# BUSINESS BREAKFASTS



**Powering Scotland's East Coast** 

North Queensferry • Musselburgh • Dundee • Aberdeen

www.ForthandTayOffshore.co.uk

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**Powering Scotland's East Coast** 

North Queensferry • Musselburgh • Dundee • Aberdeen

#### **Ross Mackenzie**

Invest in Fife Manager, Fife Council Wednesday 18th September 2019











#### HOUSEKEEPING

- Scheduled fire alarm tests at 11am on Fridays
- If the fire alarm does sound and it is not a test, please evacuate using the clearly signposted exits
- Mobile phones on silent. BUT feel free to contribute to social media

**#ForthTayOffshore # FTOBusinessBreakfasts @investinfife** 





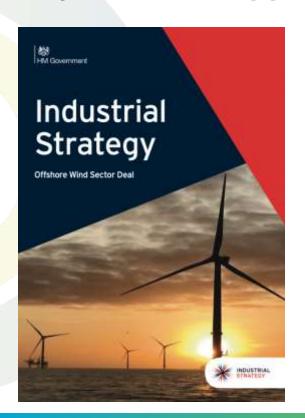
#### **PROGRAMME**

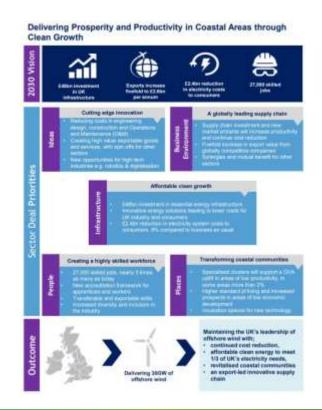
08:00	Registration
08:45	Welcome & Event Intro
09:00	Offshore Wind Industry Update
09:20	Business Perspectives
09:40	Offshore Wind Growth Partnership
09:55	Services to Support Your Business
10:05	Q & A
10:20	Closing Remarks
10:30	Networking
11:00	Close

Ross Mackenzie
Niall Stuart, Red Rock Power
Craig English, Briggs Marine
Andy Tipping, OREC
Isla Robb, Scottish Enterprise
Isla Robb, Scottish Enterprise
Isla Robb, Scottish Enterprise

#### Why a Cluster approach to Offshore Wind?







#### Place: Transforming coastal communities

- Regional hubs attracting new industries
- Synergies of collaboration between business & academia
- Higher standard of living and increased prospects in areas of low employment
- Incubation spaces for new technology

## Cluster Approach – Why Forth & Tay?

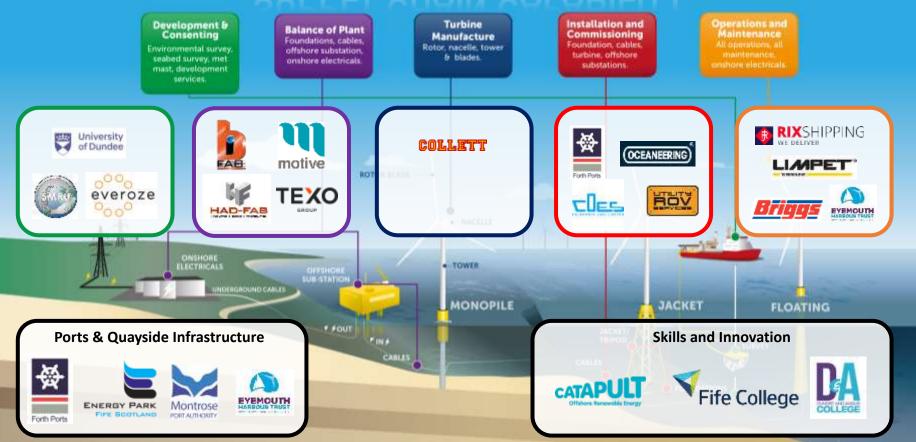


- 1 of 2 Clusters agreed in Scotland (8 in UK)
- c3.75GW capacity by 2030 (12% of UK capacity) / 2GW consented / 450MW moving into construction
- Playbook Established capability Balance of Plant (cabling, foundations and substations), Operations, Maintenance & Service and Skills (including R & D and training)
- Track record of working together in this space East Coast Renewables
- Regional Strategic Drivers:
  - Tay Cities Deal greater regional working / ambition to create a world-class renewable energy & decommissioning capability.
  - Edinburgh & South East Scotland City Deal





#### **SUPPLY CHAIN CAPABILITY**



## Who are Forth & Tay Offshore?























Our cluster is not geographically exclusive, as we take in key areas across the central belt, covering developers and innovative institutions ensuring all parts of the industry are represented; playing a part in advancing the sector for Scotland.

