

# Wave energy

An abundant, untapped renewable resource



Harnessing wave energy will provide **over 20% of the UK's electricity demand** and is highly complementary with wind and solar.<sup>1</sup>

Wave energy is the **world's largest untapped energy resource** with over 29,500TWh potential, ten times more than Europe's annual electricity consumption.

Wave energy can decarbonise offshore industries and infrastructure and supports a **secure and cost-effective net zero transition**.



# Wave energy for net zero



## Wave energy optimises the energy system

The intermittency of wind and solar is complemented by wave energy, providing consistent renewable output.<sup>2</sup>



## Wave energy enables a cost-effective net zero transition

Deployment of 6GW of wave energy will reduce the UK's energy system cost by £1bn per annum.<sup>3</sup>



## Wave can co-locate with offshore wind

This will deliver a saving of over 12% in the Levelised Cost of Energy for both projects. Orsted is working with Wave Piston to explore this potential.<sup>4</sup>



## Wave energy can decarbonise offshore industries

Shell, TotalEnergies and BakerHughes have all invested to utilise wave power for subsea assets and offshore operations.<sup>5</sup>



## Wave energy is abundant

With the potential to provide electricity for 500m homes whilst supporting 400k jobs globally.



# The UK has been at the forefront of developing wave energy...

Funded by the Scottish Government, Wave Energy Scotland has delivered **131 projects** on time and within budget, providing over 132 contracts worth £50m to 300 organisations. It is internationally recognised for excellence and the WES model allows wealth to be built and retained for the UK.



## ...but is at risk of being left behind:



The **USA** is investing \$152m over the next five years to advance the commercial readiness of wave energy.



**China** enshrined the 'large-scale deployment of ocean energy' in its five-year plan and in 2023 deployed its first full scale wave energy converter.



**Portugal** has a 70MW deployment target for utility scale wave energy by 2030.



**Spain** is targeting 60MW deployed ocean energy capacity, including wave energy, by 2030.<sup>6</sup>



AW-Energy's WaveRoller pilot will be deployed imminently in **Namibia**.



Since 2023, **Israel** has harnessed the power of its waves via Eco Wave Power's EDF One Project.



ESB has partnered with CorPower to deploy a 5MW wave energy array in **Ireland**.



The **UK** can still lead this global market and add **£23bn GVA** to its economy.<sup>7</sup>

1 EVOLVE (2023) *A review of practical deployment locations for European ocean energy projects.*

2 University of Edinburgh (2023) *What are the UK power system benefits from deployments of wave and tidal stream generation?*

3 University of Edinburgh (2022) *What is the value of innovative offshore renewable energy deployment to the UK*

4 OWC Ltd (2023) *Wave and Floating Wind Energy, Opportunities for Sharing Infrastructure, Services and Supply Chain.*

5 Energy Voice (2024) *Shell joins wave power subsea project off Orkney.*

6 Ocean Energy Systems (2021) *Spain: Supporting Policies for Ocean Energy*

7 University of Edinburgh (2022) *What is the value of innovative offshore renewable energy deployment to the UK economy?*



# The UK Government must act to seize the wave energy opportunity.

The industry is committed to working with the Government to realise its ambition to make the UK a clean energy superpower.

The Government can realise the UK's wave energy potential by:

 <p>Establishing a £5m wave energy ringfence in its renewable auctions.</p>	 <p>Supporting the co-location of wave and wind projects.</p>
 <p>Setting a 300MW wave energy deployment target for 2035.</p>	 <p>Providing innovation funding to attract international investment.</p>



## Marine Energy Council Lead Partners

				
				
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