



**APEM** Group

# Offshore wind services

Empowering our global clients to confidently mitigate risks and manage environmental impacts, to ensure success – on budget, every time.

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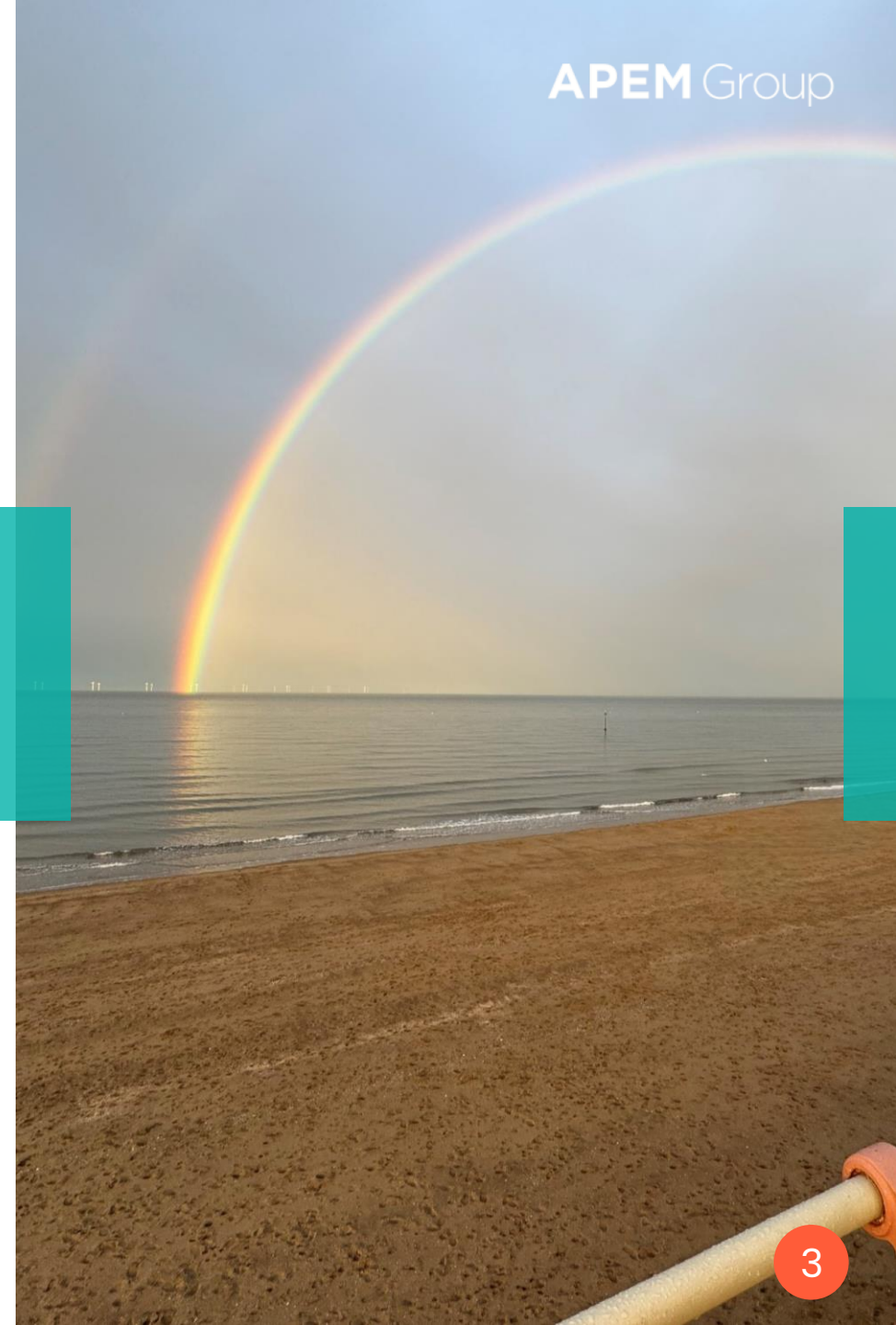
**06**

Sustainability  
& Environmental  
Impact

# About Us

APEM Group is a leading global environment consultancy providing expert advice to clients across a wide range of industries including renewables, water and infrastructure.

With deep scientific and technical expertise, supplemented with a heritage of innovative solutions such as our groundbreaking LiDAR marine wildlife surveys for the offshore wind industry, our team of scientists, technical experts and consultants provide a range of marine, freshwater and terrestrial ecology consultancy services combined with market leading geospatial service, across the world.