## **Our Aims**



- Promote the regional supply chain to Tier 1 manufacturers in the offshore wind sector and develop collaborative working throughout the industry
- Work with our world renowned colleges and universities to deliver innovative new solutions within the sector, while continuing to develop and promote the skills required to meet the sector's needs
- Share and develop knowledge of the offshore wind sector to enable the supply chain to capitalise on all opportunities
- Support members who want to compete for contracts across the UK and internationally
- Invest in infrastructure which will establish the cluster's offshore proposition as one of the UK's prominent renewable energy hubs.



#### **Activity to date**





**Cluster formation & Industry events** 



Working with Developers & Other Clusters



**Promoting Supply Chain Capability** 

#### Why should my business get involved?



- Information and updates on:
  - The growth of the local, national and international offshore wind industry
  - · Contract opportunities through:
    - · Meet the Buyer events
    - · Updates and newsletters
  - Funding opportunities, such as the Offshore Wind Growth Partnership
  - Existing support services from Business Gateway and Scottish Enterprise.
  - How local training providers can support your expansion or diversification, and how they are helping the growth of the sector
  - Innovation support and potential partnerships with local research bodies and universities
- Promotion of your company through the FTO and Scotland Offshore Wind Supply Chain database
- One-to-one meetings with offshore wind developers and their main suppliers to discuss contract opportunities at relevant events
- Case studies of other companies which have successfully entered the offshore wind market
- Networking opportunities to meet with potential partners or customers



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Industry Update
Niall Stuart, Red Rock Power





### **Objectives:**

- Scale
- Here today here tomorrow
- Latest industry trends

## UK



- 8.5GW across UK
- On track to generate 10% of UK electricity next year
- 7,200 direct jobs
- Major part of energy sector
- Contract for Difference Allocation Round 3
  - Results out tomorrow or Friday
  - Up to 6GW of projects to be supported
  - Gone from projects receiving ~300% of wholesale price to ~3% 'top up'

#### **Scotland**



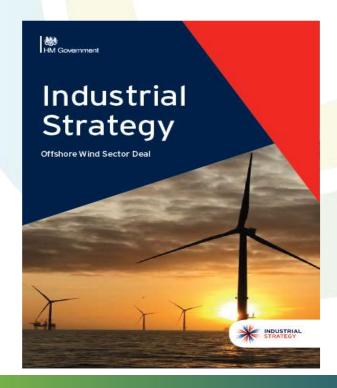
- Scotland home to leading national and international developers:
  - SSE Renewables; ScottishPower Renewables; EDPR Renewables; EDF Renewables; Red Rock Power;
- And key parts of supply chain:
  - SeaWay7; Wood; Shepherd and Wedderburn; CS Wind; Foundocean; Global Energy; Windhoist; Oceaneering
- Aberdeen Bay and Hywind 2 floating demonstrator commissioned in 2018
- Beatrice Wind Farm opened in August 2019
- Moray East in construction; Neart na Gaoithe in pre-construction
- Moray West, Inch Cape, Seagreen Alpha and Bravo consented



### **Tomorrow – Sector Deal**



- Bi-annual Contract for Difference rounds – delivery of 1-2GW pa
- By 2030:
  - 30GW in operation = 30% UK power needs
  - 60 per cent UK content
  - 30% women in workforce
  - Increase exports x5 to £2.6bn
- £250m invested in supply chain development

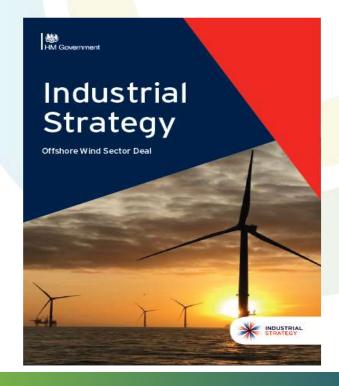


# Sector Deal (2)



#### Key conclusions:

- Industry-Govt Compact avoid stop-start
- £40bn to be invested to 2030
- Support for firms to grow/enter sector
- Stimulation of coastal communities via clusters concept
- Developers part of industrial strategy
- Structures to hold to account!
   Scottish Offshore Wind Energy Council seeking to maximise benefits to Scotland



## **Purpose of Clusters**

Developers, Governments, Enterprise Agencies, Local Authorities are supporting Cluster concept because:

- Consolidated 'landing point' for tier 1 contractors
- Opportunity to foster collaboration and identify economies of scale
- Mechanism for enabling local infrastructure investment



#### Regional Clusters:

- Deepwind (Moray Firth)
- Energi Coast (Tyne & Tees, NE)
- North West (Irish Sea, NW)
- Aura (Humber, E England)
- Norfolk & Suffolk (East Anglia, SE England)

