

Supergen



Offshore
Renewable
Energy

Autumn Assembly 2022

Welcome and introduction

Supergen



Offshore
Renewable
Energy

Welcome to the Supergen ORE Hub Autumn Assembly

Professor Deborah Greaves OBE FREng FICE FRINA
Director of the Supergen ORE Hub
University of Plymouth



Supergen ORE Hub Objectives

The Supergen Offshore Renewable Energy Hub provides **research leadership to connect** academia, industry, policy and public stakeholders, **inspire innovation** and maximise societal value in offshore wind, wave and tidal energy.

Inspire

- Execute, publish and inspire distinctive and ambitious world class research through the core programme
- Facilitate a programme of co-ordinated UK led research through the flexible fund
- Become a 'beacon for equality, diversity and inclusion (EDI)'
- Support development of early career researchers (ECR)

Connect

- Be a respected voice for policy makers and a trusted partner for industry
- Have strong international collaboration
- Take a whole systems approach to ORE



Increased targets for offshore wind to 50GW by 2030
5GW of floating offshore wind by 2030



£20m pa Contracts for Difference ring-fencing for tidal stream development



£8m investment in EPSRC Marine Wave Energy Research

Structure – Our Management Group

- Bringing together shared skills and expertise, allowing transfer of fundamental knowledge, shared learning and use of resources for interdisciplinary research.
- Each Partner University brings a combination of research and technical expertise.



Supergen ORE Hub Director
 Prof. Deborah Greaves
 University of Plymouth

+9 Co-Directors





Professor Deborah Greaves
OBE

Director of the Supergen ORE Hub
(University of Plymouth)



Professor Tim Stallard

Co-Director of the Supergen ORE Hub
(University of Manchester)



Professor David White

Co-Director of the Supergen ORE Hub
(University of Southampton)



Henry Jeffrey

Co-Director of the Supergen ORE Hub
(University of Edinburgh)



Professor Richard Willden

Co-Director of the Supergen ORE Hub
(University of Oxford)



Professor James Gilbert

Co-Director of the Supergen ORE Hub
(University of Hull)



Professor Philipp Thies

Co-Director of the Supergen ORE Hub
(University of Exeter)



Professor Beth Scott

Co-Director of the Supergen ORE Hub
(University of Aberdeen)



Professor Byron Byrne

Co-Director of the Supergen ORE Hub
(University of Oxford)



Professor Xiaowei Zhao

Co-Director of the Supergen ORE Hub
(University of Warwick)



Professor Feargal Brennan

Co-Director of the Supergen ORE Hub
(University of Strathclyde)



Industry Network

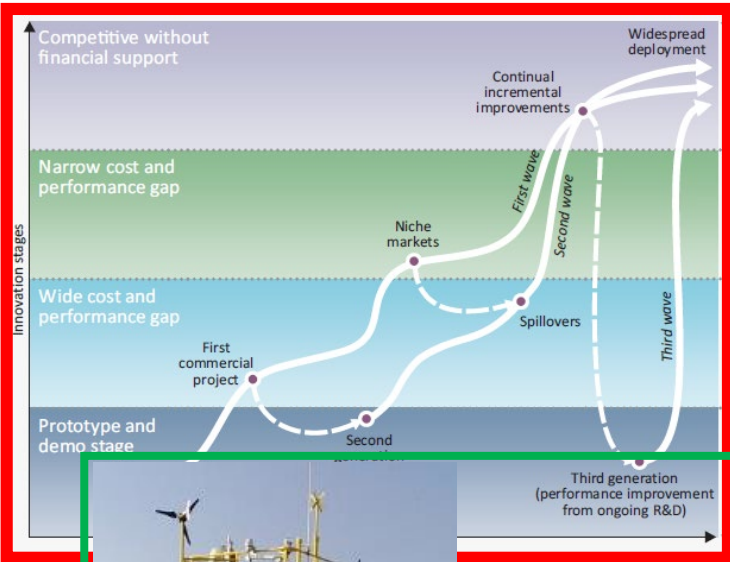
- 28 strong industry advisory board
- IAB Working Groups established
- Workshops in targeted themes bringing together stakeholders from across academia, industry, government, and regulators
- 408 individual letters of support from industry for Flexible Funding projects
- 51 industry partners in research projects



