



OFFSHORE WIND **R&I** RESEARCH & INNOVATION **PROGRAMME**

**DELIVERING OFFSHORE WIND
FASTER, CHEAPER AND
AT LOWER RISK**

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**£1
MILLION
PROGRAMME**



APPLY NOW
INNOVATION CALL OPEN



Lisa MacKenzie
Marketing Manager



Heather Turnbull
Project Manager



Stuart Brown
Associate – Offshore Wind



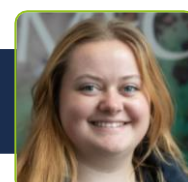
Mike Hay
Deputy Project Director
West of Orkney Windfarm



Grant Leishman
Performance Test Engineer



Erika Kemp
Client Relationship Officer



Abbie Sinclair
Project Admin Officer

AGENDA

- 1200 **Welcome**
- 1205 **R&I Programme overview**
- 1210 **Challenge areas**
- 1215 **Innovation calls**
- 1220 **How to apply**
- 1230 **Q&A**



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R&I PROGRAMME

Aim

Embed economic benefits in the North of Scotland, supporting companies to explore ways to overcome specific technical challenges in offshore wind development.

Objectives

- Reduce time, cost and risk of offshore wind roll out in high energy environments
- Accelerate innovation, enhancing R&I capacity in the North of Scotland
- Create jobs and help businesses grow, bringing skills, capabilities and economic benefit closer to wind farm projects

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INNOVATION CALLS

Closing date: 1pm, Monday 12 February 2024

**SEARCHING FOR NOVEL SOLUTIONS TO HELP DELIVER
OFFSHORE WIND FASTER, CHEAPER AND AT LOWER RISK**

PROJECT SPONSORSHIP

up to £300,000

(funding intensity from 10% to 100%)

Get access to

**TECHNOLOGY
DEMONSTRATION SITES**

**FUNDING APPLICATION
SUPPORT**

**GROWING MARKET
OPPORTUNITIES**

CHALLENGE AREAS

An aerial photograph of the ocean's surface, showing a series of waves with white, frothy foam. The water is a deep teal color, and the overall scene is captured from a high angle, looking down at the water's movement.



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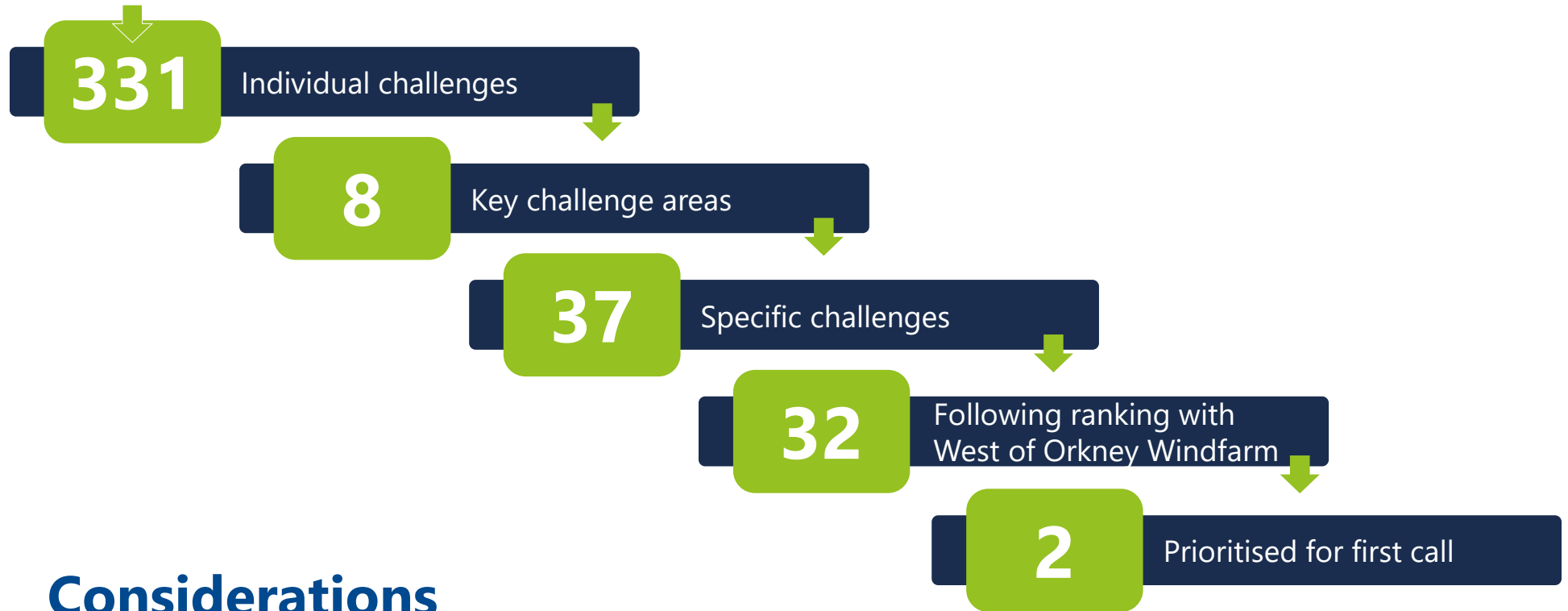
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Windfarm