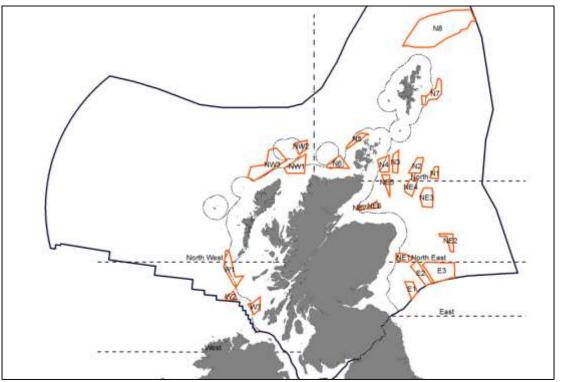






## **ScotWind and Round 4**





# Fixed Versus and Floating





# **Fixed and Floating**



Carbon Trust Floating Offshore Wind Joint Industry Project























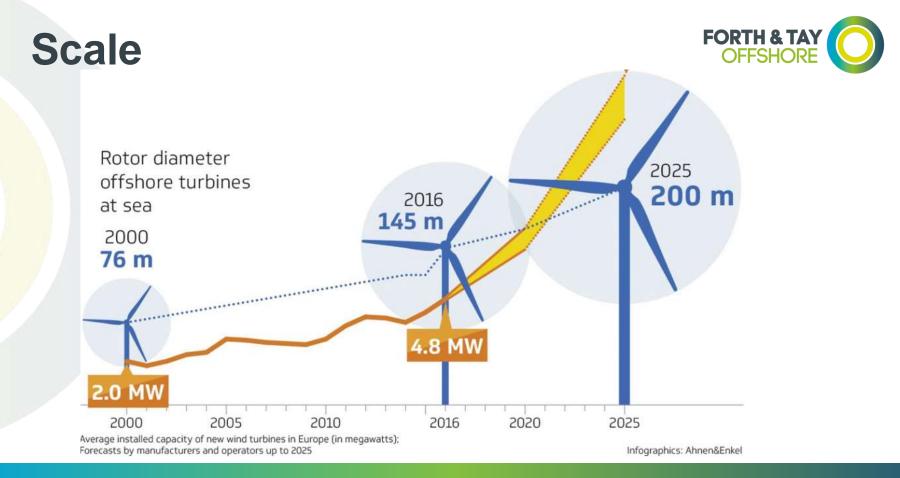












# **Policy Context**

- Net Zero enshrined in law by UK and Scottish Governments
- Need to de-carbonise heat and transport through either:
  - Electrification
  - Hydrogen
- => Significantly more offshore wind!
- 75GW offshore wind by 2050...?!



### **Conclusions**



Significant local, national and international opportunities – now and in future

Cluster here to support you to take those

Want your views on how we best do that





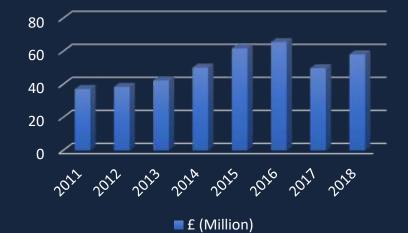


BRIGGS SUBSEA

Forth & Tay Offshore Cluster















Kingdom of Fife



Cameron



Forth Jouster



Forth Guardsman



Forth Warrior



Forth Trojan



## **⊘** OTHER SERVICES



- Marine Salvage
- Fuels & Infrastructure
- Environmental Consultancy & Pollution Response
- Oil & Gas Terminal Operations
- Aids to Navigation
- Vessel Management Services
- Marine Survey
- Diving



CABLES & OFFSHORE WIND



#### SUBSEA CABLES

- Project management
- Repair, maintenance and installation
- Shore-end installation
- PLGR
- Planning and permitting
- Route engineering
- UXO Survey
- Cable recovery
- Cable storage facilities
- Remedial operations













• 115 Cables

- 500 KM network
- 132kV
- 33kV
- 11kV
- XLPE, PILC & Oil Filled
- Shallow Water
- Shore end repairs

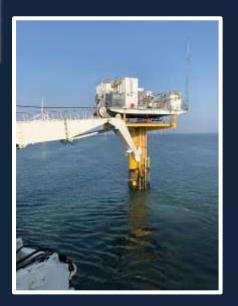




UK	Europe	
Barrow	Borkum Riffgrund 1	
Burbo Bank	Gode Wind 1	
Burbo Extension	Gode Wind 2	
Walney 1	Horns Rev 1	
Walney 2	Horns Rev 2	
Walney Extension	Vindeby	
Gunfleet Sands	Nysted	
Westermost Rough	Anholt	
West of Duddon Sands	Middelgruden	
Race Bank		
Hornsea 1&2		
LINCS		



