



scottish
renewables

COP26 CONFERENCE

SCOTLAND'S ROLE IN RAISING GLOBAL AMBITION

25 FEBRUARY 2021 **ONLINE**

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1000

New technologies – generating the solutions to solve global problems

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Claire Mack
Chief Executive
Scottish Renewables

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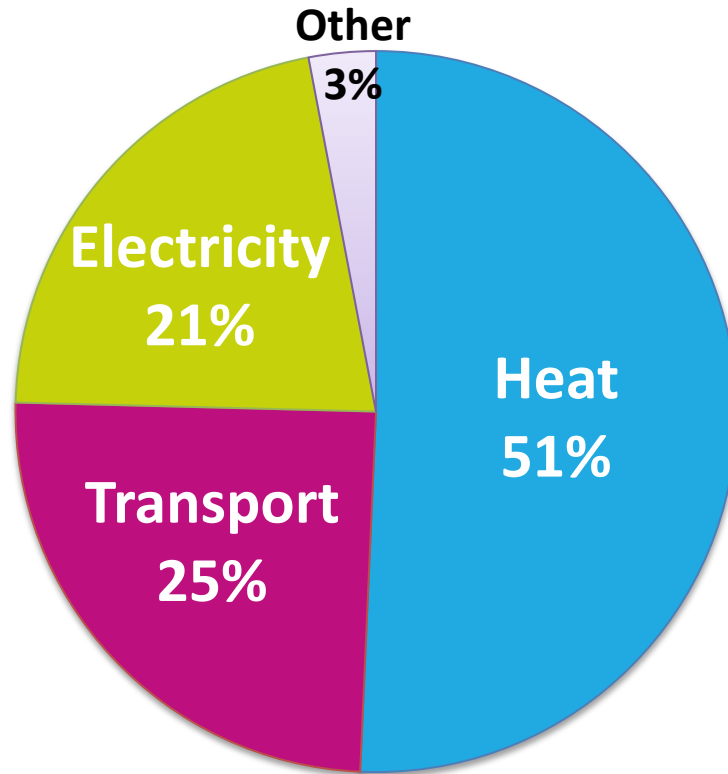


<https://www.scottishrenewables.com/events/96-year-of-cop>

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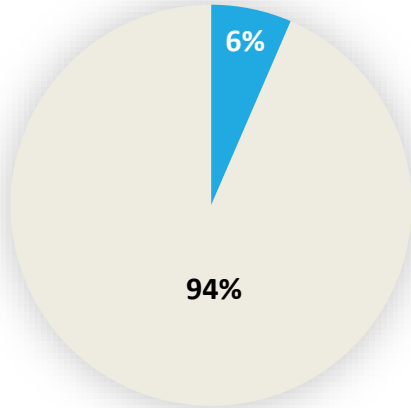
Morag Watson
Director of Policy
Scottish Renewables

Scotland's energy use



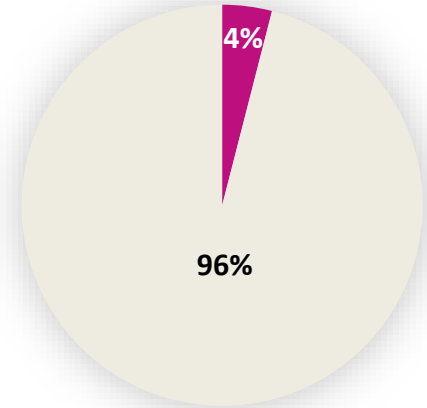
How are we doing?

Heat



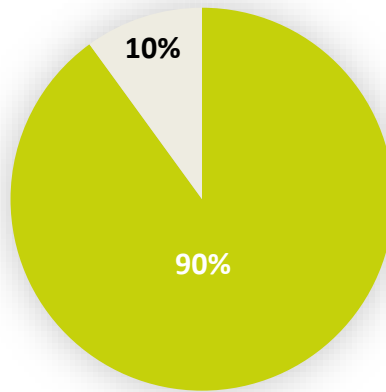
■ Low carbon ■ High carbon

Transport



■ Low carbon ■ High carbon

Electricity



■ Low carbon ■ High carbon

Area	Installed capacity (GW)		
	UK (Scotland) in 2020		Balanced Net Zero pathway (2050)
Offshore wind	10.4	(0.9)	95
Onshore wind	13.7	(8.3)	30
Solar PV	13.0	(0.37)	85

Scottish Hydrogen Assessment

“In the most ambitious scenario, establishing Scotland as an exporter of green energy to Europe could result in a £25 bn contribution to Gross Value Added (GVA) with over 300,000 jobs by 2045. This would be achieved by unlocking Scotland’s vast offshore wind potential...”



Jim Smith

Managing Director, SSE Renewables

Lorna Bennet

Project Engineer, ORE Catapult

Meinolf Otto

Global Business Development Specialist (FDI),
Scottish Development International

Matthew Black

Business Development Manager, Kensa Contracting



Q & A



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People – the heart of the energy transition

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Andrea Glass

**Head of Regional Skills Planning
and Enabling Sectors**

Skills Development Scotland



Clare Foster

Partner and Head of Clean Energy
Shepherd and Wedderburn

25 February 2021

Opportunities presented by Energy Transition

Clare Foster, Partner and Head of Clean Energy

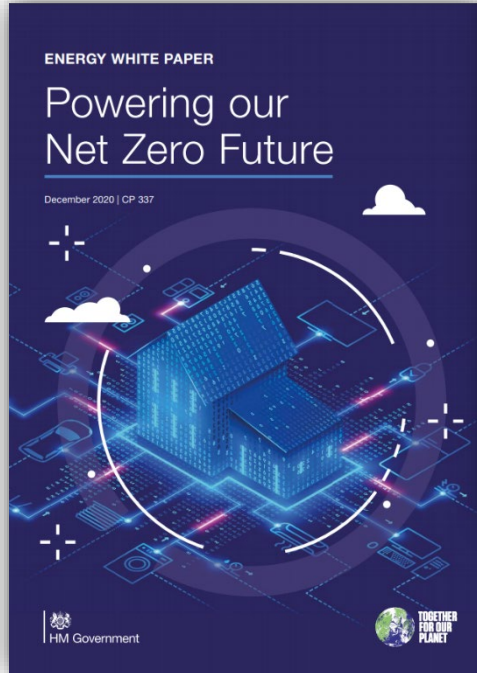


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Commitment to a Green Recovery

- Context:
 - Net zero (2045 for Scotland and 2050 for the UK)
 - Now viewed through the lens of COVID 19
 - Clear Commitment from Westminster and Holyrood to **green recovery**
 - Not just the clean energy sector which needs to rise to the challenge
 - All sectors, all citizens = enormous opportunity
-