Latest Highlights

- Additional and follow on funding with industry partners – e.g. significant investment at National Decommissioning Centre, Aberdeen
- Ørsted recently invested in strategic environmental research with state-of-the-art design of multi-trophic monitoring campaign
- Large industry players engaging closely with Supergen ORE Hub strategy and connecting with flex fund projects

Core Research



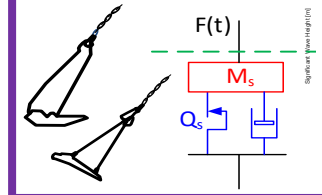
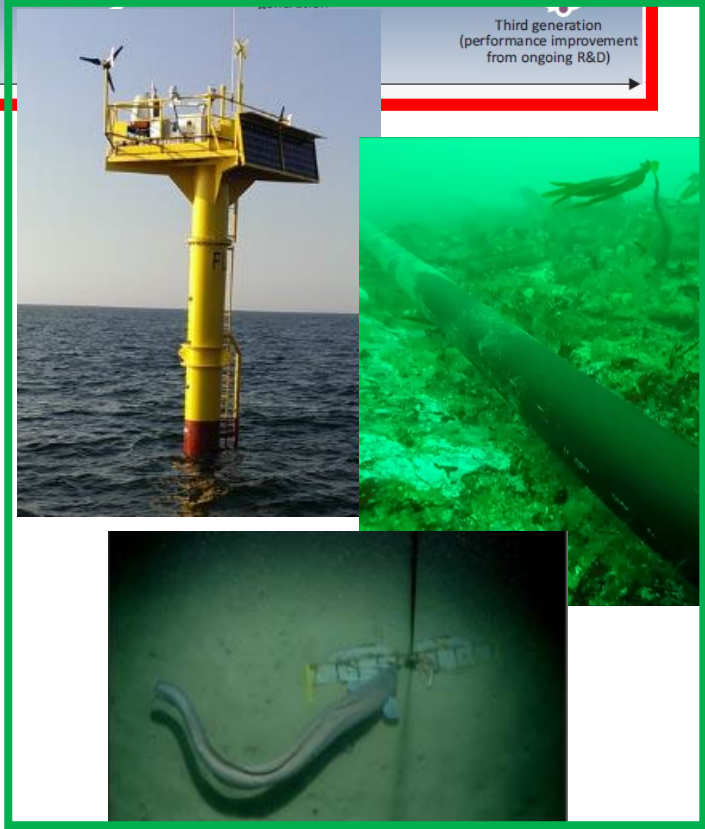
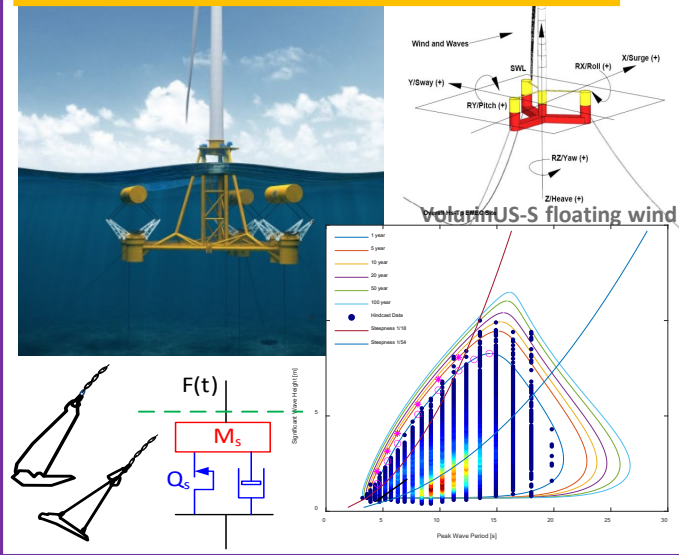