#### ØRSTED FRAMEWORK AGREEMENT









#### D E L I V E R Y E X P E R I E N C E

- SSEN Installations
- SSEN Repairs
- Cable protection works
- Ørsted framework
- Other cable works



#### SUBSEA CABLE REPAIR

Island Interconnector

- Island Interconnector
- Cable failure
  - Fault location testing
  - Location Weather/ Proximity
  - Rapid Mobilisation
  - Repair
  - Burial
  - As Built Survey







CABLE STORAGE AND TRANSPORTATION Cable transportation experience

- Coiled cable
- Heavy lift drums
- Transpooling
  - Suspended powered quadrant operations
  - Carousel operations
  - Static tanks



#### Sustainability

#### Risks

- Empty Chairs
- Empty Tables
- Skills Crisis
- Fragility
- Short term build phase

#### Required Developments

- Grants / RSA Shakeup
- Skills placement
- Apprentice Scheme
- Local content
- Port Enhancements
- Engagement with Tier 1 contractors
- Engagement with Operators

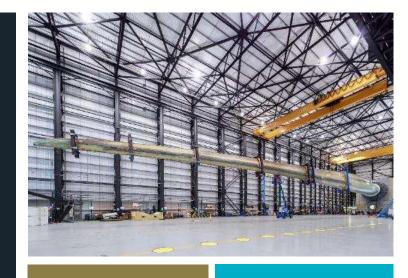
#### Opportunities

- Sustainable Long term Employment
- Local opportunity
- Marine Skill resurgence
- Innovation
- Cost reduction









## **ORE Catapult supply chain programmes**



Development Fund

European Union European Regional



#### **Our Mission:**

Accelerate the creation and growth of UK companies in the ORE sector

Reduce the cost of offshore renewable energy

Deliver UK economic benefit







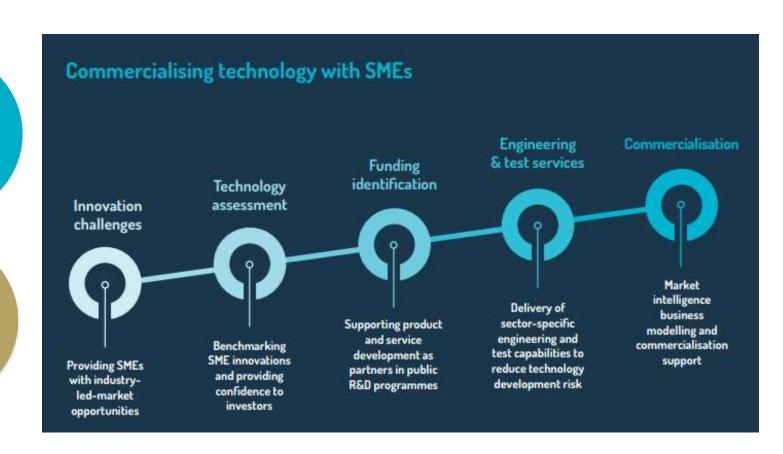


#### Commercialising technology with SMEs



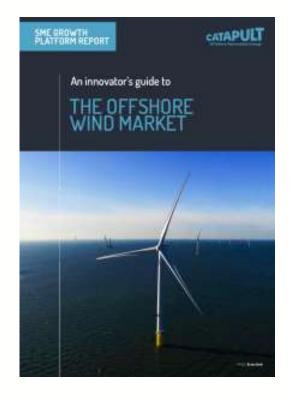
158
SMEs
supported
in 2018/19

597 SMEs supported since 2013



#### **Innovators Guides**









Innovation support programmes







# Offshore wind technical issues

OEMs and utility companies have:

- Confidential engineering challenges to solve with no time to explore markets
- Low exposure to companies outside the offshore wind supply chain



A platform for solving industry challenges

# Technical solutions from other sectors

Solution providers find it difficult to:

- Find the right person within a target customer's organisation
- Prove the value proposition of products
- Understand customer's time constraints









#### Competition outcomes working with SPR



#### From pitch



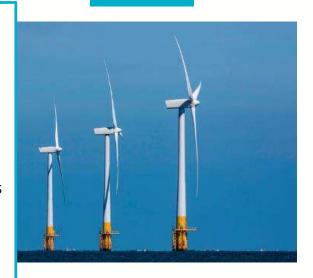
to

#### **Outcomes**

- 11 Companies pitched
- 3 Demos planned at offshore farms
- 4 letters of support for investment
- 2 R&D project secured worth £1.66m
   with SPR and ORE Catapult as Partners
- 5 R&D projects under development



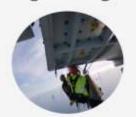
#### Windfarm



#### Current Challenges: GE Robotics Challenge



## Generator Pole Shoe Inspection and Tightening



The Robotics Innovation challenge competition, delivered in partnership with ORE Catapult and the Knowledge Transfer Network, is supporting GE to identify innovative solutions to innovation challenges. The generator pole shoe bolt connection on the GE Haliade-X units need to be inspected within an interval of 36 months after commissioning is complete. Companies are required to develop a semi or fully autonomous device that is capable to perform the inspection of the pole shoe connection.