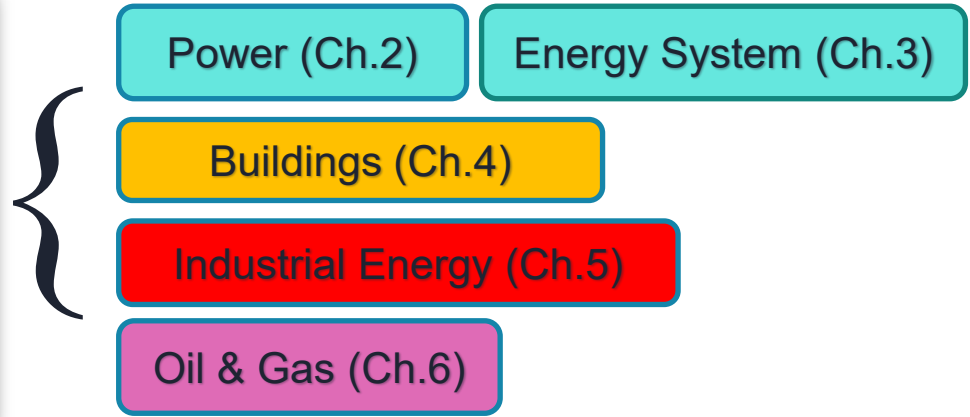
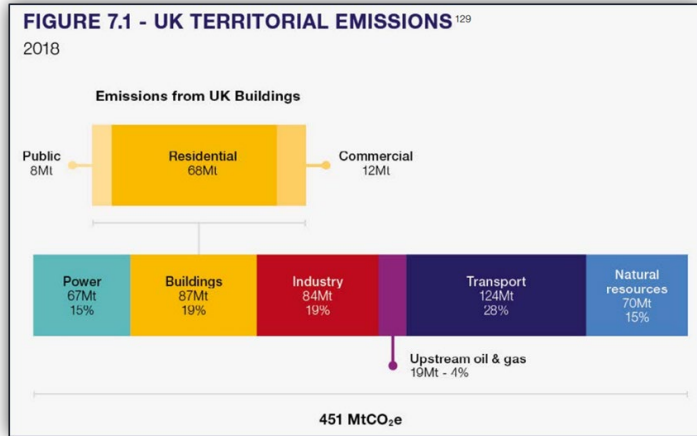
BEIS White Paper and other initiatives



Timing	Topic
Accompanying	Consultation on Bringing Forward Coal Closure Date
Accompanying	Electricity System Analysis
Accompanying	Response to Consultation on RAB Model for New Nuclear
Accompanying	Call for Evidence on Future of Renewable Support Schemes
Accompanying	Report on Impact of Interconnectors on Decarbonisation
Accompanying	Proposals for Helping Develop Decommissioning Opportunities
As soon as possible	Roadmap to Future Homes Strategy
Shortly	Consultation on Use of Fuels produced from Non-Biogenic Waste
December 2020	Interim Report of HM Treasury Review on Funding Net Zero
Early 2021	National Bus Strategy
Early 2021	Heat and Buildings Strategy
Early 2021	Hydrogen Strategy
Early 2021	Updated Fuel Poverty Strategy for England
Early 2021	Government Response on Consultation on Green Gas Levy Design

Early 2021	Conclusions on Review of Oil & Gas Licensing Regime
Spring 2021	Transport Decarbonisation Plan
Spring 2021	Industrial Decarbonisation Strategy
Spring 2021	Energy Data and Digitalisation Strategy
Spring 2021	Ofgem Final Decision on Implementing Half-Hourly Settlement
Spring 2021	Smart Systems Plan
Spring 2021	Green Jobs Taskforce Action Plan
By April 2021	Call for Evidence on Affordability and Fairness
By summer 2021	Principles for Smart Appliances
Summer 2021	Final Recommendations of Union Connectivity Review
2021	Government Response to Consultation on Clean Heat Grant
2022	Biomass Strategy
Not stated	Draft Downstream Oil Resilience Bill

Structure (and limits) of White Paper



Consumers (Ch.1)

Transport Decarbonisation
Strategy in Spring 2021

Elements of the White Paper: Power

- Offshore wind
 - 40GW by 2030 (CFD call for evidence)
- Onshore wind / marine
- Power CCUS / BECCS
- Nuclear
- Planning



Elements of the White Paper: Buildings

- Energy performance
 - Zero carbon ready new homes
 - Existing domestic - EPC (C) by 2035
 - Rented non-domestic - EPC (B) by 2030
 - Extended Public Sector Decarb. Scheme
- Clean heat technologies
 - Ending gas grid connections; Bio-methane / hydrogen heating
- Upskilling strategy
 - Green Jobs Taskforce ; National Skills Fund





Elements of the White Paper: Energy Systems

- Storage and flexibility
 - Networks
 - 18GW by 2030 new I/Cs; island connections
 - EV charging grid for strategic road network
 - Digital infrastructure
 - Role of natural gas
 - Institutions and governance
-



Elements of the White Paper: Industrial Energy

- Industrial Decarbonisation Strategy (Spring 21)
 - Industrial Clusters Mission
- Industrial CCUS
- Clean hydrogen
 - Hydrogen Strategy (Spring 21)
- Revenue mechanism for CCUS / hydrogen etc
- UK (Net Zero) ETS
 - Details later in 2021

Scotland - update to the Climate Change Plan 2018-2032



- **Chapter 1:** Electricity
- **Chapter 2:** Buildings
- **Chapter 3:** Transport
- **Chapter 4:** Industry
- **Chapter 5:** Waste and the Circular Economy
- **Chapter 6:** Land Use, Land Use Change and Forestry
- **Chapter 7:** Agriculture
- **Chapter 8:** Negative Emissions Technologies

Collaboration is key to unlocking our full potential

- Sectors to come together to deliver a sustainable economy
 - An opportunity for Scotland and the rest of the UK to lead and showcase at COP26
 - Collaborate - how ? We need public and private sector to come together
-

Collaboration - an example: The Edinburgh Climate Compact

- First signed in Dec 2020
- A unique platform
- Key businesses and employers as signatories - original signatories:
 1. NatWest Group
 2. Robertson Group
 3. University of Edinburgh
 4. NHS Lothian
 5. City of Edinburgh Council
 6. Edinburgh Fringe Festival Society
 - Further signatories since December (inc. S+W) and interest continues.
- Commitment to decarbonise and contribute to a green recovery and Edinburgh's 2030 Net Zero target.
- Opportunity to replicate across Scotland





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Clare Foster
Partner and Head of Clean Energy
T 0131 473 5409
M 0782 441 7712
E clare.foster@shepwedd.com

shepwedd.com

Edinburgh

1 Exchange Crescent
Conference Square
Edinburgh EH3 8UL
T +44(0)131 228 9900

Glasgow

1 West Regent Street
Glasgow
G2 1RW
T +44(0)141 566 9900

London

Condor House
10 St. Paul's Churchyard
London EC4M 8AL
T +44(0)20 7429 4900

Aberdeen

Commercial House
2 Rubislaw Terrace
Aberdeen AB10 1XE
T +44(0)1224 621 166

Dublin

8 Herbert Lane
Dublin
D02 XE18
E info@shepwedd.com

A stylized, semi-circular globe with light blue oceans and pale yellow-green continents. The globe is centered behind the text.