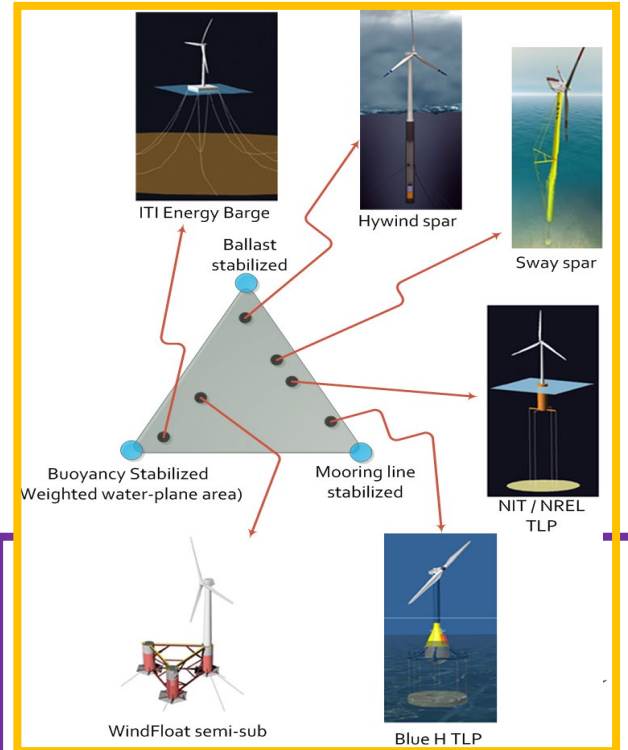
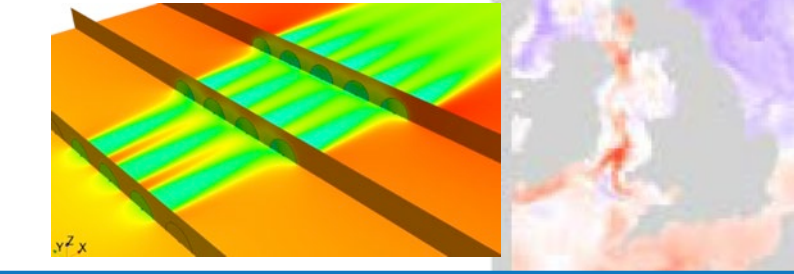
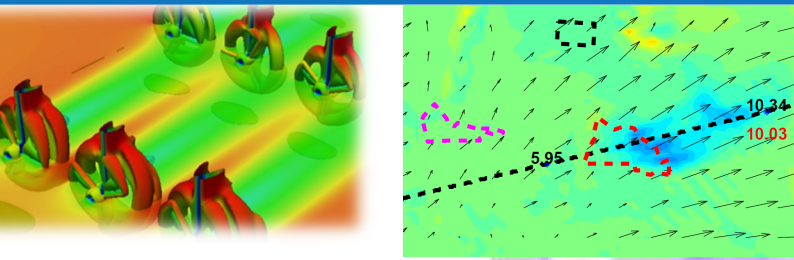
WP1: Demonstration of Scenarios
Aspirational ORE systems in 2025 - 2050

Projected benefits, risks and priorities
WP2: Sites and Conditions
Creating test beds, improving characterisation

Sandbox
WP4: Design
Cost and risk reduction through novel design and innovation

Benchmarking
WP3: Modelling
Building confidence in multiscale models of performance, environmental impact and GVA