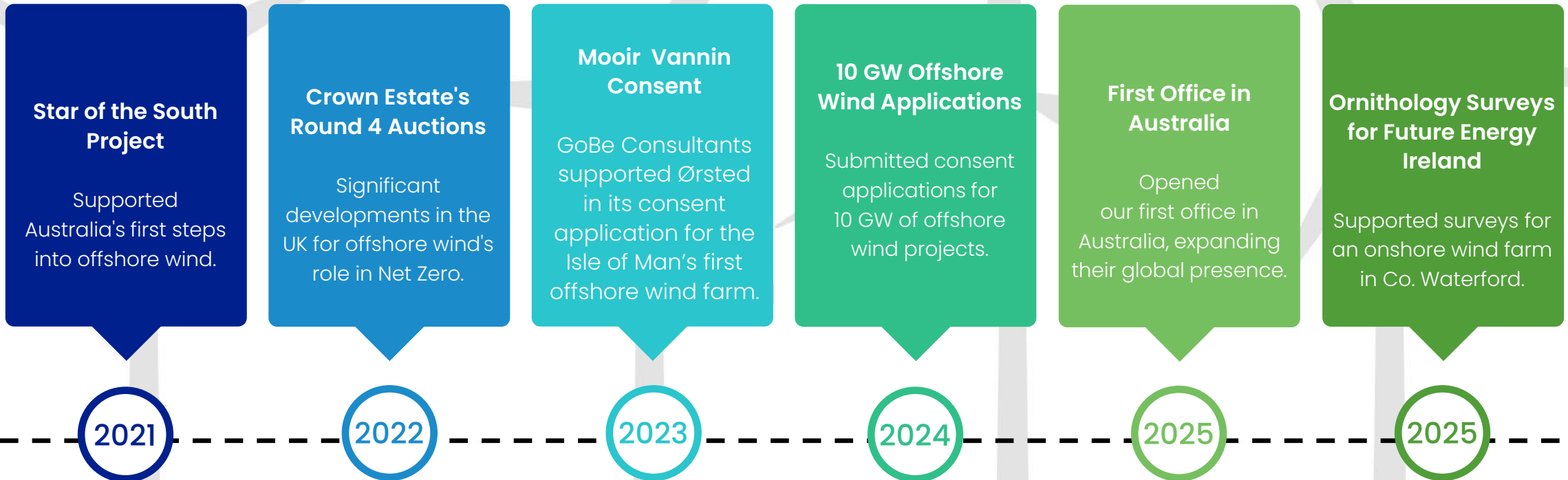


# APEM Group



# Snapshot: Our recent history in offshore wind

Since supporting our first offshore wind project in 2009, we have gone on to build a strong track record. Below are some highlights from recent years:



# Our History in Offshore Wind

2020

APEM Group supported Australia's first steps into offshore wind with the Star of the South project.



# Our History in Offshore Wind

## 2021

Supported the role played by offshore wind in achieving Net Zero - with significant developments in the UK, including the Crown Estate's Round 4 offshore wind auctions.

Use of LiDAR for accurately measuring bird flight heights was recognised by Natural England.

Development of WILDetect technology, which uses Machine Learning and Reinforcement Learning to improve environmental modelling and monitoring for offshore wind projects.

APEM expanded its environmental surveying techniques and technology to support offshore wind projects in the UK, Australia, the US, and Asia.

NASH Maritime delivered shipping and navigation assessments for Wales' first floating offshore wind farm to receive consent approval.

# Our History in Offshore Wind

## 2022

GoBe Consultants joined APEM Group, providing high-quality strategic and project-specific planning and environmental advice.

Supporting on feasibility studies, baseline surveys and bid preparation for Round 4 and ScotWind OSW leasing rounds.

Biosis developed a Bird Collision Risk Model (CRM) for assessing wind farm impacts on birds.

## 2023

Macro Works joined APEM Group, focusing on Landscape and Visual Impact Assessment (LVIA) service.

GoBe Consultants supported Ørsted in its consent application for the Isle of Man's first offshore wind farm, Mooir Vannin.

NASH Maritime joined APEM Group and launched the first cumulative Navigation Risk Assessment, advancing maritime safety for FOW.

MacroWorks contributed to the Oriel Wind Farm project, providing landscape and visual impact assessments.

NASH Maritime launches shipping constraints tool for offshore developers.

NASH Maritime delivers key study for Navigational Planning and Risk Assessment to The Offshore Renewable Energy (ORE) Catapult Floating Offshore Wind Centre of Excellence.

# Our History in Offshore Wind

## 2024

Biosis joined APEM Group, specialising in biodiversity surveys and cultural heritage assessments in Australia.

Attexo joined APEM Group offering strategic advisory services for energy, resources, and infrastructure sectors in Australia.