John McDonald

CEO

OPITO

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Paul Sheerin

CEO

Scottish Engineering



Energy Transition: Skills Impact

Scottish Renewables COP26 Conference

February 25th 2021



What are Green Skills?



LSE Blog (2018, US based) stated 4 facts

- > Growing faster than total employment
- > Green jobs are highly skilled jobs
- > Average wage premium of 4%
- > Green Jobs cluster in particular areas – significantly higher than similar characteristic occupations

Climate Emergency Skills Action Plan 2020-2025

Key Issues And Priority Actions



Skills
Development
Scotland

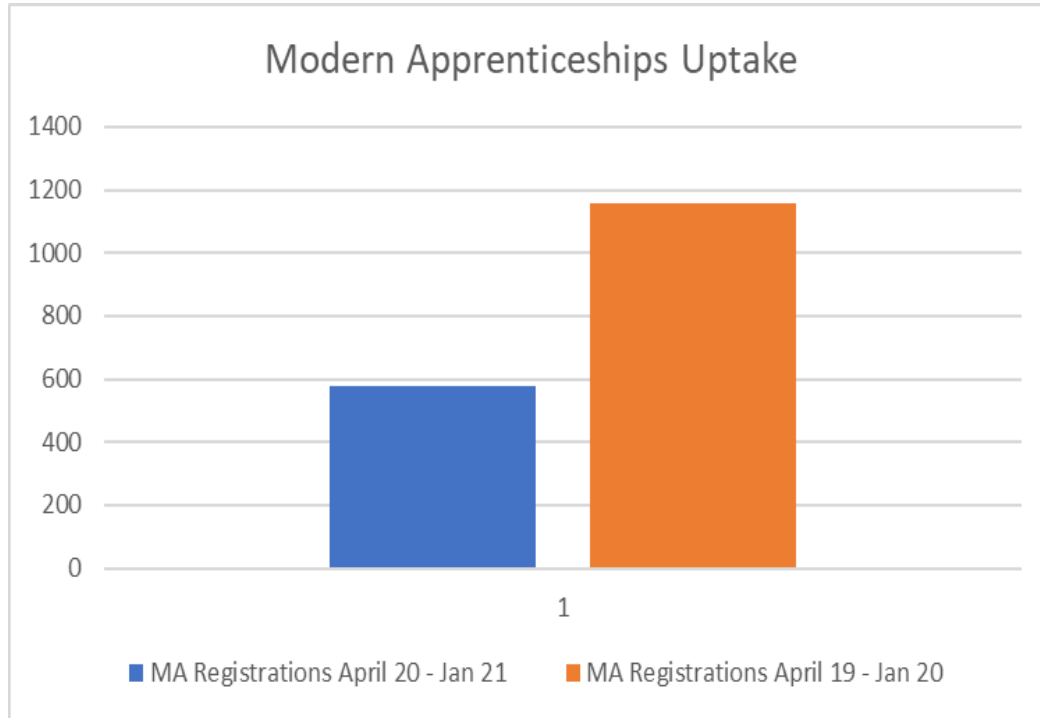


Scottish Government
Riaghaltas na h-Alba
gov.scot

Huge scope, but there are common threads:

- > Understanding importance and principles of de-carbonisation
- > Digital Skills as an enabler of a circular approach
- > Meta skills to go quickly, efficiently, effectively

Skills Challenges..



Choose an area

Scotland

5,463,300 people in 2019

age 16

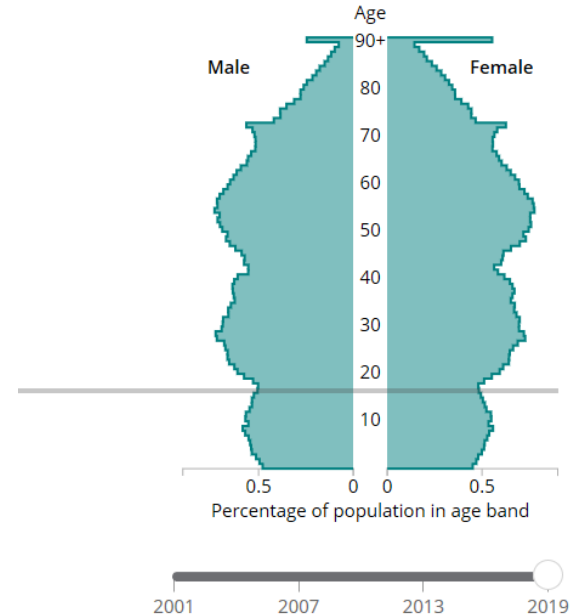
27,624 males

51.1%

26,428 females

48.9%

54,052 people (1.0% of total population)





Thank you



scoteng.org.uk | 0141 221 3181





Q & A



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1430

Nature – and how biodiversity is a crucial part of the toolkit

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A stylized, semi-circular globe with light blue oceans and pale yellow-green continents, centered behind the text.

Francesca Osowska OBE

Chief Executive

NatureScot

A stylized, semi-circular globe with light blue oceans and pale yellow-green continents. The globe is centered behind the text.

David MacArthur

Director

MacArthur Green



The role of Nature-Based solutions in achieving Net-Zero

&

**Can the Scottish Renewables Sector be Global Leaders by
setting a Net-Zero Best Practice Standard?**

OVERVIEW

1. The role of Nature-Based Solutions in achieving Net-Zero.

- What are Nature-Based solutions?
- Where do they fit into the overall carbon reduction picture?
- How important are they to achieving 2030 Paris Agreement targets?

2. Can the Scottish Renewables Sector be global leaders by setting a *Net-Zero Best Practice Standard*?

- What are the opportunities for the Renewables Industry?
- What could a Net-Zero best practice standard look like?

