CfD to a single pot risks increasing complexity reducing investment certainty



If AR5 were to include an additional third delivery year, this could unlock significant additional capacity



edf

Connection Year (Apr-Mar)	Total MW	AR 4 Delivery Years	AR 5 Expected Delivery Years
22/23	326		
23/24	494	х	
24/25	2,073	x	х
25/26	2,110		х
26/27	4,398		?
27/28	2,255		
28/29	1,527		
29/30	1,234		

Construction timelines are tight for AR4 and are likely to be significantly tighter if delivery years remain as expected



The CfD is a mechanism for the future and will need to adapt, but at a steady pace to continue delivery renewable capacity



The CfD should provide a signal that there will always be a route to market available to a competitive project. This allows flexibility in decision making for developers allowing innovative options to be pursued with the safeguard of the CfD's certainty in reserve

The CfD can't remain static and must adapt as the energy market changes. However we must be aware of the delicate balance between too much regulatory change and bringing enough investment forward to meet Net Zero

Tim Foster Head of Energy Services Conrad Energy



Onshore Wind's Route to Market

- We are the UK's largest flexible power producer with over 700MW of generation & storage assets across 50 plants and a development pipeline of 1GW+ portfolio made up of flexgen, storage, solar and hydrogen projects which will be delivered by 2025
- We develop, construct, own, operate and maintain generation & storage assets, employing over 150 people
- We have an in-house trading desk which trades & optimises our own assets and those of third parties
- We are a licenced electricity supplier and provide Power Purchase Agreements
- The business also provides behind the meter and private wire solutions to businesses



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Power Purchase Agreements - Setting the Scene

- Power Purchase Agreements always require two
 willing participants:
 - a Seller
 - a Buyer
- Both have actual (or aspirational) requirements around volume, price and term with historic PPAs stuck in a period of relative market calm
- Fundamental change in energy markets:
 - What now sets the price fundamentals, geopolitics, government, sentiment, etc...
 - Fewer energy market participants and lower liquidity
 - Corporate energy buyers in all shapes and sizes
 - CfDs
 - Cost of living





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Richard Koiak Head of Development Onshore Wind Renewco Power Ltd



Onshore Wind Conference: Working together to save money

September 2022



About Renewco



Developing utility-scale solar, wind and battery projects across Europe and the USA. Targeting a 5 GW development portfolio by 2025 Led by a highly experienced and entrepreneurial group of renewables executives. Backed by Corran Capital with cornerstone funding from SSE. Edinburgh based with a presence in the EU and USA.

Our aim is to maximise the renewable potential deliverable in a coordinated manner

Hunting for Unicorns



Image: Houston Business Journal

Learning to share



My precious

Keep it simple

WHY DO YOU ALWAYS COMPLICATE THINGS?!

0

0



Working together

MAKING \

ORK
Richard Koiak Head of Development Onshore Wind

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slido.com #ONSHORE22 Stream A

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Tim Foster Head of Energy Services, Conrad Energy

Richard Koiak

Head of Development Onshore Wind, Renewco Power Ltd





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B2 - Grid-locked: untangling the issues of grid

Chaired by: James Robottom, Head of Onshore Wind, RenewableUK



James Robottom

Head of Onshore Wind, RenewableUK

Michael Dodd

Director, Market Area Manager, UK & Ireland, DNV

Nicola Crawford-Percival

Head of Regulatory Affairs UK & Ireland, RWE Renewables

Susana Neves e Brooks

Customer Connections Senior Manager, National Grid ESO

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Thomas McCormack

System Planning & Investment Manager, SSEN Transmission





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Fred. Olsen Renewables

A3 - Growing up onshore wind as a maturing industry

Fred. Olsen Renewables

Dan McGrail Chief Executive RenewableUK

K Fred. Olsen Renewables

TJ Hunter Senior Director, Development & Operations UK & Ireland Ørsted

SR / RUK Onshore Wind Conference

Growing Up - onshore wind as a maturing inducry



September 7th, 2022

Our vision Let's create a world that runs entirely on green energy

Great Britain



Global

£10.4bn

Revenue in 2021



installed renewable capacity globally

6,800+

global employees

30+

years experience

#1

World's most sustainable energy company

Transforming the way we power the world



Located on the Gulf Coast this landmark project will power the new Maersk shipping fleet with emethanol



Our 2030 goal is to be the world's leading green energy major







Growing Up - onshore wind as a maturing industry

Life Time Extension : When and What are the Decision Drivers? When should you open the discussion?

What are the components of that discussion?



Route to Market Environment



Existing Consents and Consenting Environment

- Community Relationships
 - Asset Condition survey, Residual Life and Disposal



- Existing technology and O+M support options
- f

Model it. Regularly!



Growing Up - onshore wind as a maturing industry

Project Oversight

- COD in 1997
- Currently 9no 550kV Turbines
- Part of a younger operational cluster
- Merchant Revenue
- Obsolete Technology
- Third Party O+M Provider
- RePower Strategy in Parallel turbine consent secured

Maximising the Investment ...