31 days left

SELECT CHALLENGE

#### Blade Inspections & Repairs



The Robotics Innovation challenge competition, delivered in partnership with ORE Catapult and the Knowledge Transfer Network, is supporting GE to identify innovative solutions to innovation challenges. The harsh environmental conditions that apply to an offshore wind turbine create the need for regular inspections, maintenance and repair of the blades and its subcomponents. GE seeks an inspection method that eases the job by eliminating human resource exposure to rope climbing.

31 days left

SELECT CHALLENGE

www.ore.catapult.org.uk/work-with-us/smes/innovation-challenges







#### Aberdeen Bay Project



#### Vattenfall – EOWDC (Aberdeen Bay)

- 11 turbine array 2.5km from beach (2 x 8.8MW & 9 x 8.4MW)
- Unique opportunity for UK Innovators to work with ORE Catapult to bring new technologies to the market through testing in a real-world environment
- Collaboration to advance cost reduction and improve safety in offshore wind.
- ORE Catapult submit innovation concepts for selection, demonstration and review annually
- As of 17<sup>th</sup> Sept, 8 technology demonstrations have been approved by Vattenfall and will go offshore over next few months. A further 34 new enquiries received.



#### **ORE Catapult Power Available Hackathon**





£10,000 Prize Pot

"Provide an accurate wind farm Power Available (PA) measurement using data that is already available at operational wind farms"

- Teams of up to six
- Any background: data, wind, researchers, businesses

- Registrations open till 18<sup>th</sup> October
- Opportunity to pitch technologies to ScottishPower Renewables

https://ore.catapult.org.uk/stories/offshore-wind-hackathon/



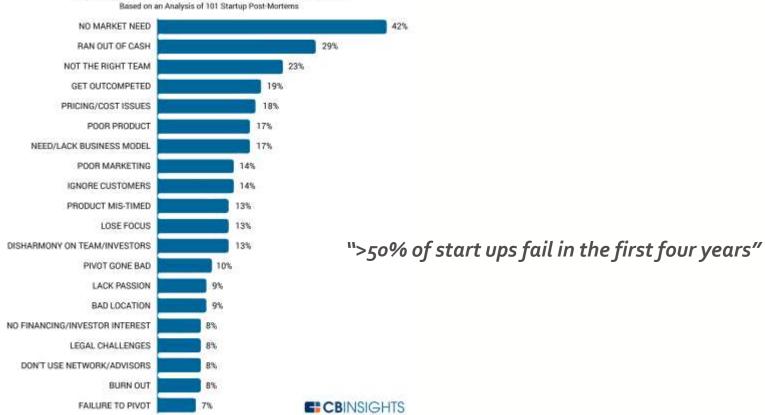


## Intro to the Launch Academy

#### Nullifying the risks







Source: <a href="https://www.entrepreneur.com/article/307724">https://www.entrepreneur.com/article/307724</a>

#### What is the Launch Academy





#### Partners and industrial advisors



Specialised Industry Knowledge Business Building Knowledge Productivity Knowledge