Delivering a Positive Impact for our Environment

We develop long lasting relationships with our clients and research partners, working together to deliver a positive environmental impact.

Helping Projects
Succeed

Supporting Ecological
Research

Our Carbon Negative
Business Model

How We Work

What are Nature-Based Solutions?



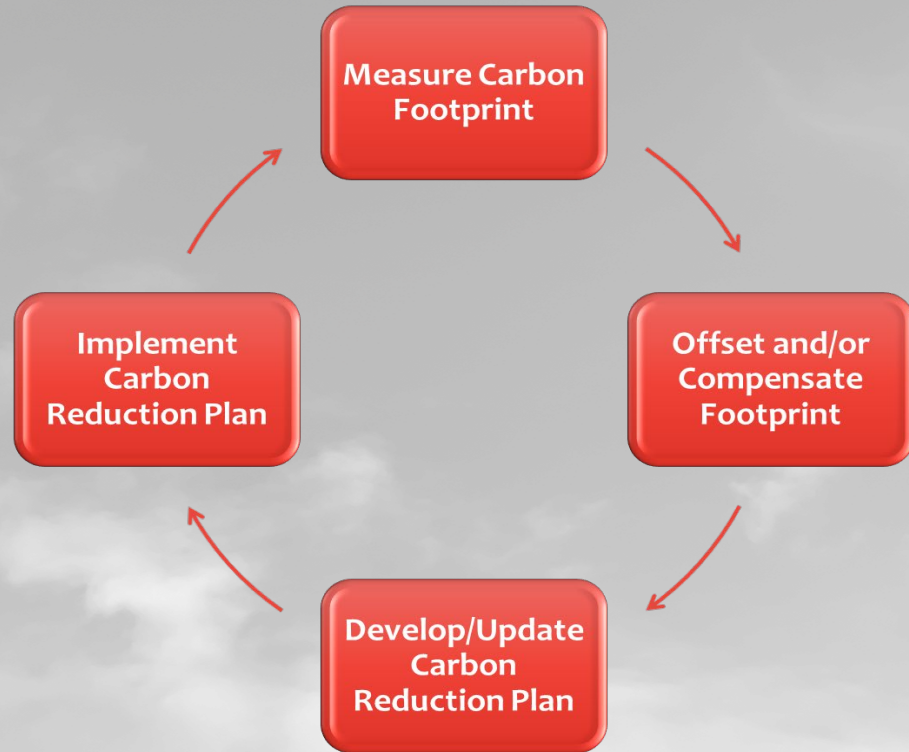
- Woodland Planting
- Woodland Carbon Units



- Peatland Restoration
- Peatland Carbon Units

Where do Nature Based Solutions fit into the overall Carbon Reduction picture?

- **Annual Cycle**
- Key focus is to reduce future carbon emissions
- 2 Trillion Tons excess carbon
- 50 billion tons more per annum



Importance to achieving 2030 Targets

- Emissions will be **32 Billion Metric Tons (GtCO₂e)** higher in 2030 than they need to be in order to meet the Paris Agreement target of 1.5°C.
- Excess emissions removed by Offsets and increased emission reductions.
- Need to be a mix of technology offsets and Nature Based – land and time constraints.



Importance to achieving 2030 Targets

- Nature Based Solutions have **Additional Benefits:** Biodiversity, Resilience, Community and Socio-Economic Benefits.
- Voluntary Offset market driven by corporate ambition to meet net-zero + have wider environmental/Socio-economic benefits.
- Carbon offset market is worth about **USD300 million** a year likely to increase to the **hundreds of billions** a year in the near future (Mark Carnie).



What are the Opportunities for the Renewables Sector to Invest in/support Nature Based Solutions?

- Habitat Management Plans – standard approach for compensating losses
- Commonly include blanket bog restoration measures and tree planting
- Important contributions to development of effective restoration techniques

Feature Article: An Innovative Approach to Landscape-Scale Peatland Restoration

An Innovative Approach to Landscape-Scale Peatland Restoration

Rachel Short MCIEM and Peter Robson CEnv MCIEM
ScottishPower Renewables

Keywords: drainage, forestry, peat dams, peatland restoration, wind energy

ScottishPower Renewables has undertaken extensive research into developing peatland restoration methods that are effective at a reasonable cost over a large scale. No specialist equipment is required so restoration can be used on other sites in Scotland and elsewhere using widely available plant machinery.

Introduction

Upland environments in Scotland comprise a rich mosaic of grassland, heathland, woodland and bog habitats. Many areas are subject to high rainfall and cool annual average temperatures which,

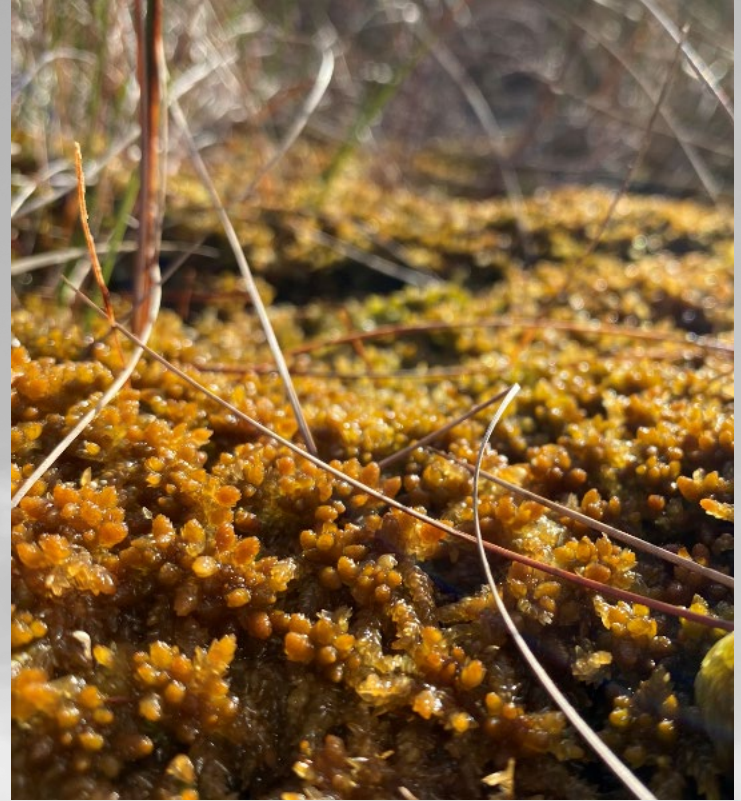


What are the Opportunities for the Renewables Sector to Invest in/support Nature Based Solutions?