GoBe delivered Offshore EIA / Nature Impact Statements (NIS) for the first and second Phase 1 OSW consent applications, submitted in the Republic of Ireland.

Submitted >10GW equivalent of consent applications covering England, Scotland, Southern Ireland and the Isle of Man.

AQUAFACT and GoBe collaborated with the Department of Housing, Local Government and Heritage to develop environmental guidelines for Ireland's offshore renewable energy sector.

NASH Maritime successfully delivers AI automated survey data collection for recreational maritime users to support Navigation Risk Assessments.

NASH Maritime completes 25 successful vessel traffic surveys without incident (and counting).

# Our History in Offshore Wind

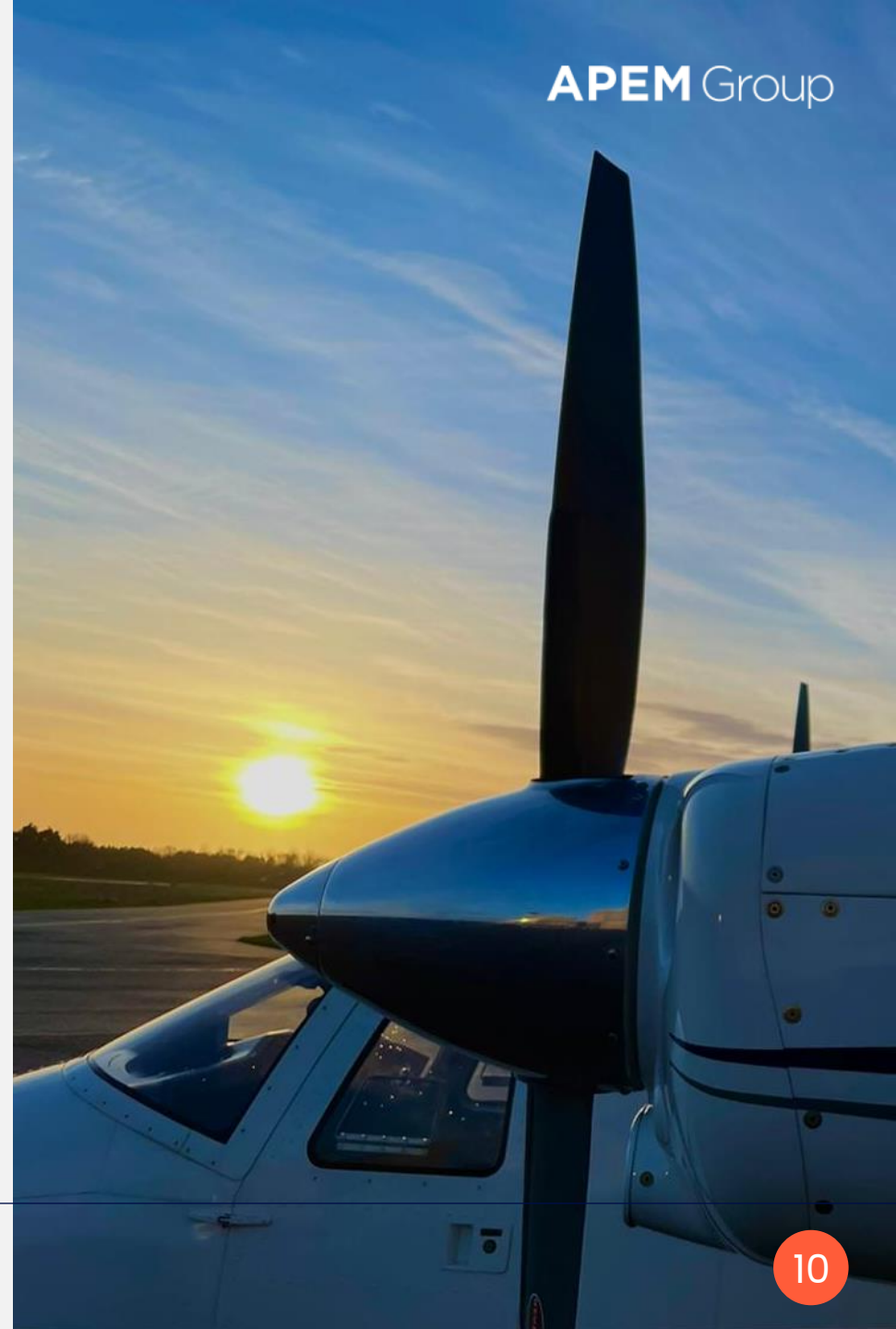
## 2025

AARC joined APEM Group, strengthening environmental and rehabilitation expertise to support offshore wind and renewable energy projects in Australia.