WP5: Floating Futures
Concepts, designs and innovations



Flexible Funding

- **30 projects, £3m Flexible Funding in three rounds**
 - £2.6m in industry match
 - Two-stage blind review process undertaken
 - Collaboration with ORE Catapult in Round 2 and ORE Catapult's Floating Offshore Wind Centre of Excellence (FoW CoE) in Round 3
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- Enhanced environmental mitigation assessments for Floating Offshore Wind sector
 - Developed 'RoboFish, an "Autonomous Biomimetic Robot-fish for Offshore Wind Farm Inspection
 - Validation of surface current mapping tools using drones as compared to ADCP, ADV, and drifters
 - New numerical model for pile driving in chalk
 - Use of recycled glass fibres for wind turbine blades
 - New method to account for the effect of current on wave buoys



Find out more:
www.supergen-ore.net/flexible-funding

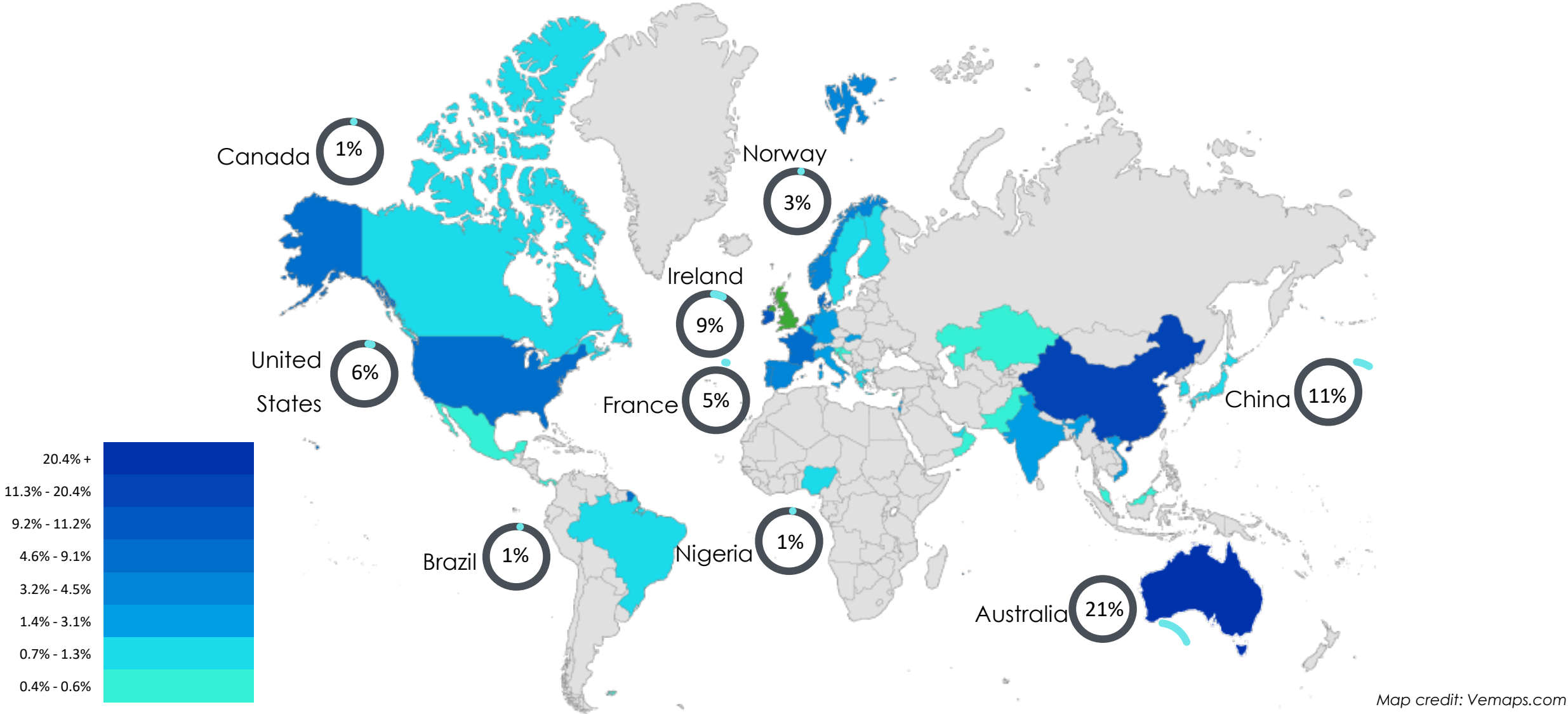
International engagement

- Bronze sponsor of the European Wave and Tidal Energy Conference (EWTEC 2021).
- Invited talks in the US, China, Australia, and Europe.
- Supergen ORE Hub took part in UK delegation at the Business Network for Offshore Wind International Partnering Forum 2019 in New York City supported by the UK Science and Innovation Network (SIN)
- New research collaborations in Innovate UK Bilateral UK and US offshore wind R&D programme.
- New strategic research collaborations between UK universities and groups in US and China in the area of Offshore Wind.
- New collaboration between UK and US universities on the impacts of renewable developments on fisheries industry.
- FCDO India Energy Transition project – Delivery of elements of the India offshore wind prosperity fund programme.