- **How should we use this expertise to invest in Nature Based Solutions?**
 - Opportunities for Nature Based Solutions and Carbon Unit benefits considered as part of the Development.
 - To encourage investment, it needs to be possible for Developers to claim Carbon Units.
 - Requires agreement of **method for determining 'Additionality'**.
 - This mean that carbon units could be claimed – contributing to Net-Zero targets.
 - Could lead to **larger scale integration of woodland creation and peatland restoration with renewable projects** to secure higher volumes of carbon units + greater investment in Nature Based Solutions.

What would a *Net-Zero Best Practice Standard* look like?

1. Carbon Footprint Measured Annual
 - Only 'large companies' have to legally do this
2. Carbon Reduction Plan
 - Reduce direct (Scope 1 and 2 emissions)
 - Take into account 'Scope 3' emissions (Value Chain)
3. Offset – support/investment in Nature Based Solutions



KEY ACTIONS!

1. Task Force to develop Scottish Renewables Best Practice Standard for Net-Zero.
2. Task Force to Develop 'Additionality Criteria' for Developments to promote investment in Nature Based Solutions.




CO₂e
Assessed



Carbon
Neutral
Organisation





Annie Breaden
Head of Policy
Crown Estate Scotland

SR COP26 Conference

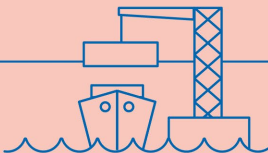
Annie Breden

25 Feb 2021

We invest in property, natural resources and people to generate lasting value for Scotland

OUR STRATEGIC OBJECTIVES

1.



Support the sustainable expansion of Scotland's blue economy, focusing on marine and coastal development

2.



Invest in buildings and help create great places

3.



Promote new sustainable ways of using natural resources to produce energy, food and other products

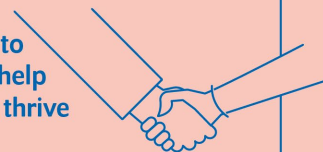
4.

Involve people in how land, coastline and seabed are managed

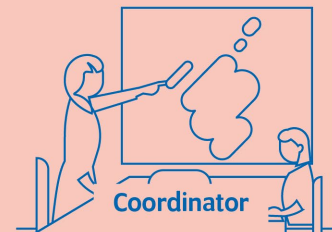
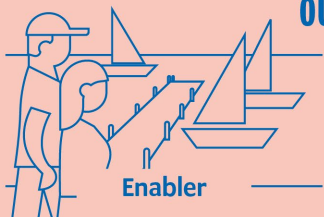


5.

Use our skills and knowledge to deliver financial success and help business and communities to thrive



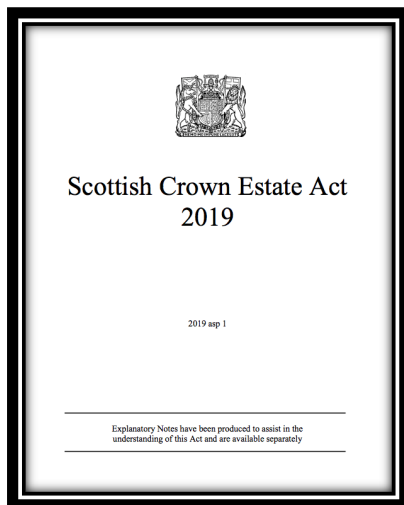
OUR ROLES



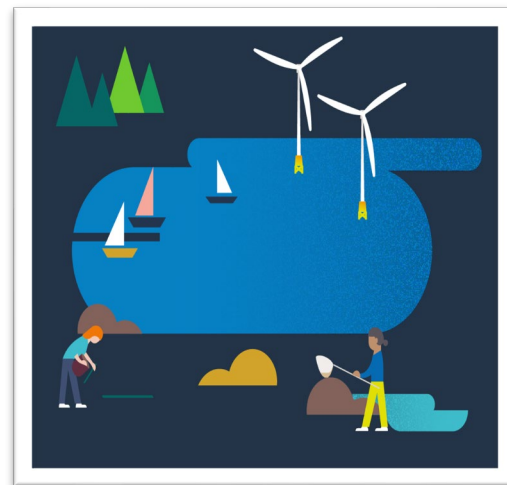
Crown Estate Scotland & Biodiversity



Climate Change Action Plan



Value Project



Sustainable Communities Fund

Offshore Wind in Scotland's Seas

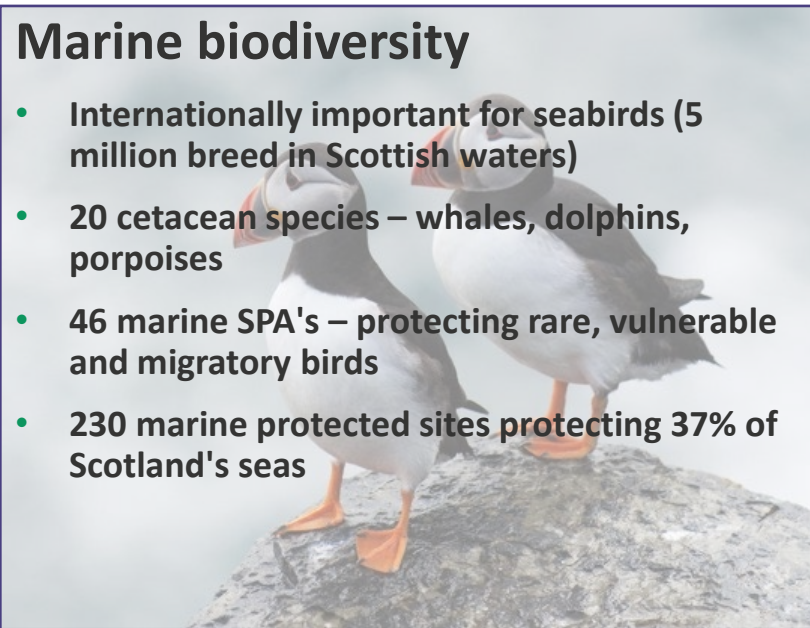
Offshore wind

- 900 MW operational
- ~ 2 GW under construction
- ~ 4.4 GW consented
- 2020 Sectoral Marine Plan – up to 10 GW
- SG OW Policy Statement - 11GW operational by 2030



