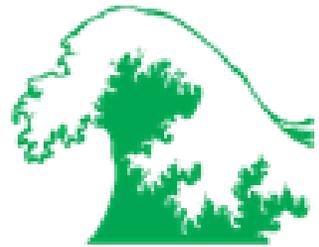


ORE Supergen



Offshore Renewable Energy

SuperGen: The Review 2016

- Advisory Streams endorsed the review process findings and recommendations
- Clustering of synergic areas: combination of Wind and Marine in new ORE Supergen
- Industry engagement
- Whole systems approach
- Programme to become a 'beacon for E&D'
- Supergen Programme should provide 'Visible Research Leadership'
- Two stage call process

New Supergen Hubs

- Respected voice for Policy makers
- Trusted partner for industry
- International collaboration
- Relevance to HM Government Industrial Strategy
- Investing in Science, Research and Innovation
- Developing Skills
- Delivering affordable energy and clean growth
- Three tier structure (Programme, hub and spoke)
- Synergic alignments

Marine (wave and tidal)

- The UK has a leading position in marine energy with almost 200 MW of installed capacity of wave and tidal stream projects, that are either operational, under construction or in development. For the UK, wave and tidal energy is seen as having the potential to provide 15 – 20% of current electricity demand by 2050.
- Meygen is the world's first multi-turbine tidal stream energy project; the first four turbines with total capacity of 6MW were installed in 2016, and will be increased to 398MW by the early 2020s.
- Wave energy is at a much earlier stage of development, with many different devices under investigation. There has been no convergence of design concept so far, partly because the technology concepts are naturally location-specific.



Offshore Wind

- OW is a well-developed and fully commercialised technology. It has already seen considerable cost reduction and the development of gigawatt farms around UK shores.
- With one of the best OW resources in the world, 1,497 OW turbines; 28 Operational projects; 5.35GW OW Operational capacity, OW contributes approximately 4% of the UK's power. The cost of OW has seen significant reduction over recent years and is now approaching £100/MWh. Furthermore, the first floating OW farm, the 30MW Hywind pilot located off the coast of Scotland, is now under development.
- Floating OW is at a much earlier stage of development than fixed OW and there are some clear similarities and synergies with wave energy



Offshore Renewable Energy SuperGen Hub

- EPSRC will create a new Supergen ORE hub and will consult the research community on how best to put this together and identify a coordinated programme of multidisciplinary research.
- It is recognised that the specific research challenges facing offshore wind, tidal and wave technologies are quite distinct and that the work in synergic areas would be in addition to existing research and expertise.

Offshore Renewable Energy SuperGen Engagement Project

- 6 month Engagement Project
- Consortium Building and Strategy Development
- ORE Network with Stakeholder Mapping established by Eol: >200 members already signed up
- Key Stakeholder Engagement
- ORE Challenge Workshops
- Eol invitations to select ORE Hub Co-Directors and Workshop Attendees

- Have your say in helping to set the agenda for ORE Research

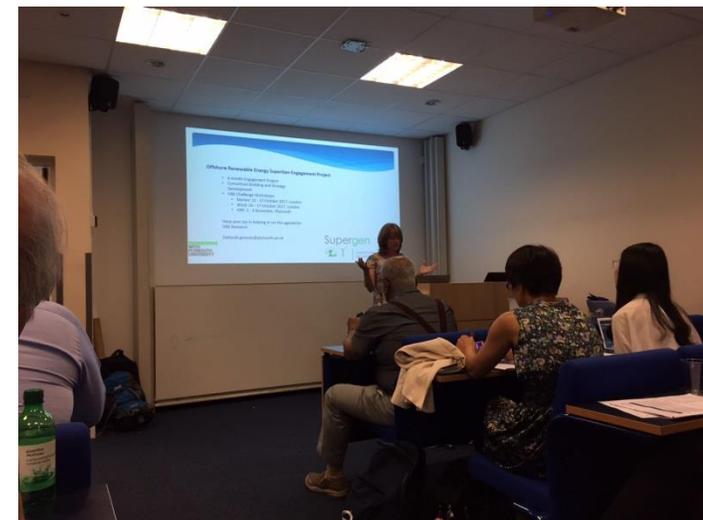
- Deborah Greaves, University of Plymouth
- Working with Annie Linley and Ross Wigg