International collaborations on publications from 2017 – 2021

(Supergen ORE Hub Co-Directors)

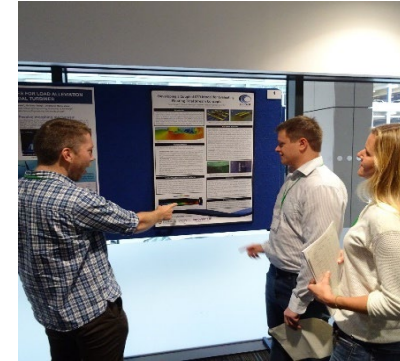


Map credit: Vemaps.com

Early Career Researchers

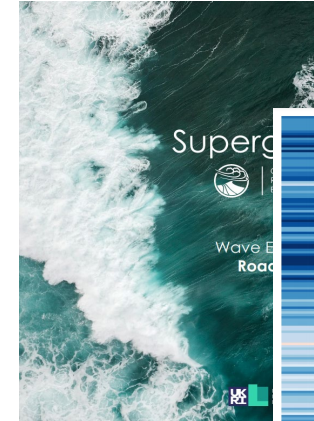
- **190+ members of our ECR Network**
- LinkedIn discussion group for ECR community members
- **Events** include: ECR Forums; Workshops on Fellowship applications, career development, research topics; Cross-hub webinars; ECR masterclasses
- **Awarded four rounds of ECR Research Funding**
- 37 projects at a total of £150,000 invested
- Designed to be a flexible fund for ECRs to support small activities in developing ECR career skills and/or research.

Join the network: www.supergen-ore.net/ecr-community



Policy Impact of Supergen ORE Hub

- Wave Energy Innovation Position Paper and Wave Energy Road Map
 - Responses to the BEIS consultation on Contracts for Difference.
 - Contributed to POST Parliamentary Briefing on Marine Energy
 - Responses to the BEIS call for evidence on the potential of marine energy projects
- Led to £8m funding for Wave Energy projects.
- Fed into funds being split into separate fixed and floating offshore wind categories
- Fed into the UK Government Energy White Paper
- Fed into CfD Round 4 ring-fence for tidal stream
- Fed into £31m of funding for 11 Floating Offshore Wind projects



Wave Energy Road Map, 2020



Role of ORE in Net Zero, 2021



ORE value to UK economy, 2021



UK Ocean Energy Review 2021

Equality, Diversity and Inclusion (EDI)

- EDI Scoping study
- Joint EPSRC Supergen Programme survey.
- Working with OWIC EDI working group
- ‘Supergenerations’ concept mentoring scheme
- Public Engagement activities
- **Gaia’s Energy Adventure! Children’s adventure book.**