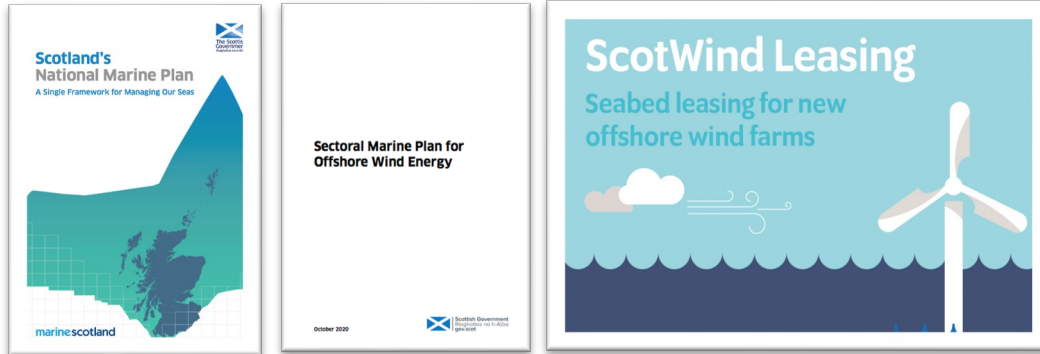
Marine biodiversity

- Internationally important for seabirds (5 million breed in Scottish waters)
- 20 cetacean species – whales, dolphins, porpoises
- 46 marine SPA's – protecting rare, vulnerable and migratory birds
- 230 marine protected sites protecting 37% of Scotland's seas



Scotland's Strategic Approach

- Plan-led approach



- Research
 - ScotMer, ORJIP

Key Learnings

- Plan-led, strategic approach
- Consider early what new info is needed to support planning and consenting
 - What's needed – research, monitoring data, new assessment methodologies etc
 - Who's going to make this happen and how
- Collaboration with key stakeholders



Thank you for listening!

@CrownEstateScot

www.crownestatescotland.com

A stylized, semi-circular globe with a light blue background and yellowish-green landmasses. The globe is centered behind the text.

Claire Gilchrist

**Offshore Consents Manager for
Neart na Gaoithe (NnG) OWF
EDF Renewables**



Environmental Monitoring at Neart na Gaoithe

Scottish Renewables' COP26
Conference - Scotland's Role In
Raising Global Ambition

Claire Gilchrist
Offshore Consents Manager

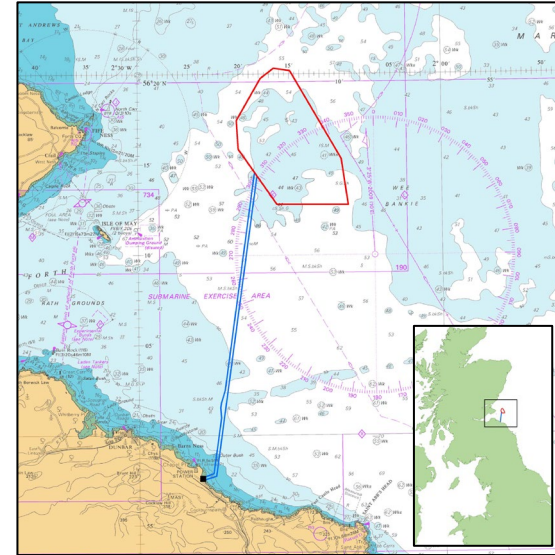


Agenda

1. Neart na Gaoithe (NnG)
Offshore Wind Farm
2. Forth & Tay Regional
Advisory Group (RAG)
3. Ornithology Monitoring
4. Marine Mammal Monitoring
5. Lessons Learnt

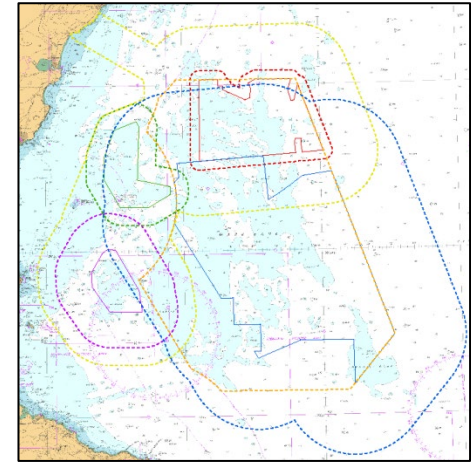
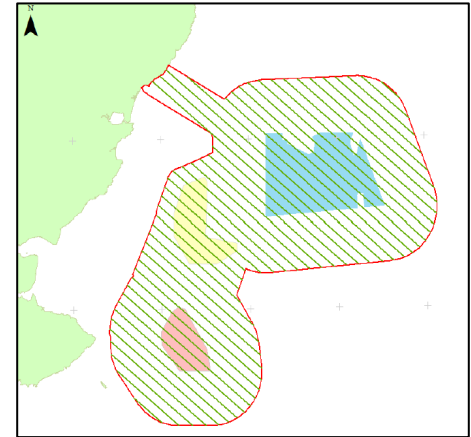
NnG Offshore Wind Farm

- 450MW; 8MW turbines
- 54 turbines, 2 offshore substations
- 400,000 tonnes carbon offset
- Onshore construction started 2019
- Offshore construction started 2020
- Fully operational by 2023



Forth & Tay RAG

- Provide strategic outputs to validate, or reduce uncertainty in predictions on environmental impacts
- Providing evidence on the effectiveness of mitigation measures



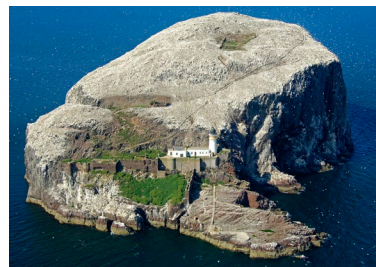
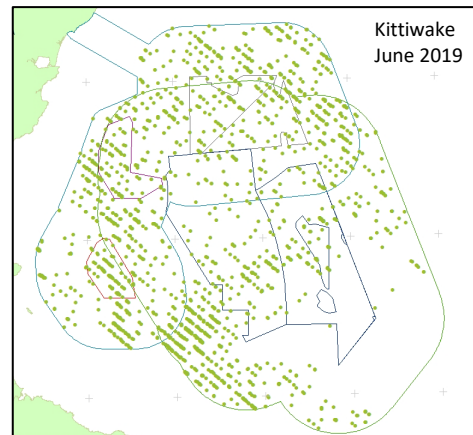
Ornithology

1. Regional digital aerial surveys

- 2 breeding seasons 2019 and 2020
- 1 non-breeding season 2019/2020

2. Gannet adult survival study

- Colour-ringing and resighting since 2010
- Bass Rock, Scotland and Grassholm, Wales



