



RISING TIDES: THE PROGRESS OF TIDAL STREAM ENERGY IN SCOTLAND

THINK SCOTLAND FOR TIDAL STREAM ENERGY

#1

Scotland has **the world's first array, largest turbine, largest array, and over half of currently operational turbines.**

4.3GW

Scotland could see **4.3GW** by 2050. Pipeline to 2030 is **>80MW** in Scotland, **two-thirds** of the UK pipeline.

#1

Scotland is home to the European Marine Energy Centre, **the world's first and leading accredited grid connected real sea test centre for wave & tidal.** It has impacted a £263m GVA benefit to the Scottish Economy in its 20-year history.

>50%

Over 50% of operational tidal projects are in Scottish Waters.

MeyGen, generating since 2018, is **the world's largest tidal array.** This flagship Scottish project has generated more than half of the total tidal stream energy produced globally. (MeyGen, SAE)

Scotland has a critical mass of **indigenous tidal technology** developers.

2MW

The world's largest tidal device built and operating in Scotland. (O2, Orbital Marine Power)

Operational since 2016, **the world's first tidal stream array** is in Scotland. (Bluemull Sound, Nova Innovation)

Up to 22,500

By 2050, it is estimated there could be **up to 22,500 FTE jobs** in Scottish tidal energy companies.

£2.9bn-£15.8bn

Tidal stream energy could provide a cumulative GVA benefit to Scotland of **£2.9bn-£15.8bn by 2050** from domestic and international deployments.

c.70%

Existing Scottish tidal projects have an estimated local content of up to **70%** due to Scotland's first mover advantage and experienced supply chain.

PROJECT PIPELINE

84MW

Scottish project pipeline to 2029 is 84MW, enough to power approx. 65,000 homes in Scotland.

127MW

The European pipeline is 127MW by 2029, meaning Scotland is leading the charge.

120GW

Global potential for tidal stream energy is 120GW by 2050. Resulting in a potential saving of 200 million tonnes of carbon emissions.