- Launched at the COP26 green zone
- 200 copies donated to 66 primary schools across the City of Plymouth
- Over 200 additional copies sold
- Additional copies donated by Fred Olsen to primary schools in Orkney

Read more about our impact and outreach at www.supergen-ore.net/impact

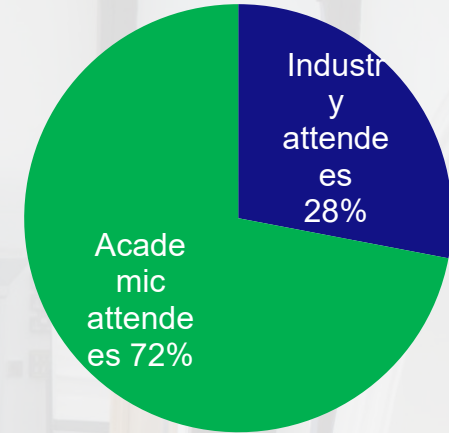


Connecting and engaging with the Offshore Renewable Energy Community

1200+ attendees

160+ speakers

4 Annual Assemblies



28 world leading industry partners form our advisory board

Connecting academia and industry on the **latest thinking** and building collaborations for **research and future work**

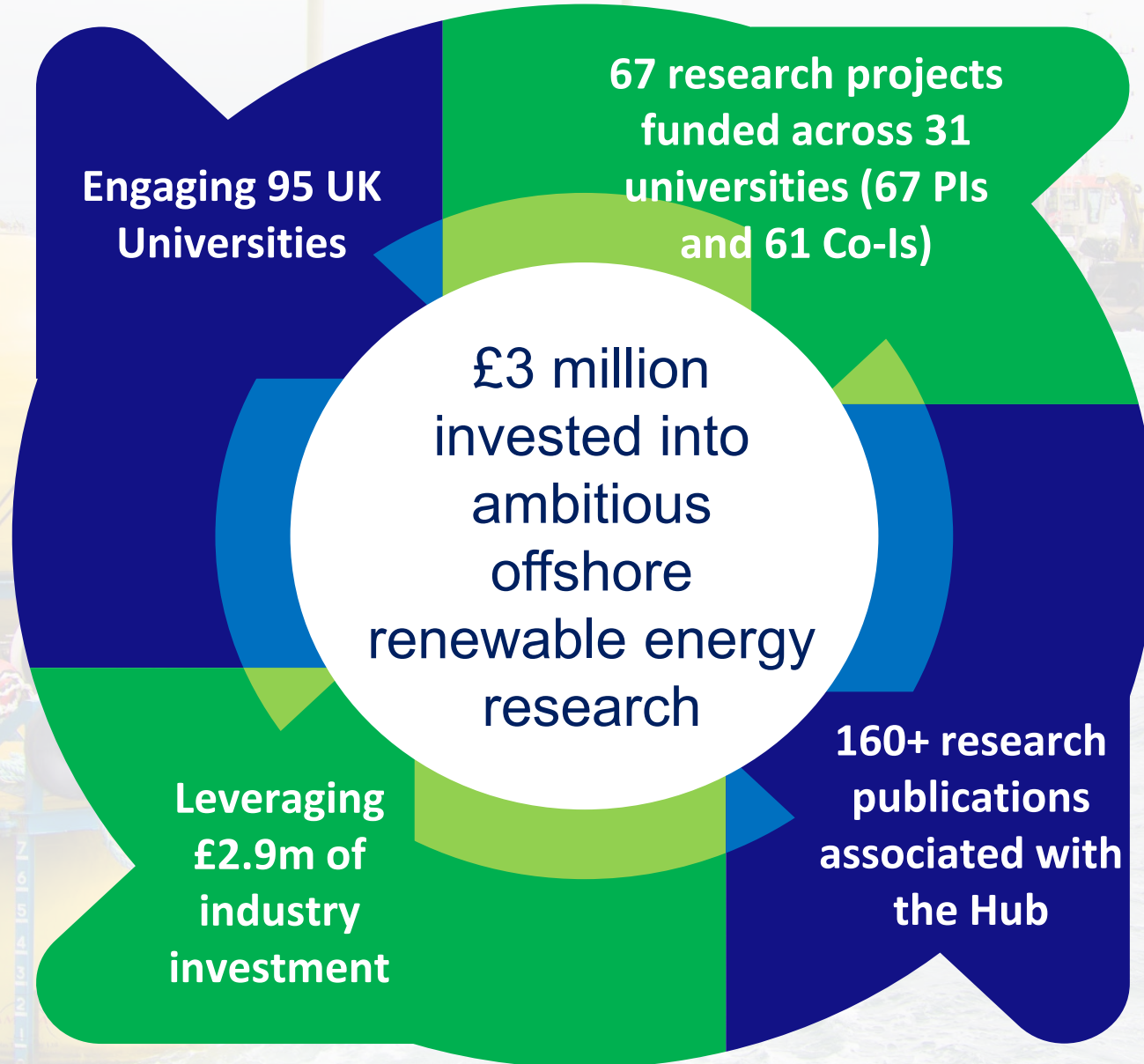
3500+ attendees across academia, industry, policymakers and the public