Conducted digital aerial surveys of Lesser Black-backed Gulls in the Bowland Fells SSSI/SPA for Natural England.

Continued processing over 1.5 million images for marine wildlife surveys.

APEM Group led the offshore EIA to support the consent awarded for Rampion 2 Offshore Windfarm.



# Solving your Offshore Wind challenges

With a global footprint, we are the leading dedicated offshore wind consultancy and environmental services company in UK and Ireland.



**>40GW**

**Lead EIA and consent projects**  
(UK/Ireland)



**60+**

**Offshore wind projects**  
(UK/Ireland)



**200+ People**

Dedicated to the offshore wind sector



**Depth & Breadth**

Unrivalled experience and understanding



**>10GW**

Equivalent of consent applications in 2024



**Quality Focused**

ISO, IEMA, NMBAQC

**03**

# **Our Integrated Capability**



# Expertise, Innovation, and Collaboration



## Expertise and Market Focus

Leveraging deep experience and understanding



## Data-Driven and Quality-Focused

Ensuring high standards and innovative solutions



## Risk-Aware Approach

Addressing development drivers and challenges



## Strong Relationships

Collaborating with stakeholders, suppliers and delivery partners



## Tackling Key Challenges

Nature-positive development, derogation and compensation, regulatory changes, and market uncertainties



**04**

**Project  
Lifecycle  
Support**



# Offshore Wind Lifecycle Management



# 01

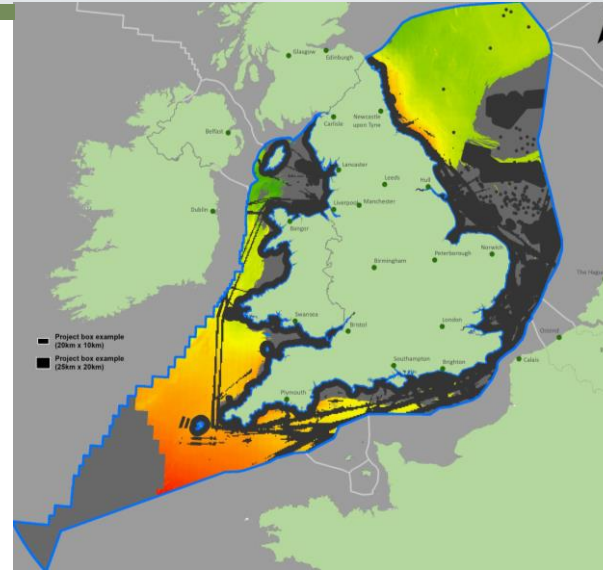
## Site Feasibility & Selection

- Due diligence
- Environmental constraints analysis
- Route planning/landfall selection
- Consenting strategy and risk analysis
- Early data collection

# CASE STUDY

## Scottish Power ScotWind & Round 4 Site Selection, Feasibility and Bid Support

- Environmental and Technical Appraisal
- Selection and Options Appraisal: GIS constraints mapping, criteria development, scoring
- Drafting Crown Estate Scotland (CES) Bid Documents: Align with ScotWind guidance
- Development Plan Inputs: Consenting, environmental data, program, stakeholder, Devex budget
- Interface with SPR Teams: Technical and commercial
- Technical assurance approvals, bid inputs (ground conditions, LCoE)
- Peer Review: Final TCES bid drafts for optimal success



## 02

## Environmental Surveys

- Digital aerial wildlife surveys
- Ecological data collection
- Vessel data collection
- Benthic surveys
- Geospatial insights

# CASE STUDY

## Project highlight

### Data Collection for the EIA of Australia's First Offshore Wind Project

- Digital Aerial Surveys: Conducted over 24 months to record birds, marine mammals, and boats.
- Bird Focus: Collected data on bird species, abundance, distribution, and flight height.
- LiDAR Technology: Used in the second year to measure bird flight heights for collision risk modeling.
- Permanent Record: Created a permanent, reviewable record for robust quality control.

# 03

## Environmental Impact Assessment

- Management and delivery of Environmental Impact Assessments (EIAs)
- Stakeholder engagement/consultation

# CASE STUDY

## Project highlight

### Helping the Isle of Man meet its Ambitious Targets

- Supported Ørsted in the consent application: Moir Vannin offshore wind farm.
- Aimed to meet ambitious targets: Renewable energy, net zero, and economic growth.
- Worked within the evolving planning framework: Under MIMA 2016.
- Applied a proportionate approach: Efficient decision-making.
- Engaged proactively with stakeholders: Robust application.
- Predicted output of 1.4GW: Meet energy needs and enable export.