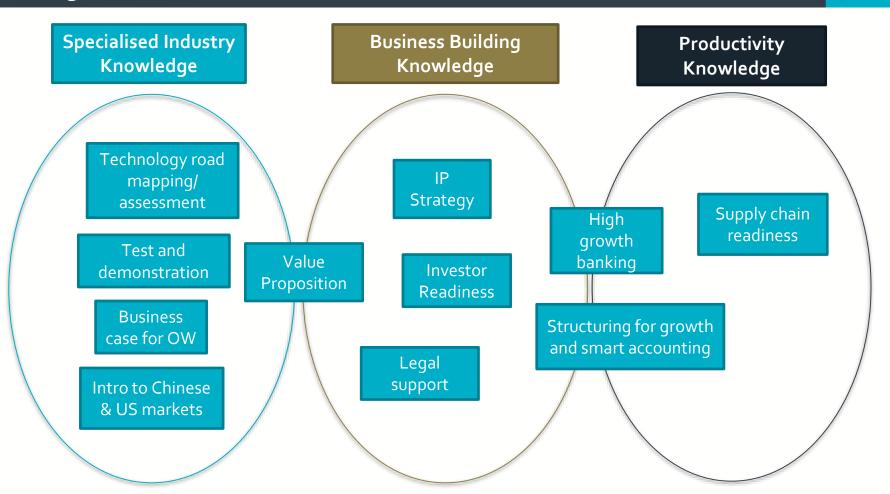
**SIEMENS** Gamesa



Bank of Mentors

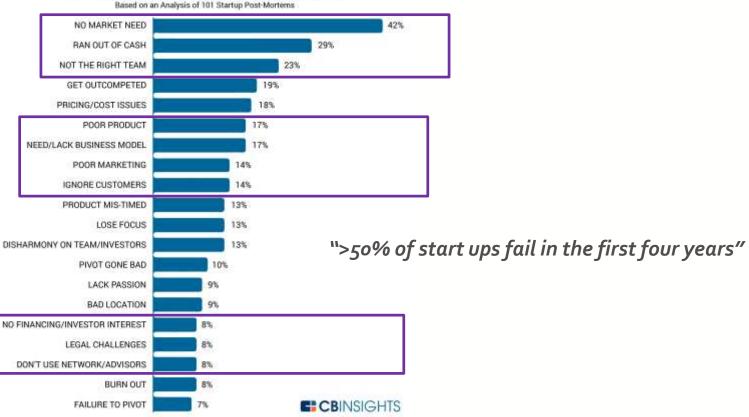
#### Programme content











Source: <a href="https://www.entrepreneur.com/article/307724">https://www.entrepreneur.com/article/307724</a>

#### SME Support Case Study: Synaptec









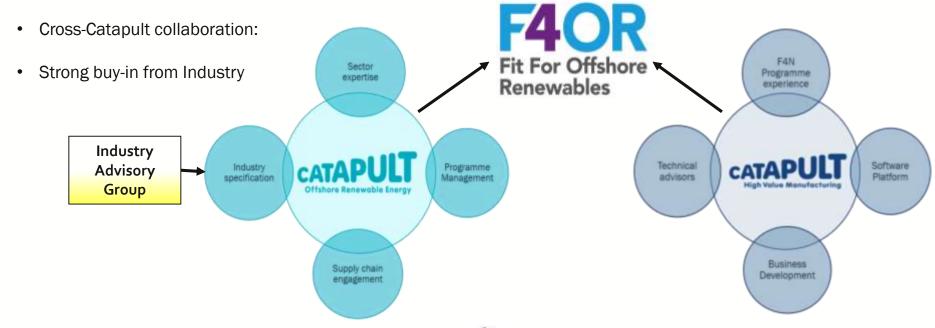
#### **Commercialisation Journey**

- Innovation challenge winner
- Introduction to end users
- £250k i:UK grant secured with ORE Catapult as partner
- Trial at 7MW turbine
- Offshore trial with end user
- Joined ORE Catapult Gamechangers
- Introduction to Williams Foresight resulted in £2.1m investment

#### Fit 4 Offshore Renewables – National Programme



- The National F40R programme is currently under development (building on the success of the Scottish Pilot)
- National Programme Launch is planned for Oct/Nov 2019



























## **OWGP Intro**





## A long-term business transformation programme



#### **Objectives**

Increased competitiveness of UK supply chain leading to:

- Increased UK content in UK projects.
- Increased exports to global markets.

## **Funding**

OWIC (offshore wind developers) are funding OWGP.

#### **Delivery**

Budget of £100m over ten years to provide:

- Analysis strategic capability assessments
- Services expert advisory services to supply chain
- Grants for innovation and prototypes







## Targeting high growth potential companies



#### Who?

- ✓ work in offshore wind sector
- ✓ create new sustainable jobs
- ✓ increase exports to global markets
- √ develop UK owned IP
- √ bring cross-sector skills and experience

#### What?

Support to participants through a series of interventions

#### How?

- National programme with reach via clusters
- Engagement with OWIC members



## Four core strands of activity



Enhanced engagement between developers and supply chain.

Developer-led activity



Collaborating for Growth

Business Competitiveness An intensive structured business improvement programme.

В

Increasing the breadth of the UK supply chain by attracting cross-sector companies.

Building New Capacity

Supply Chain Futures

Developing growth based on new UK intellectual property.