BACKGROUND



Considerations

- Address specific concerns for development and operation of the West of Orkney Windfarm - reducing time, cost and risk
- Be relevant to West of Orkney Windfarm development timescale
- Align with West of Orkney Windfarm Scottish/UK content & other ambitions
- Beneficial if relevant to wider offshore wind sector – help attract co-sponsors

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8 KEY CHALLENGE AREAS



METOCEAN
Understanding site
and metocean



TURBINES
Wind turbine
generators and layout



FOUNDATIONS
Foundations, piles
and secondary steel



GRID
Cables, offshore
substation platforms
and transmission



**TRANSPORTATION
AND INSTALLATION**
Vessel choice, logistics
and weather prediction



**OPERATIONS
AND MAINTENANCE**
O&M, vessel design
and supply



**LIFE EXTENSION
AND DECOMMISSIONING**
Life extension, re-powering
and decommissioning



CROSS-CUTTING
Cross-cutting
and outside-the-box
thinking

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32 SPECIFIC CHALLENGES



A1 Seabed, sub-bottom & strata

A2 Metocean – wind, waves & current

A3 Fish, mammals, birds & benthic

A4 Long-term effects of climate change

B1 Optimised layout & control strategies

B2 Redundancy, fault tolerance & ride-through

B3 Condition monitoring & structural health monitoring

B4 Blade treatments for performance & longevity

C1 Novel design(s) for reduced mass

C2 Serial production & local capability

C3 Condition monitoring & structural health monitoring

C4 Digital twins for fatigue, life & life extension

D1 Low fault cable-lay in tough conditions

D2 Proving reliability of HVAC equipment

D3 Unmanned fully automated offshore substation platforms

D4 Advanced down-cable analytics

E1 Design for short weather window installation

E2 Construction flow, logistics and project management

E3 Techniques for large components

E4 Removing/separating people from risk

F1 Automation, robotics & removing the human

F2 Getting on the turbine in rough seas

F3 Blade maintenance in tough conditions

F4 Zero emission O&M vessels & equipment

G1 Understanding health for life extension decision-making

G2 New approaches for best-practice decommissioning

G3 New equipment for cable extraction, recovery & recycling

G4 Watching brief for early re-powering and site lease extension

H1 Sustainable materials and recyclability designed-in from start

H2 Machine learning and artificial intelligence for automated monitoring & diagnosis

H3 Remote sensing & operations, robotics and 'removing the human'

H4 Local capabilities: education, skills and human resources

INNOVATION CALLS

An aerial photograph of the ocean's surface, showing a series of waves with white foam. The water is a deep teal color, and the foam is bright white. The waves are moving from the bottom right towards the top left of the frame.