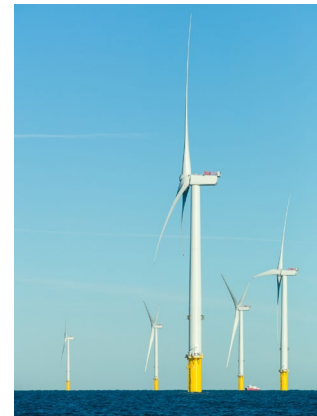
Ornithology

3. GPS tagging and colony monitoring

- Map flying and non-flying activity
- Potential population-level effects

4. Seabird Interactions Study

- 2 year study measuring collision risk and 3D flight behaviour around wind turbines



Marine Mammals

1. Regional digital aerial surveys

- Occasional sightings recorded



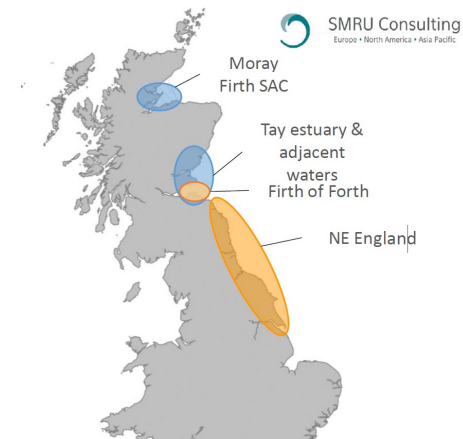
2. Bottlenose dolphin ID

- Systematic boat surveys May - September
- Citizen Fins photo submissions



synergy.st-andrews.ac.uk/citizenfins

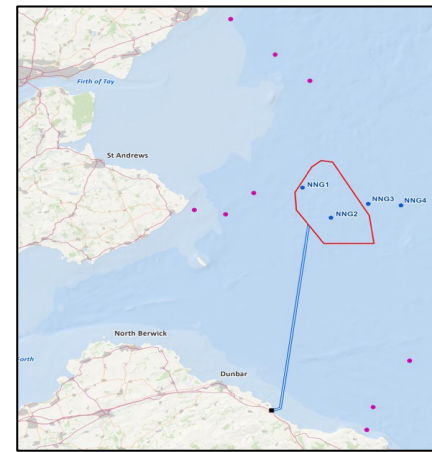
- Photo-ID effort by SMRU & AULFS
- Reported sightings of animals from the population



Marine Mammals

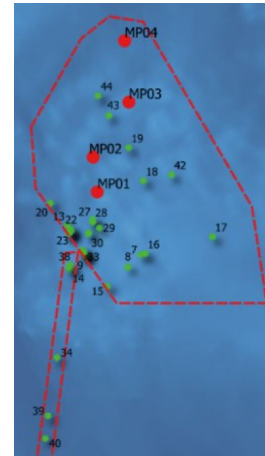
3. Passive acoustic mooring devices

- Detect vocalisations of cetaceans
- Supplements wider ECOMMAS array



4. UXO Clearance Noise Monitoring

- Predict source level of detonation
- Characterise propagation of noise emissions





Lessons Learnt

1. Strategic-level projects
2. Sharing experiences and lessons learnt
3. Transparency between Developers
4. Cost sharing pro's and con's
5. Alignment of timescales



Claire Gilchrist – Offshore Consents Manager – claire.gilchrist@nngoffshorewind.com

Polly Tarrant – Environmental Monitoring Manager – polly.tarrant@nngoffshorewind.com



Kristen Liptrot

Environmental and Ecological Manager

RWE Renewables

A wide-angle photograph of a wind farm situated on rolling hills. The terrain is covered in dry, brownish grass and patches of green. Numerous white wind turbines are scattered across the landscape, extending into the distance. The sky is bright blue with soft, white clouds. The overall scene conveys a sense of natural beauty and sustainable energy.