Deborah.greaves@plymouth.ac.uk

Community Engagement

- “ORE Supergen Initial Engagement Event” at the 4th PRIMaRE Conference 2017, Southampton on 7 July 2017.
- INORE/ORE Supergen thematic debate on: “Existing barriers in the ORE sector: How can PhD/early career researchers (ECRs) help to break down these by doing things differently?” at the INORE European Symposium, Co. Clare (Ireland) on 24 August 2017.
- INORE/ORE Supergen/MaREI workshop on: “The Future of ORE Research: The early career researcher (ECR) Perspective” at the EWTEC 2017, Cork (Ireland) on 30 August 2017.
- “Marine (wave/ tidal range and stream) Challenge Workshop” in London on 12-13 October 2017.
- “Offshore Wind Challenge Workshop” in London on 16-17 October 2017.
- “Transformation of ORE System Challenge Workshop” in Plymouth on 2-3 November 2017.
- Re-engagement Virtual Workshop



Key Stakeholder Meetings

ORE Catapult - NCL	Paul Mckeever, Chong Ng, Simon Cheeseman	20/07/2017
Supergen Wind – Wind and Marine CDT - University of Strathclyde	Bill Leithead	20/07/2017
Carbon Trust - Policy & Innovation	Jan Matthiesen, Eloise Burnett, Rhodri James	22/08/2017
Wildlife Trusts	Lissa Batey	24/08/2017
MAREI – UCC	Tony Lewis	30/08/2017
EPSRC SAT Conference Manchester		11/09/2017
UKERC low carbon network		12/09/2017
REMS - Cranfield University	Feargal Brennan,	18/09/2017
Scotlink		19/09/2017
UKCMER - IDCORE - University of Edinburgh	Robin Wallace, UKCMER	19/09/2017
BEIS conference		21/09/2017
RCUK Energy Programme SAC		26/09/2017
Marine Scotland Science	Ian Davies	29/09/2017
UK-China ORE Projects		29/09/2017

Crown Estate - London	Will Apps	29/09/2017
UKERC	Jim Watson	02/10/2017
Offshore Wind Innovation Hub Technical Advisory Group	Jonny Flowers	05/10/2017
MASTS		05/10/2017
DBEIS, IUK	Bart De Leeuw	12/10/2017
NERC	Sarah Keynes	20/10/2017
Energy Systems Advisory Meeting		08/11/2017
EPSRC HLG		14/11/2017
LCRI	Ian Masters	16/11/2017
Supergen Wind General Assembly	Bill Leithead	16/11/2017
ETI Conference & Exhibition	Stuart Bradley	21/11/2017
UKCMER Annual Assembly	Robin Wallace	27/11/2017
Carbon Trust Steering Committee	Jan Mattheisen	29/11/2017
East of England Energy Group	Simon Gray	TBC

ORE Supergen Hub

- The ORE Hub Co-Directors will be selected by blind EoI to reflect expertise and leadership from each of the sectors: Offshore Wind, Wave, Tidal, Environment, ECR Development, E&D and International.
- ORE Network with Stakeholder Mapping established by EoI: >200 members already signed up



Call for Expressions of Interest in ORE Supergen Hub

- Attendance at the three Key Challenge Workshops: Closing Date for Eol: Midday 30th September 2017
- Leadership roles in the new ORE Supergen Hub. Applications are welcomed for Co-Directors to develop the consortium bid and participate in the ORE Supergen Hub: Closing Date for Co-Directors Eol: Midday 22nd October 2017
- Eol 'blind' ranking by international panel
- Partner selection
- Proposal development workshop in Plymouth 4-5 December
- Proposal submission by 18 January