## 04

## Securing Approval

- Strategic advice and technical services during the approval decision-making process
- Risk appraisal and mitigation
- Stakeholder engagement/ consultation
- Associated approval/permitting documentation
- Design development process integration
- Compensation and offsetting assessments and calculations



# CASE STUDY

## Project highlight

### Shipping & Navigational Risk: Mona, Morgan and Morecambe

- **Pre-Lease Support:** Site selection
- **Cumulative Regional Approach:** NRA development based on stakeholder feedback
- **Site Boundary Amendments:** Post-PEIR to de-risk consent
- **Layout Design**
- **Full Bridge Ship Simulations:** With stakeholders
- **Quantitative Risk Modelling**
- **Vessel Traffic Surveys**
- **Consultation/Hazard Workshop**
- **NRA and ES Chapter Authoring**

## 05

## Post Approval Construction & Monitoring

- Approval conditions compliance
- Approval variations and additional licensing
- Environmental monitoring
- Technical advice to facilitate smooth project progression
- Regulatory requirements compliance
- Mitigation measures
- Development of plans and strategy
- Design support for array layout

# CASE STUDY

Project highlight

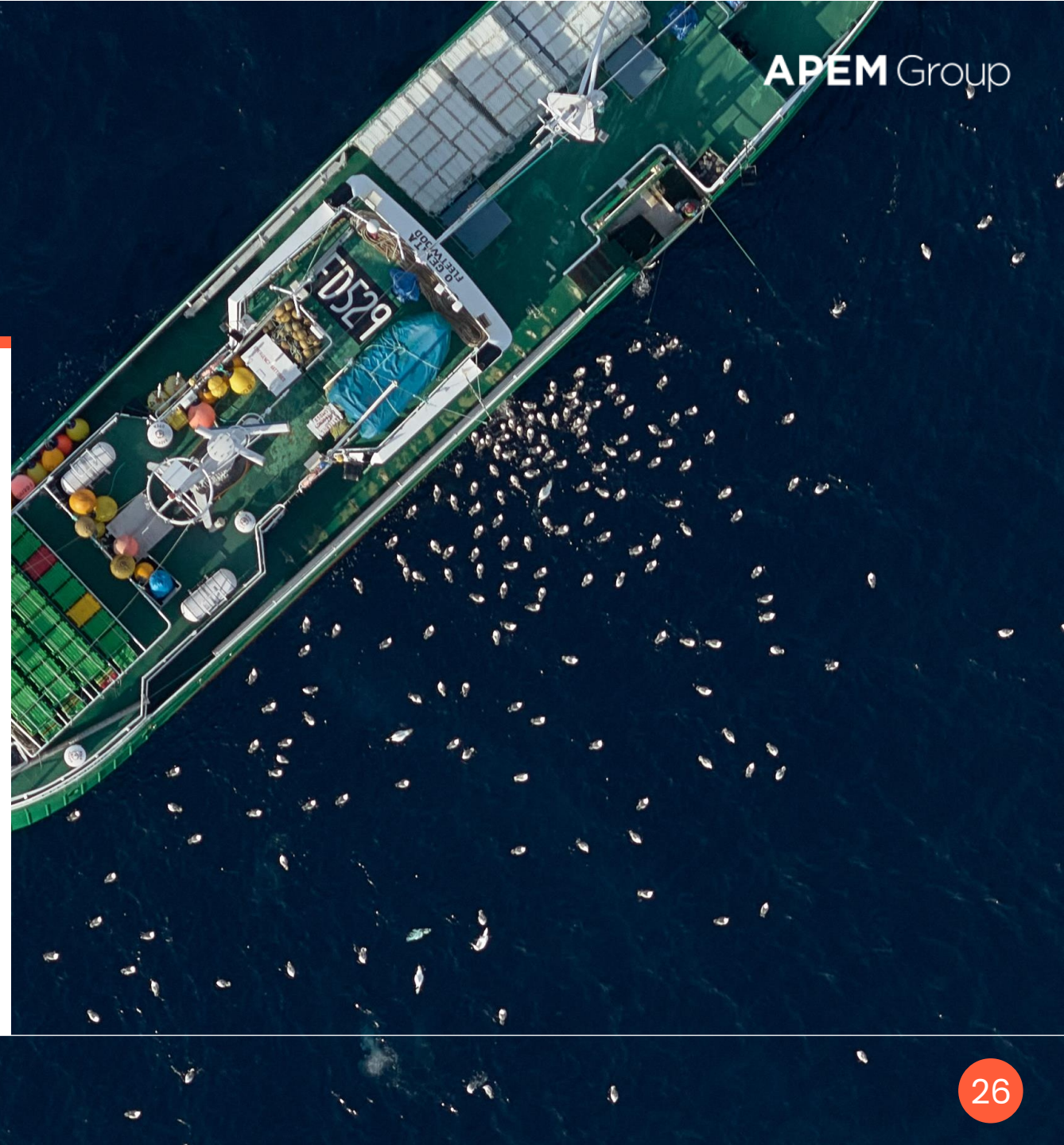
## Beatrice Lead Offshore Compliance & ECoW Services