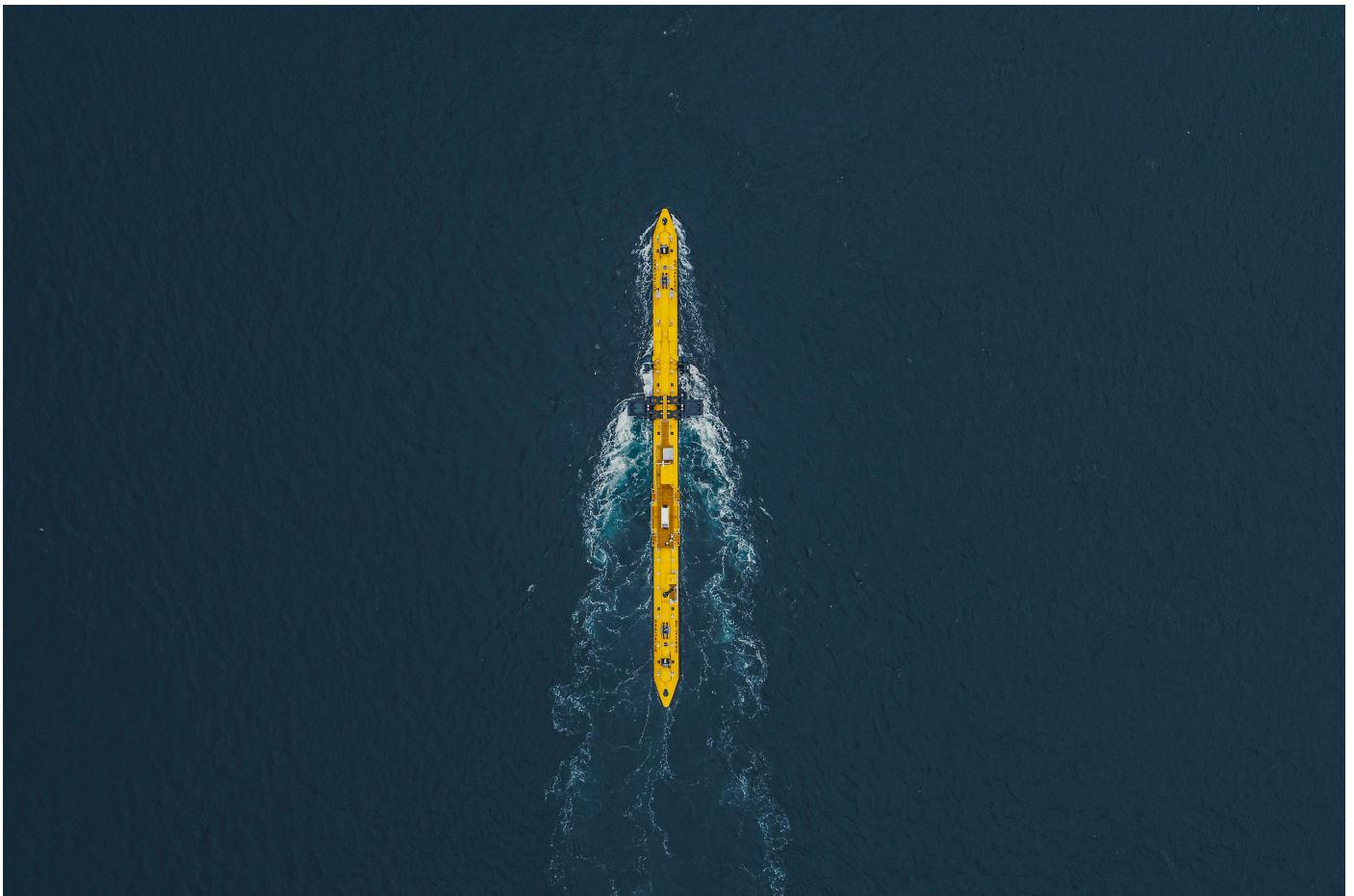
TSE ECOSYSTEM IN SCOTLAND

Innovation, R&D infrastructure			
The European Marine Energy Centre (EMEC)	Wave Energy Scotland (WES)		Kelvin Hydrodynamics Laboratory at the University of Strathclyde
FastBlade – tidal blade test facility	FloWave Ocean Energy Research Facility	National Decommissioning Centre	National Manufacturing Institute Scotland
Supply Chain			
Technology and project developers	Component manufacturers, designers, engineers, etc.	Project development and management	Installation / O&M
Consenting, Leasing			
Marine Directorate		Crown Estate Scotland	

BENEFITS OF TIDAL STREAM ENERGY

TSE'S BENEFITS

- Tidal Stream Energy (TSE) relies on the gravitational pull of the moon, making it highly **predictable**. This predictability brings additional benefits to the whole energy system.
- TSE is not reliant on weather systems, its generation is therefore **offset** from other renewable sources, strengthening a decarbonising grid.
- Greater **financial and carbon savings** can be gained by including tidal energy on the national grid.
- TSE supports more diversity on the grid, improving the **security of supply**.
- Needed in addition to wind and solar for **Net Zero targets**.



Orbital O2 generating at EMEC (Credit Orbital Marine Power)

SCOTLAND'S HISTORY IN MARINE ENERGY

EMEC 2003
The world's leading facility for demonstrating and testing wave and tidal energy opens in Scotland.

First grid power 2008
OpenHydro's tidal device becomes Scotland's first grid-connected tidal device to produce electricity from the tides.

2013 Marine Scotland Licensing and Consents Manual Published
This was a cornerstone of Scotland's support for developing new marine-energy technology.

World's first tidal array 2016
Bluemull Sound array commissioned by Nova Innovation.

Contracts for Difference Tidal ringfence 2022
Scottish projects including Orbital Marine Power (7.2MW) and MeyGen (28MW) secure renewable energy allocation.

MeyGen 2023
Scotland's flagship tidal-stream project passes 50GWh of generation to the grid from its site in Orkney.

First hydrogen-electric flight 2023
Hydrogen produced from the tidal site at EMEC was used in the first hydrogen-electric flight as part of the HyFlyer II project.

Pipeline grows 2024
Cumulative total of tidal projects in Scotland with a CfD passes 80MW.

PROJECTS AND CAPABILITIES

THE POLICY LANDSCAPE
Taking a leading role in the drive towards net zero, the Scottish Government is creating an ecosystem where the renewables industry can thrive.

WORLD-LEADING FACILITIES
Our testing and demonstration facilities are renowned across the globe.

RICH RESOURCES
Flanked by the Atlantic Ocean and the North Sea, Scotland's 18,672km of coastline is the world's testbed for developing and commercialising marine-energy technology.

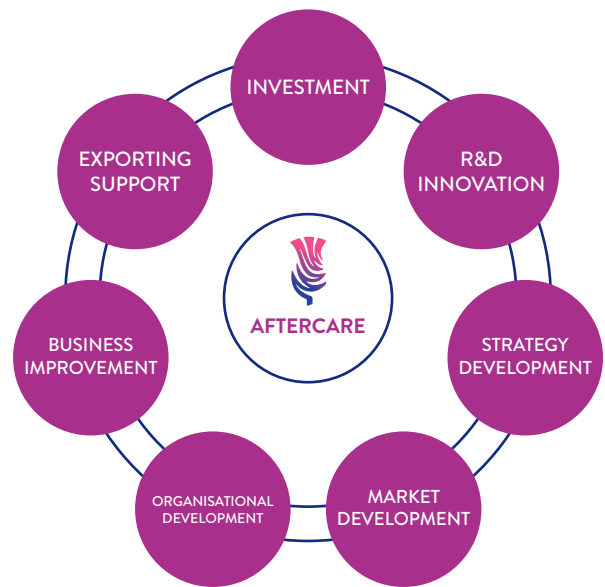
SUPPLY-CHAIN EXPERTISE
Fifty years of subsea experience, alongside our operations in the North Sea, have created a supply chain that's ready to embrace renewables.

ACADEMIA AND INDUSTRY PARTNERSHIPS
With Scotland's historic universities and academic institutions, industries have access to world-class research expertise.

INDIGENOUS INNOVATION
Combining our innovative spirit, engineering heritage and maritime expertise, Scotland is the natural home for marine renewable energy.

Connected business support from Team Scotland (Scotland's enterprise agencies) will ensure that you are supported before, during and after you choose Scotland. We'll be with you every step of the way and can assist you with:

-  **Property searches and advice**
-  **Funding, grants and support**
-  **Talent development**
-  **Connections to academia & supply chains**
-  **Professional advice**



The support doesn't end once you've located your new project in Scotland. We are committed to seeing you grow and flourish in Scotland by taking the time to understand your needs now and in the future – beyond starting out, we have the tools to take your business to the next level. We are here to help.

If you would like to get in touch, please [click here](#).