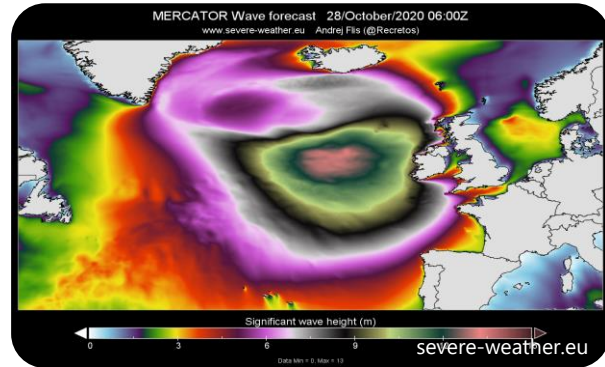
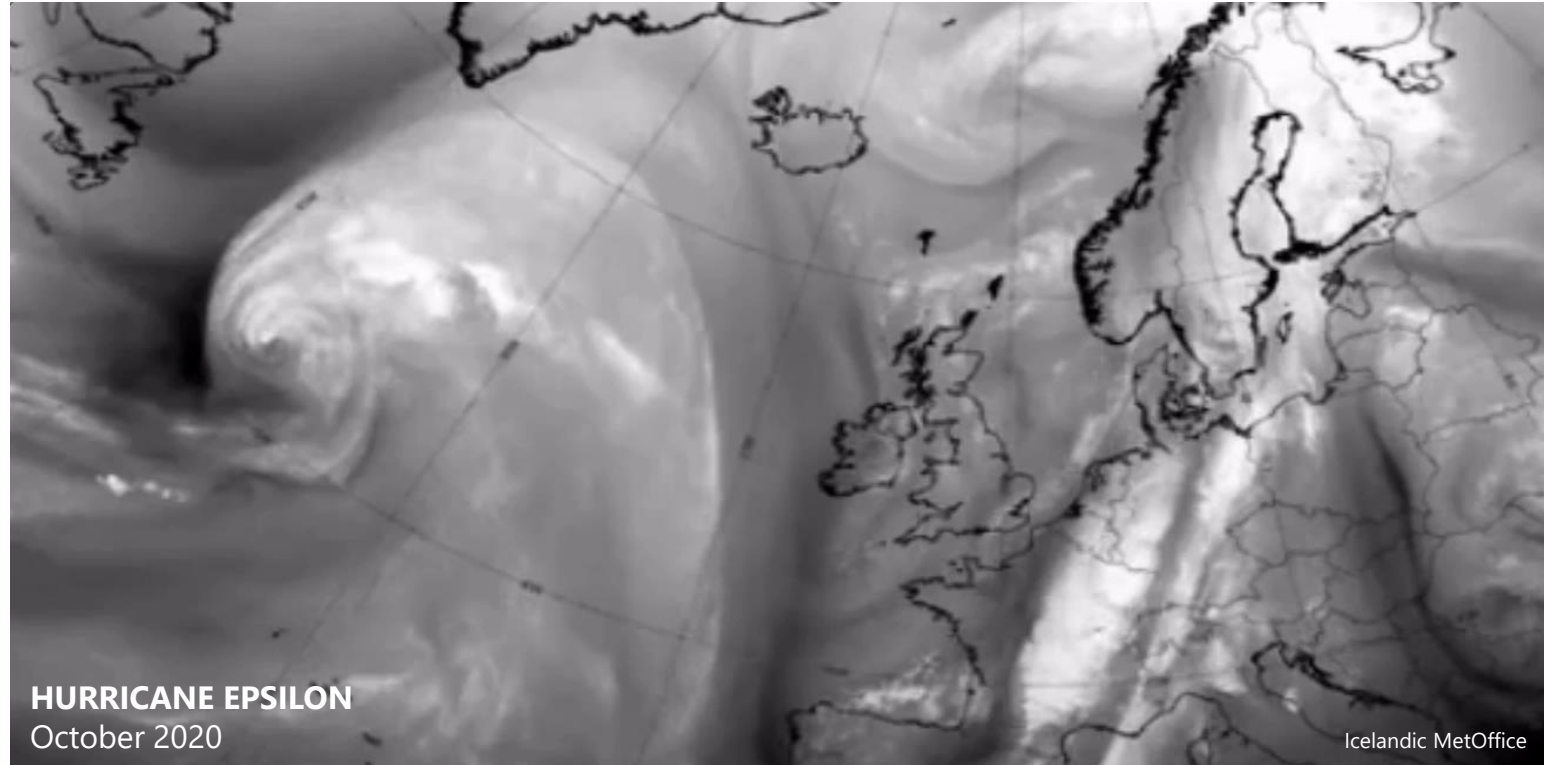
THE METOCEAN CHALLENGE



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Closing date: 1pm, Monday 12 February 2024

A2

METOCEAN

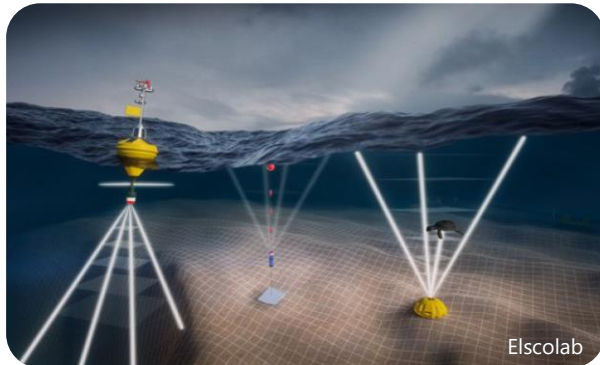
WIND, WAVES AND CURRENT

CHALLENGE Understand the wind, wave and current conditions on site and en route

AIM Inform major decisions regarding installation and O&M including vessel choice and the activities that can be performed within well-understood weather windows.