- **Lead Compliance Role:** Offshore consents and project components
- **Offshore ECoW Provision:** Meet Section 36 consent requirements
- **Advisory Services:** Compliance plans and monitoring proposals
- **Independent Review and Sign-Off:** Part of the larger GoBe compliance lead team

## 06

## Decommissioning & Repowering

- Ongoing environmental surveys and monitoring
- Report on real-time impacts on wildlife
- Later stage project options appraisal
- Delivery of EIA and appraisals to support decommissioning consent
- Decommissioning plans
- Regulatory compliance management
- Strategic advice to minimise environmental impacts

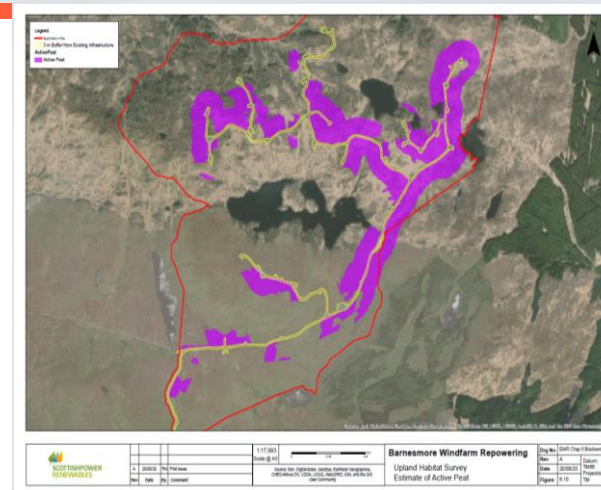


# CASE STUDY

Project highlight

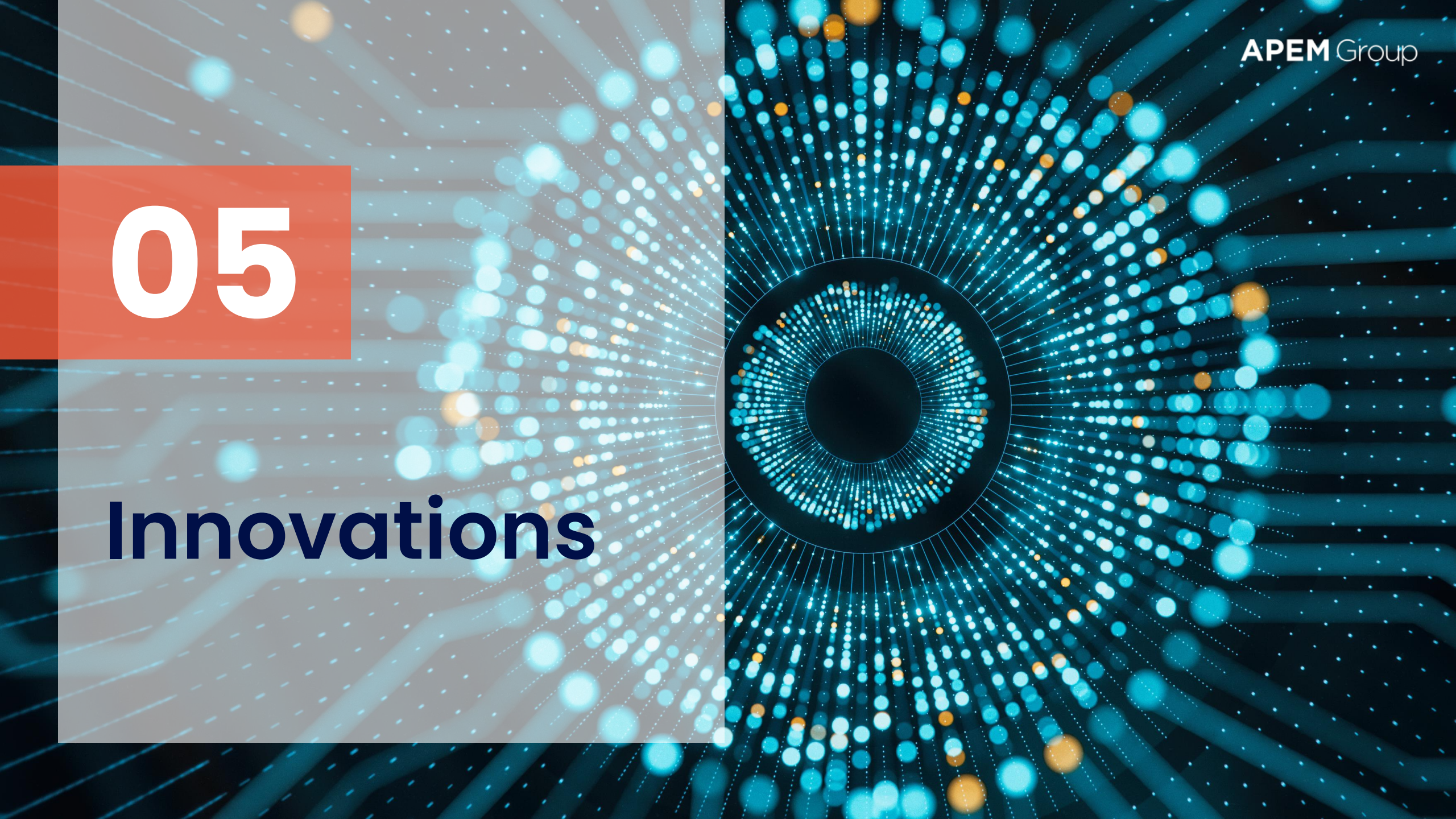
## Barnesmore Wind Farm Repowering

- Repowering Application: Within Natural Heritage Area (NHA), including access infrastructure upgrades
- Ecologically Constrained Area: Active peat
- Key LVIA Challenge: Assessing effects of fewer, but larger (3x taller) proposed turbines
- Completed Reports: Ecological constraints, surveys, Biodiversity EIA chapter, Natura Impact Statement
- LVIA and ZTV Mapping: Photomontages, Route Screening Analysis (RSA), Residential Visual Amenity Assessment (RVAA)
- Public Consultation: Presented key photomontages in custom-made 'Panopod' display units
- Iterative Design: Avoided active peat, offset by habitat restoration/management within NHA



05

# Innovations



# Investment in Innovation

APEM's commitment to innovation is evident through our significant investments in new technologies and approaches.



## **LiDAR**

Aerial surveys for offshore wind



## **Advanced Visualisation Tools**

Presentations of project impacts



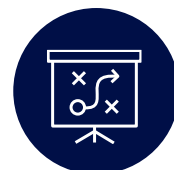
## **Population Consequences of Disturbance Modelling**