C

D



## D

## Pilot calls launch in September 2019



# Business Competitiveness

Target: Innovation in manufacturing/fabrication

Objective 1: Encourage companies to explore new ways of working

Objective 2: Build ecosystem of delivery partners

Delivery: Access to manufacturing advisory services\*

# Supply Chain Futures

Target: Next generation products and services

Objective 1: Enable technology development planning

Objective 2: Engage with developers and Tier 1s at early stage

Delivery: Grant funding for feasibility studies



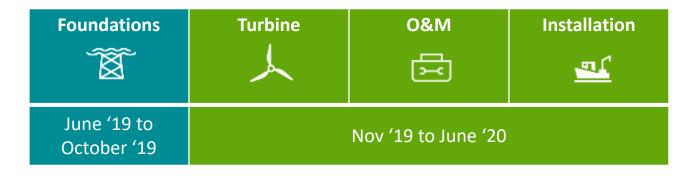
## c Building the roadmap to 60% UK content



#### Strategic Capability Assessment

- Identifying strong growth areas
- Capability
- Capacity
- Competitiveness
- Market attractiveness

Leading to roadmap to 60% UK content



#### Contact us

#### **GLASGOW**

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#### **BLYTH**

National Renewable Energy Centre Offshore House Albert Street Blyth, Northumberland NE24 1LZ

T +44 (0)1670 359 555



#### **LEVENMOUTH**

Fife Renewables Innovation Centre (FRIC) Ajax Way Leven KY8 3RS

T +44 (0)1670 359 555



#### HULL

**O&M Centre of Excellence** Ergo Centre Bridgehead Business Park Meadow Road, Hessle HU13 oGD













# Support for the supply chain

Isla Robb Scottish Enterprise

## Scottish Enterprise offshore wind support



- Supply Chain Workshops Exploring specific supply chain opportunities
- Meet the Buyer Events Tailored events with leading OEMs and developers
- Technical Solutions Workshops -Sessions focussing on specific industry challenges and potential solutions
- Supply Chain Database



- Energy Markets Expert Support Programme - Up to two days of FREE one-to-one support on market and technology appraisal, plus 4 days 50% funded
- Offshore wind
- Heat
- Water
- Energy Systems
- O&G decomm
- Nuclear decomm
- Low carbon Transport





- Energy Skills
  Scotland –
  Encouraging talent into
  the energy sector (£6.5
  million)
- Low Carbon Skills
   Fund specific training
   (50% funding training
   for small businesses)

# Scottish Development International



#### **Overseas staff**

in 30+ offices
in 23
countries,
providing
trade support
to companies
identifying
trade
development
opportunities



specialists
in Scotland
providing 1-2-1
support and
strategic

**Trade** 

challenge to companies in key sector portfolios

## **Scottish Development International**



#### SDI can support with...

- Market Awareness Events
- International Strategy Workshops
- Skills / Knowledge / Training
- Market Research Service
- Business Opportunity Identification

- Partner Identification / Due Diligence
- Market Entry Support
- Exhibitions, Missions, Learning Journeys
- Political Support
- In-country assistance via SDI / Partners
- International Grants

## **ENERGY ACTIVITY PLAN**



Angola Mission (with ElCand DIT)

Offshore Europe Aberdeen

Nuclear Decommissioning Japan (with DIT)

Nigeria/ Ghana Mission



As ia Offshore Wind Taiwan (with DIT)



Mission to AWEA and key US offshore wind states (with partner)

Offshore Technology Days Show (with DIT)

China Wind Power Expo (with Renewable UK)

OTCBrazil (with DIT)

lan Ross ANGOLA

Denise Addie SCOTLAND

JAPAN lan Ross

NIGERIA

TBC TAIWAN

lan Ross MOZAMBIQUE

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Oct 🎒











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<b>&gt;</b>	Africa Oil Week Capetown	Ian Ross SOUTH AFRICA	ian ross@scotent.co.uk 0141 468 5506
C	ADIPECExhibition (with EIC)	Hadi Fawzy ABU DHABI	hadi.fawzy@scotent.co.uk 0141 468 5467
Jan 🔊	Guyana (DITled)	Marion Murray GUYANA	marion.murray@scotent.co.uk 0141 468 5865
Feb 0	India Petrotech (with DIT led by EIC)	TBC INDIA	edward.friel@scotent.co.uk 0141 468 5506
į,	EGYPS	Hadi Fawzy EGYPT	hadi.fawzy@scotent.co.uk 0141 468 5467
	Mexico Mission (DITled)	Marion Murray MEXICO	marion.murray@scotent.co.uk 0141 468 5865
	Wind Energy Expo (with EIC)	<b>TBC</b> JAPAN	edward.friel@scotent.co.uk 0141 468 5992
ar 🌀	Brazil Mission (DITTed)	Marion Murray BRAZIL	marion.murray@scotent.co.uk 0141 468 5865
	CHINA CIPPE (led by partners)	lan Ross CHINA	lan.ross@scotent.co.uk 0141 468 5506
	Australia Oil and Gas (with EIC)	TBC AUSTRALIA	edward.friel@scotent.co.uk 0141 343 7951
	Energy Systems Mission to California (TBC)	John McGinnes USA	john.mcginnes@scotent.co.uk 0141 468 5618
<b>(6</b> )	Algeria Trade Mission	Hadi Fawzy ALGERIA	hadi fawzy⊕scotent.co.uk 0141 468 5467