EXAMPLES

- > Measurement buoys, FLiDAR
- > Long range remote sensing
- > Seabed sensors
- > Satellite measurements
- > Advanced modelling and prediction techniques
- > Predictions v actual analysis
- > etc, etc



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E1

TRANSPORT AND INSTALL DESIGN FOR SHORT WEATHER WINDOWS

CHALLENGE Maximise installation opportunities

AIM Streamline requirements and processes to shorten required weather windows and allow highest probability of successful installation.

EXAMPLES

- > Higher Hs capability vessels
- > Higher windspeed capability lifting equipment
- > High capability load-compensation equipment
- > Quick release & refix deck-clamping systems
- > Self-installing gear
- > etc, etc



Unknown



Saipem



Glen Engineering



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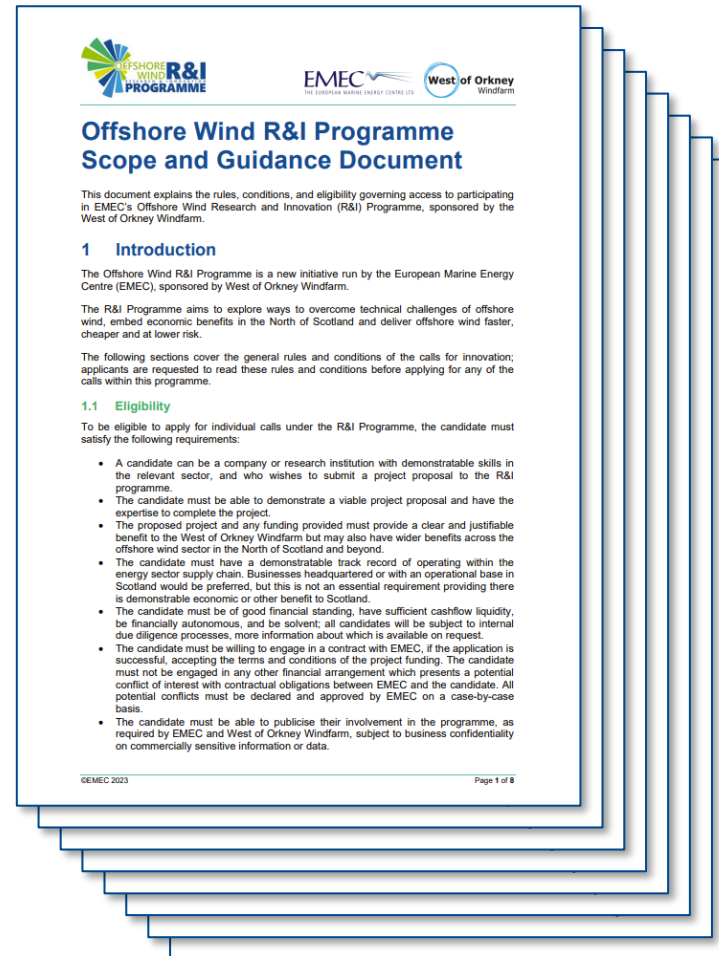


APPLICATION CRITERIA

Go to: offshoreinnovation.scot/innovation-calls

Scope and Guidance

Key impact (scoring) criteria



- > UK / Scottish benefit
- > CAPEX / OPEX impact
- > Impact on production / capacity factor
- > Improvement to safety
- > Risk to assets
- > Technology readiness level (TRL)
- > Improvements to supply chain preparedness
- > Competition
- > Market size

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APPLICATION PROCESS AND TIMINGS

APPLICATION STAGE 1

QUERIES	Mon 5 Feb 2024
DEADLINE	1pm, Mon 12 Feb 2024
APPLICANTS NOTIFIED OF OUTCOME	Mon 26 Feb 2024

DETAILED PROJECT PROPOSAL STAGE 2

DEADLINE	Thurs 28 Mar 2024
APPLICANTS NOTIFIED OF OUTCOME	Thurs 11 Apr 2024

PITCHES STAGE 3

PITCH (Edinburgh)	By 11 May 2024
APPLICANTS NOTIFIED OF OUTCOME	Mid-May 2024
CONTRACT	End May 2024
PROJECTS COMMENCE	Jun 2024 onwards

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Stage 1 - Application

www.offshoreinnovation.scot/application-form

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APPLICATION FORM GUIDANCE

Application form guidance
Section 1 – Organisational information

- Contact name
- Job title
- Organisation name
- Phone number
- Email address
- Website
- Address
- Location where majority of work will be completed?
- Number of employees (FTE)
- Annual turnover



⚠ Progress will save automatically

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Stage 2/3

Detailed project proposal & pitch

DETAILED PROJECT PROPOSAL STAGE 2

DEADLINE	Thurs 28 Mar 2024
APPLICANTS NOTIFIED OF OUTCOME	Thurs 11 Apr 2024

- > Detailed information relating to the project proposal.
- > Background experience of the candidate demonstrating the ability to achieve project success.
- > Proposed timeline for the project and any constraints known at the time of submission.
- > Funding value requested.
- > Details of any information required to complete the project.
- > Overview of identified risks and proposed mitigations.
- > CVs of personnel who will undertake the work.