115+ events and workshops

Leading sector reports and Research Landscape

Promoting and sharing UK ORE research through a **single platform** and **shared voice**

Accelerating the development of offshore wind, wave and tidal technology



Our Impact Highlights (2018 – 2022)

Working with Industry

- 51 industry partners in Flexible Funded projects
- 28 world leading industry partners form our advisory board

Working with Policy

- Producing 8 policy briefings
- Contributing to high profile policy events such as COP26 (green and blue zones) and the G7 Summit

Equality, Diversity, and Inclusion

- Producing a children's book - selling and donating over 400 copies
- 30% of speakers at our Annual Assemblies have identified as women
- Conducting EDI surveys across the Supergen programme

Early Career Researchers

- 190+ members in the community
- £150,000 invested into 37 projects - enabling small activities that support and develop research activities or career skills

Flexible Funding

- £3m invested into 30 UK academic research projects
- £2.6m total industry matching support
- 140+ research publications associated with the Hub
- Better than average gender split of PIs in funding applications (30% female, 70% male)

Research Landscape

- Interactive web-based landscape promoting and sharing UK ORE research through a single platform and shared voice

Assembly Programme

08:30 – 09:00 Registration and refreshments

09:00 – 09:15 Welcome and introduction to the Assembly

09:15 – 09:30 Keynote from Huub den Rooijen (*Managing Director, Marine - The Crown Estate*)

09:30 – 10:30 Overview of core research in the Supergen ORE Hub

10:30 – 11:00 Refreshment break and poster viewing

11:00 - 12:00 How do we engage/bring the public along with the transition to net zero and grow and sustain the workforce needed, ensuring that equality, diversity and inclusion (EDI) is a core element, to 2030 and beyond?

12:00 – 12:10 Time allocated to move into parallel sessions

12:10 – 13:00 Parallel sessions: Supergen ORE Hub Flexible Funded projects

13:00 – 14:00 Lunch

14:00 – 15:00 How do we accelerate learning and sharing of best practice in ORE through international collaboration and what is the role of the Supergen ORE Hub in providing research leadership for ORE to achieve targets for 2030, 2050 and beyond?

15:00 – 15:25 Refreshment break

15:25 – 16:25 Parallel sessions: EPSRC Wave Energy Projects and new ORE research projects and programmes

16:25 – 16:30 Time allocated to move into main session

16:30 – 17:30 What changes are needed within policy to enable targets for 2030 and beyond to be achieved within the context of ORE?

17:30 – 17:45 Early Career Researcher Poster Prizes and Close of Autumn Assembly

Stay in touch



www.supergen-ore.net



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Keep up-to-date with news and events by joining our mailing list
www.supergen-ore.net