# Support





#### **Scottish Investment Bank**

helps SMEs access finance and invests alongside private sector partners from across the globe



to support the adoption of low carbon heating and energy efficiency measures (EESP)





**R&D Grant** supports

**Patent Box** 

reduces corporation tax on patents

R&D Tax Credits for new products and services





£20 million

for innovative energy projects (EIF)

**RSA** 

for creating jobs in specific locations

£29M to date for 77 wave energy projects (WES)

£60 million

for low carbon infrastructure (LCITP)



# **Business Support**





- Brexit support service with PrepareForBrexit.scot has excellent resources and toolkit.
- Between £2,000 to £4,000 funding to help you manage a wide range of Brexit impacts to plan and prepare for withdrawal.

More information here: <a href="https://www.prepareforbrexit.scot/updates/brexit-support-grant">https://www.prepareforbrexit.scot/updates/brexit-support-grant</a>



 Scottish Cyber Voucher – Scotland based SME's can apply for vouchers worth up to £1000 to achieve Cyber Essentials certification.
 More information: https://cyberessentials.online/



• **Digital Development Loan** – between £5000 - £50000 interest free loan to improve digital capability. For example it can be used for cyber security, data analytics, software engineering and digital skills development.

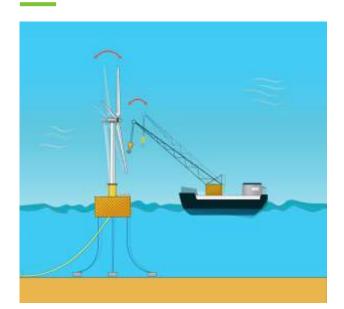
More information here: <a href="https://www.scottish-enterprise.com/support-for-businesses/funding-and-grants/growing-your-business/digital-development-loan">https://www.scottish-enterprise.com/support-for-businesses/funding-and-grants/growing-your-business/digital-development-loan</a>





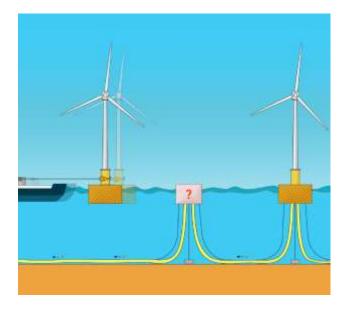
- Objective is to support the development of technologies which will accelerate the deployment of floating offshore wind in Scotland.
- Project is supported by the Floating Wind JIP: 14 leading offshore wind developers & Carbon Trust, supported by Scottish Government.
- Looking to address four main challenges but also open to other technology ideas under 'Miscellaneous' category.





1. Safe and cost-effective exchange of large turbine components offshore

2. Safe and cost-effective disconnection and re-connection of offshore foundation structures

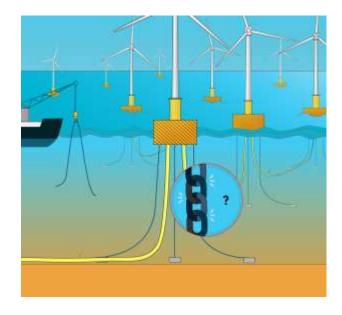






3. Cost-effective monitoring and inspection of large numbers of mooring lines, cables and foundation structures

4. Cost effective manufacturing, installation and maintenance of mooring lines and anchors





- Deadline for Applications is 09:00 on Tuesday 5<sup>th</sup> November
- Shortlisted applications will be invited to present to Floating Wind JIP Developers in London between 3<sup>rd</sup> and 5<sup>th</sup> December
- Successful projects will be expected to start by early January 2020 and be completed by end January 2021.
- For further information and to apply please visit: <a href="https://www.carbontrust.com/about-us/tenders/floating-wind-technology-acceleration-competition/">https://www.carbontrust.com/about-us/tenders/floating-wind-technology-acceleration-competition/</a>
- Please send any questions to <u>floatingwind@carbontrust.com</u>

#### Offshore Renewable Energy Catapult

The National HVDC Centre



CATAPULT



**ETP** 

**National HVDC Centre** 

**NSRI** 

**Edinburgh centre for Robotics** 



















## Questions...



Questions, questions, questions.....

Answers, answers answers....



# Thank you