PITCHES STAGE 3

PITCH (Edinburgh)	By 11 May 2024
APPLICANTS NOTIFIED OF OUTCOME	Mid-May 2024
CONTRACT	End May 2024
PROJECTS COMMENCE	Jun 2024 onwards



FAQS

What funding is available? ▼

Who can apply? ▼

Do I need to be based in Scotland to participate? ▼

How do I apply? ▼

When do applications close? ▼

How long will it take to receive feedback on your application? ▼

I don't have a project idea as yet, can I still register my interest? ▼

When will future innovation calls be launched? ▼

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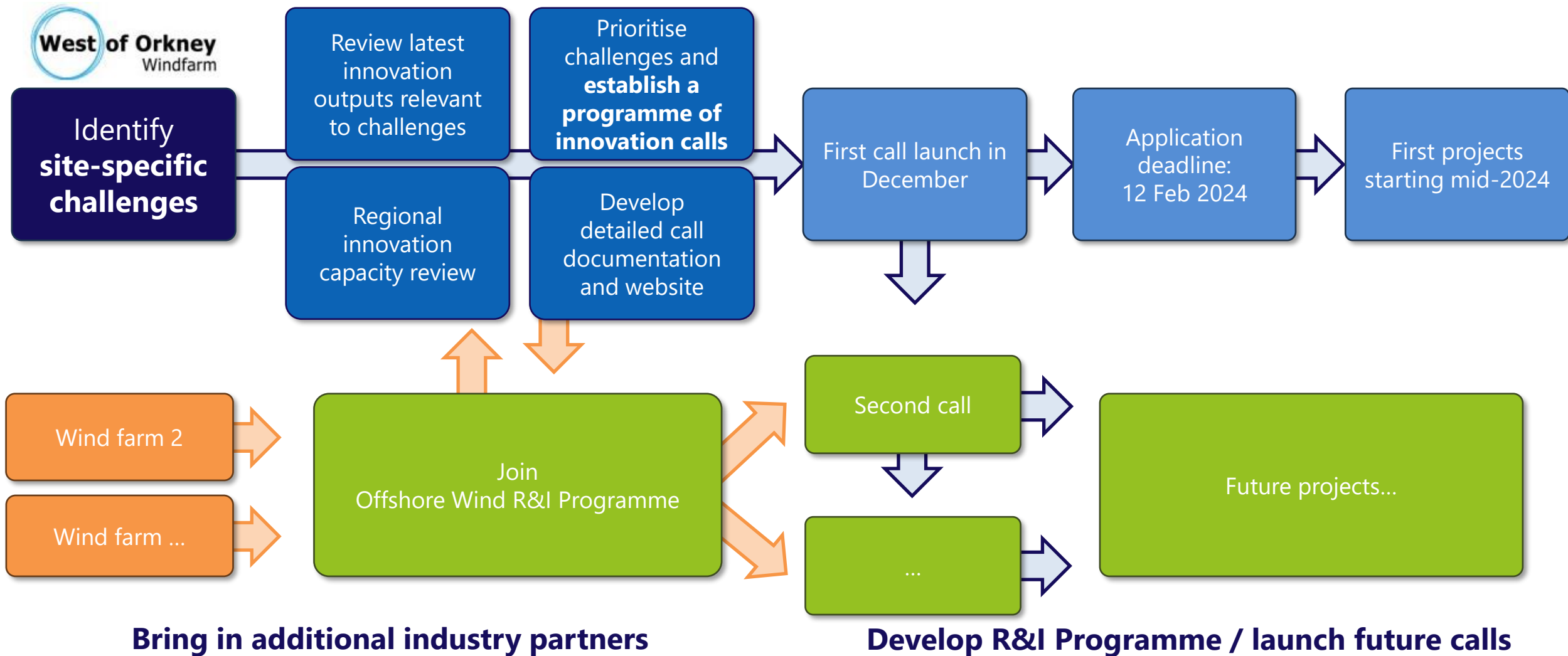


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R&I PROGRAMME

Establish R&I Programme

Launch R&I Innovation call





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