RWE

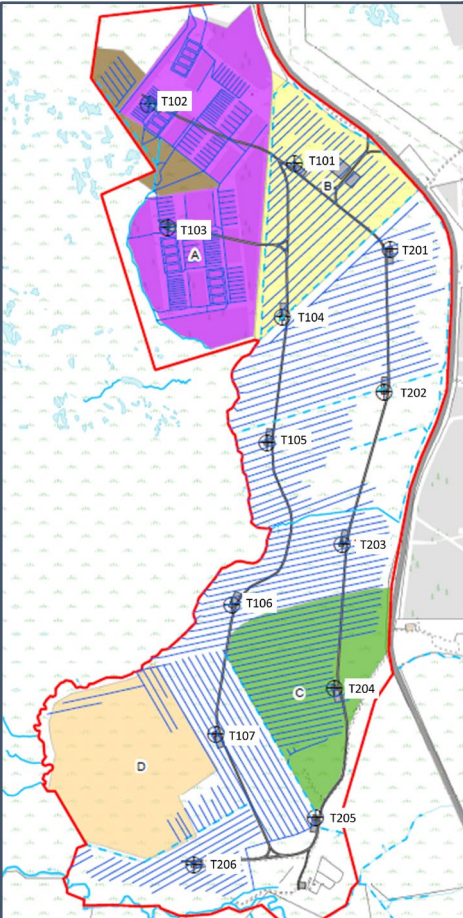
The nature of our sites

RWE

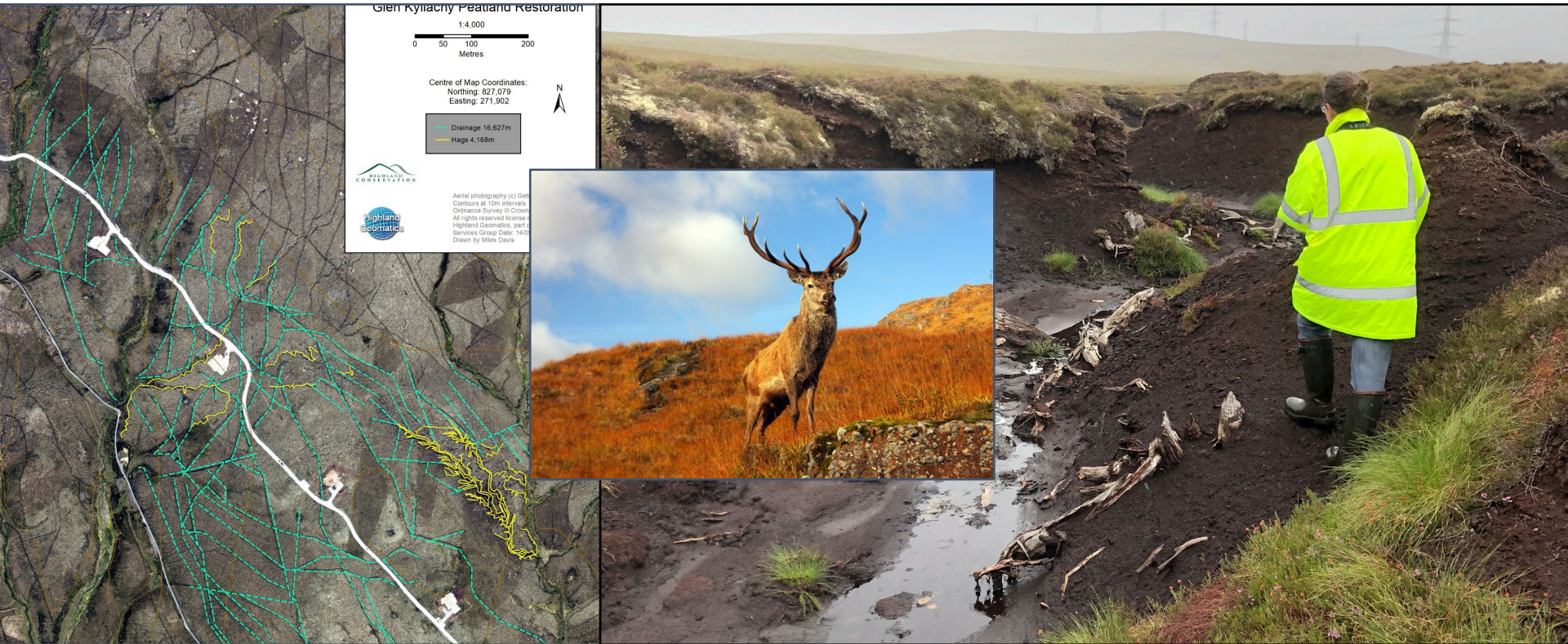


Bad a Cheo Wind Farm, Caithness

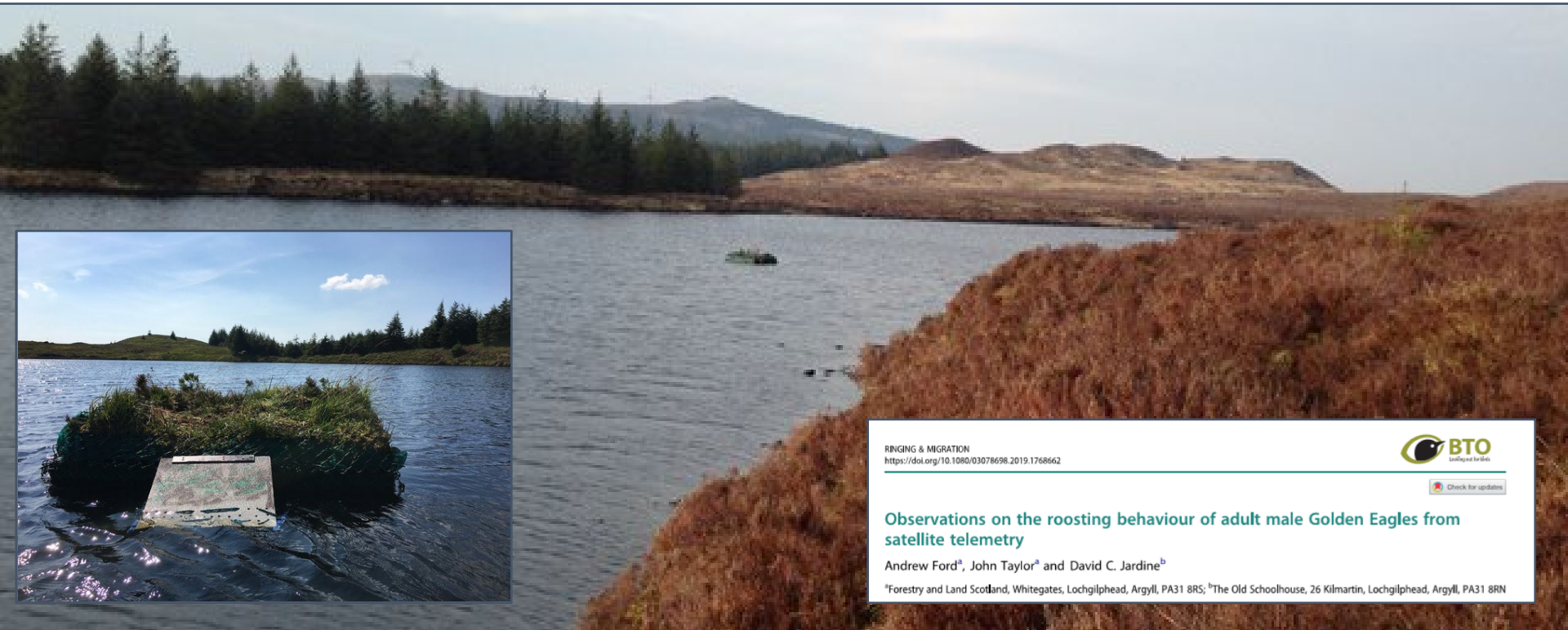
RWE



RWE



Glen Kyllachy Wind Farm, Inverness-shire



RINGING & MIGRATION
<https://doi.org/10.1080/03078698.2019.1768662>



 Check for updates

Observations on the roosting behaviour of adult male Golden Eagles from satellite telemetry

Andrew Ford^a, John Taylor^a and David C. Jardine^b

^aForestry and Land Scotland, Whitegates, Lochgilphead, Argyll, PA31 8RS; ^bThe Old Schoolhouse, 26 Kilmartin, Lochgilphead, Argyll, PA31 8RN

An Suidhe Wind Farm, Argyll

A landscape photograph featuring a series of white wind turbines scattered across a rolling, grassy hillside. The sky is filled with large, white, fluffy clouds, with some darker, grey clouds visible in the upper right. The terrain is a mix of brown and green grass, with a small, dark pond or stream visible in the middle ground. The overall scene is a depiction of renewable energy infrastructure in a natural setting.

RWE

Thank you!



Q & A

A stylized, semi-circular globe with a light blue background and yellowish-green landmasses. The globe is centered behind the text.

Morag Watson
Director of Policy
Scottish Renewables

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ANNUAL CONFERENCE

23 & 24 MARCH
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OFFSHORE WIND CONFERENCE

21 & 22 APRIL
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YOUNG PROFESSIONALS GREEN ENERGY AWARDS

27 MAY
ONLINE



ONSHORE WIND CONFERENCE

1 JUNE
ONLINE



MARINE CONFERENCE

23 JUNE
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HYDRO CONFERENCE

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