Contact: Deborah Greaves,
deborah.greaves@plymouth.ac.uk

Call for Expressions of Interest in ORE Supergen Hub

- Attendance at the “Marine (wave/ tidal range and stream) Challenge Workshop” in London on 12-13 October 2017. To apply to attend this Workshop please complete the EoI [here](#).
- Attendance at the “Offshore Wind Challenge Workshop” in London on 16-17 October 2017. To apply to attend this Workshop please complete the EoI [here](#).
- Attendance at the “Transformation of ORE System Challenge Workshop” in Plymouth on 2-3 November 2017. To apply to attend this Workshop please complete the EoI [here](#).
- Closing Date for Workshops EoI: Midday 30th September 2017
There are a limited number of places available at the workshops and opportunities will be provided to contribute online for those not able to attend in person.
- Leadership roles in the new ORE Supergen Hub. Applications are welcomed for Co-Directors to develop the consortium bid and participate in the ORE Supergen Hub. To apply for the role of Co-Director, please complete the EoI [here](#).
- Closing Date for Co-Directors EoI: Midday 22nd October 2017
Contact: Deborah Greaves, deborah.greaves@plymouth.ac.uk
- Please register to join the ORE Supergen Network [here](#).

Aim of the Workshop

- To deliver a portfolio of prioritised ORE R&D challenges which facilitate transformation of the ORE system through addressing the needs of business and policy whilst delivering measurable progress and impact.
- To achieve wide and inclusive participation in defining ORE R&D challenges by providing opportunities to contribute at workshops and online for those not able to attend in person.
- To ensure that all participants (including those engaged via on line questionnaire) understand the aims of the ORE Supergen 'transformation of ORE' programme, opportunities for future engagement and prospective timeline for challenges and delivering maximum impact.
- To ensure that the challenges identified are system wide, and are conceptualised with reference to the 'whole system' and do not focus on industry sub sectors in isolation.
- To ensure that challenges are truly visionary and build on past and current research programmes which address the identified need.
- To canvas ideas for measures to support Early Career researchers (ECR) and build a strong and inclusive community.
- To deliver a strategy for international engagement for the hub to ensure strong links with international research programmes in an uncertain future.
- To review facilities and equipment needs.
- To canvas ideas for achieving policy influence, communication and engagement with other ORE stakeholders to ensure consistent messaging to government and general public.

AGENDA: DAY 1

13:30	Arrival and coffee	
13:40 – 13:45	Welcome and Introduction to Workshop	Deborah Greaves / Ross Wigg / Annie Linley
13:45 – 14:00	Overview of UKCMER outputs and status	Robin Wallace (UKCMER)
14:00 – 14:15	The socio-economic opportunities which marine energy presents for the UK	Sue Barr (Openhydro)
14:15 – 14:30	Perspective from wave industry	Angus Nichols (Carnegie)
14:30 - 15:00	Panel discussion	
15:00 – 15:15	Tea/coffee	
15:15 – 16:15	Break out session 1: Challenges	
	<ul style="list-style-type: none"> • What are the key challenges in the development of wave and tidal energy? • What are the non-technical barriers (environment, human)? • What can the marine ORE sector expect to achieve within 5 and 10 years in wave and tidal? • What are the cross-cutting research challenges in wave, tidal and offshore wind? 	
16:15 – 17:00	Re-group and Feedback and discussion	
19:00	Dinner	

AGENDA: DAY 2

09:00 – 09:15	Introduction to Workshop Day 2	Deborah Greaves/ Ross Wigg/ Annie Linley
09:15 – 09:30	Perspective from tidal industry	Jeremy Thake (Atlantis/ Meygen)
09:30 – 09:45	The European context; an overview of the Ocean Energy Europe strategic roadmap	Kasparas Kemeklis (OEE)
09:45 – 10:00	Marine Scotland – Prioritising environmental research needs to support ORE	Ian Davies (Marine Scotland)
10:00 – 10:15	Transformation of maritime energy systems - Existing innovation activities and identified needs in marine energy	Gareth Davies (Aquatera)
10:15 - 10:45	Panel discussion	
10:45 – 11:00	Tea/coffee	
11:00 – 12:00	Break out session 2: Prioritisation	

- Review and add to the list of challenges identified in Break out session 1
- For each challenge: assign to a theme and score its: UK benefit; global relevance; potential to reduce LCOE; case for intervention; TRL; longterm/short term; expected outcome
- What disciplines are needed for each challenge?
- How do we ensure a whole systems approach is embedded within the Super^{gen} Hub?

ORE Super^{gen}



Offshore Renewable Energy

12:00 – 12:30	Feedback and discussion	
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12:30 – 13:30	Lunch	
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13:30 – 14:00	CI	
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