In Availability



	Gearbox	Clutch	Generator	Blades	Blade bearings	Transformer	Nacelle	Pitch Linkage
T1								
T2								
T3								
T4								
T5								
T10								
T12								
T15								
T16								

Our vision Let's create a world that runs entirely on green energy





Fred. Olsen Renewables

Finley Becks-Phelps UK Development Director Fred. Olsen Renewables

K Fred. Olsen Renewables

Dr Rebecca Windemer Senior Lecturer in Environmental Planning UWE University

Dr Rebecca Windemer Senior lecturer in environmental planning I University of the West of England



University of the West of England

Repowering and life-extension experiences so far



UWE

Bristol West of England

University of the



Repowering and life-extension: challenges for local planning authorities

'I was right up to the wire on it in sort of making my mind up'

'Making the right decision is the biggest challenge'

'I felt that we were left in a bit of a policy vacuum'



Experiences of local communities

- In many cases opinions of the wind farm not changing over time
- Not all community experiences have been positive
- Differences in response to repowering and life-extension applications
- Significance of community developer relations and meaningful community benefits
- Importance of how communities are approached during repowering
- Preference for repowered scheme when built





Potential opportunities for new forms of community benefit

- > Not all communities value a community benefit fund
- Calls from the community energy sector for co-ownership of wind farms during repowering
- Opportunities, but also significant challenges



UWE Bristol

Key recommendations

For Industry

- Importance of ensuring good relations with the community over the life of an existing scheme.
- Involve communities from the very start of the life-extension / repowering process.
- Consider different forms of community benefit.



For policy

- Update local authority planners on the end-of-life options.
- Clear guidance for local planning authorities.
- Streamlined clear assessment process for repowering and lifeextension.

Thank you Any questions?

Dr Rebecca Windemer

Senior lecturer in environmental planning , UWE Email: <u>rebecca.windemer@uwe.ac.uk</u> Tweet: @RebeccaWindemer



K Fred. Olsen Renewables

Julian Martin Managing Director ENERCON Services UK Ltd and Vice Chair, SafetyOn



SafetyOn

Onshore Wind Health and Safety Organisation

How the industry maintains high-levels of health and safety standards and the work done so far

Julian Martin, ENERCON Services UK Ltd Managing Director Vice Chair of SafetyOn

www.safetyon.com



Julian.martin@enercon.de



Onshore Wind Health and Safety Organisation

- Providing leadership in health and safety
- Driving a consistent approach through collaboration
- Risk mitigation through co-operation and shared learnings
- A single industry voice on health and safety matters
- Approach welcomed by the Health & Safety Executive
- Facilitated through the Energy Institute
- Work Program steered by the Board through Technical Advisory Committee (TAC)



SafetyOn Work Programme





"Thousands are employed in the UK's onshore wind industry and SafetyOn is playing a part in making sure they all go home safe"

SafetyOn Publications



All SafetyOn publications are available for free download on our website https://safetyon.com/



Good Practice Guidelines





Incident Data Reports

SafetyOn Active Workstreams













*In collaboration with G+ Global offshore wind health and safety organisation

Wind Farm Life Extension

- Safety and integrity issues relating to life extension of wind farm plant and specifically new risks that emerge must be managed
- IEC 61400-28 TS "Through Life Management & Life Extension of Wind Farms"
 - Structural Safety Primary Load Path
- Must also consider technician safety
- Bring together owners and operators of ageing wind turbines in the UK and Ireland
- Share experience and improve knowledge of 'good practice' management of safety and integrity concerns to improve the safety of the industry as a whole
- Driving a consistent approach through collaboration



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B3 - Working with communities: engagement, benefit and ownership

Chaired by: Marjorie Neasham Glasgow Chief Executive Officer, Ridge Clean Energy



slido.com #ONSHORE22 Stream B Marjorie Neasham Glasgow Chief Executive Officer, Ridge Clean Energy

Callum Whiteford Head of Communications UK&I, RES

Holly Backhurst ESG Manager, Ventient Energy

Mark Brennan

Shared Ownership Manager, Local Energy Scotland

David Hannon

Strategic Project Director, Orkney Islands Council





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A4 - Planning in changing times: juggling the hot potato





Emma Paton Senior Associate Shepherd and Wedderburn





Ruth Findlay Head of Energy Consents Unit The Scottish Government

Onshore Wind Conference 2022

Ruth Findlay Head of Energy Consents Unit The Scottish Government









The Scottish Government - Energy Consents Unit





Ruth Findlay, Head of Energy Consents Unit Email: ruth.findlay2@gov.scot Mobile: 07827 990480

Thank you

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Eleri Davies Head of Onshore Development: Wales & England RWE Renewables





Lisa Russell Planning Director Stephenson Halliday



PLANNING IN CHANGING TIMES ...

Are we nearly there yet?

WHY ARE WE DOING THIS AGAIN?

- Environmental Impact Assessment is how we 'look before we leap'
- Planning is how we ensure that people have a say in what happens to the places where they live, work, play and care about.

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BUT DOES IT NEED TO TAKE SO LONG?

EIA:

- People want to see that what they care about and important environmental concerns have been considered whether effects are significant or not.
- Unforeseen consequences of developments are best avoided.

But:

• Has become disproportionate and process / fear of litigation driven.

BUT DOES IT NEED TO TAKE SO LONG?

Planning:

- Is a well-designed process for managing change.
- Consultation is an important element of any process of change that affects people.
- People need time to be able to pay attention, consider and respond.

But:

- Under-resourced consultees and planning authorities struggle to respond in good time.
- Many involved feel they are not listened to.

IS THERE A BETTER WAY TO GET THERE?

• Under-resourcing is really hard to address...

... so perhaps we need to find a way to reduce the work.

• Bad habits are really hard to change ...

... so perhaps we need something that takes us out of that old routine.

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MAYBE THE LURB WILL HELP?

Levelling Up and Regeneration Bill – a few key points:

- EIA to be replaced by Environmental Outcome Reports
 - not intended to be like for like
 - environmental outcomes set by Secretary of State
- Nothing to be imposed on devolved governments without consulting them
- Design codes to be part of local plans:

"for every part of their area, the development plan includes requirements with respect to design that relate to development, or development of a particular description, which the authority consider should be met."





Jenny Hazzard Head of Environmental Planning ITPEnergised

Emma Paton



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