Quantifying impacts on species



## **Autonomous Data Collection and Processing**

Using drones and autonomous vessels



## **Regulatory and Legislative Adaption**

Adapting to evolving standards



## **Generative AI**

Improving efficiencies with AI



## **Compensatory and Mitigation Measures**

Preventing or reducing bird collisions



## **WILDetect**

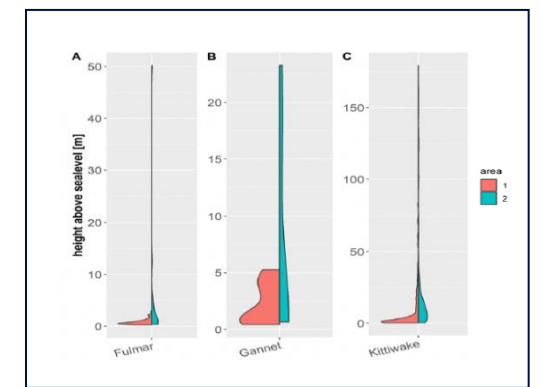
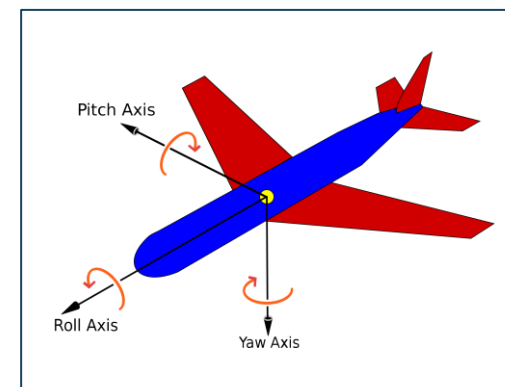
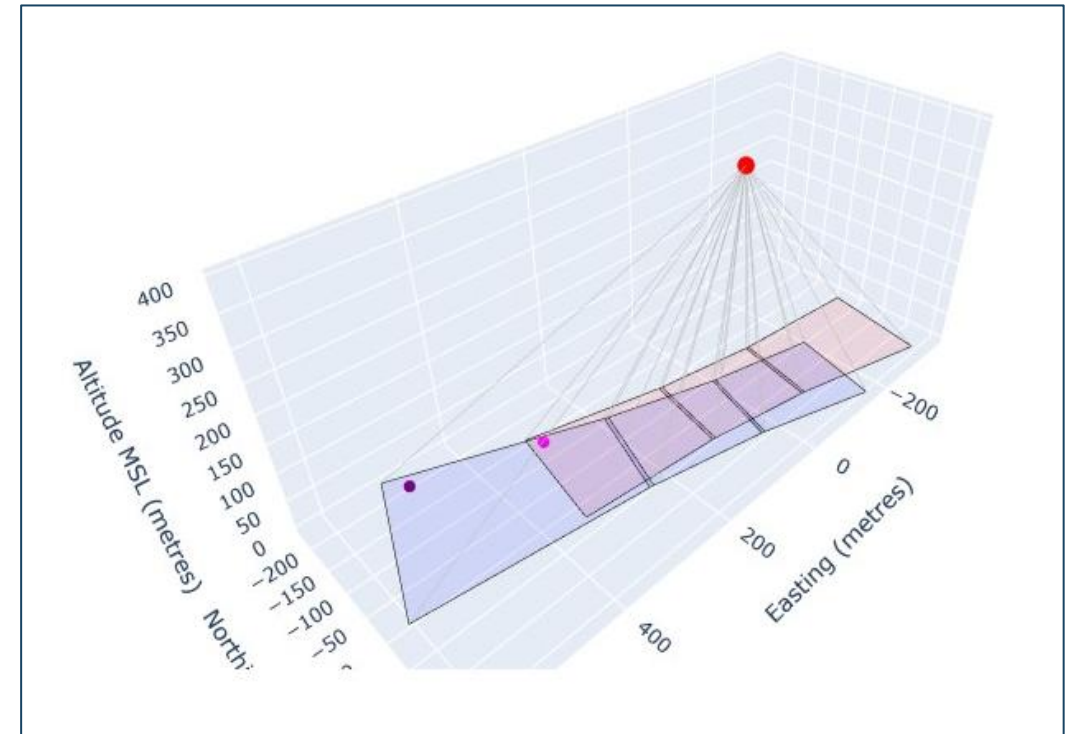
Machine learning to identify marine species

# Digital Aerial Survey

## Marine Wildlife Surveys

The highest quality data in the market:

- Statistically robust and defensible data meeting SNCB standards
- Project-specific survey design to meet site needs and manage risk
- Superior 3D spatial accuracy
- High-resolution camera (1.5cm GSD)
- Exceptional species identification
- Comprehensive survey-to-data package with no hidden costs
- Unique LiDAR add-on for centimetric flight height accuracy, meeting emerging SNCB requirements



# Technology Spotlight:

## Digital Aerial Survey

### Marine Wildlife Surveys

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- Comprehensive survey-to-data package with no hidden costs
- Unique LiDAR add-on for centimetric flight height accuracy, meeting emerging SNCB requirements
- OSPREY cloud-based image analysis and movement into using AI. **To watch the video, [click here](#).**



# Connecting Offshore Wind To The Grid

## Cable routing for offshore wind

- Environmental Impact Assessments (EIA):
  - Ensuring compliance with regulations
  - Minimising impacts on marine ecosystems
- Approval support:
  - high-resolution aerial surveys to efficiently map onshore cable corridors, reducing costs, minimising health and safety risks, and providing detailed 3D models for precise planning.
- Marine permitting:
  - Securing necessary approvals for cable construction and operation
- Technical expertise:
  - Specialised knowledge in marine ecology, ornithology, and marine mammal studies
  - Marine physical processes
- Advanced technologies:
  - GIS for optimised cable routes
  - LiDAR for precise mapping of cable routes
  - High-resolution surveys for detailed marine data



06

# Sustainability & Environmental Impact



# Commitment to sustainability



## **Innovative Technology**

We use LiDAR, AI, and drones to improve data accuracy and reduce environmental impact globally.



## **Sustainable Practices**

We implement noise abatement and compensatory habitats to protect marine life during offshore wind farm development.



## **Comprehensive Services**

Our marine ecology services consider all environmental factors in global assessments and solutions.



## **Global Expertise, Local Focus**

We combine global insights with local knowledge to create effective strategies for unique environmental conditions.



## **Proactive Stakeholder Engagement**

We work with communities, governments, and NGOs to build consensus and address issues early.

A photograph of an offshore wind farm in a misty sea. Several wind turbines with blue towers and white nacelles are visible. A red and white service vessel is positioned in the middle ground. The sky is overcast and the water is calm.

**APEM** Group

# Thank you

Please get in touch if you have any questions.

[apemgroup.com](https://www.apemgroup.com)