MAY 2021

PERPETUUS
tidal energy centre

Building a sustainable future for the Isle of Wight

An update from Perpetuus Tidal Energy Centre

Perpetuus Tidal Energy Centre (PTEC) is an important project to harness tidal energy as a renewable, reliable source of electricity. By placing tidal turbines in the sea off the south coast of the Isle of Wight we will generate enough clean electricity to power thousands of homes.

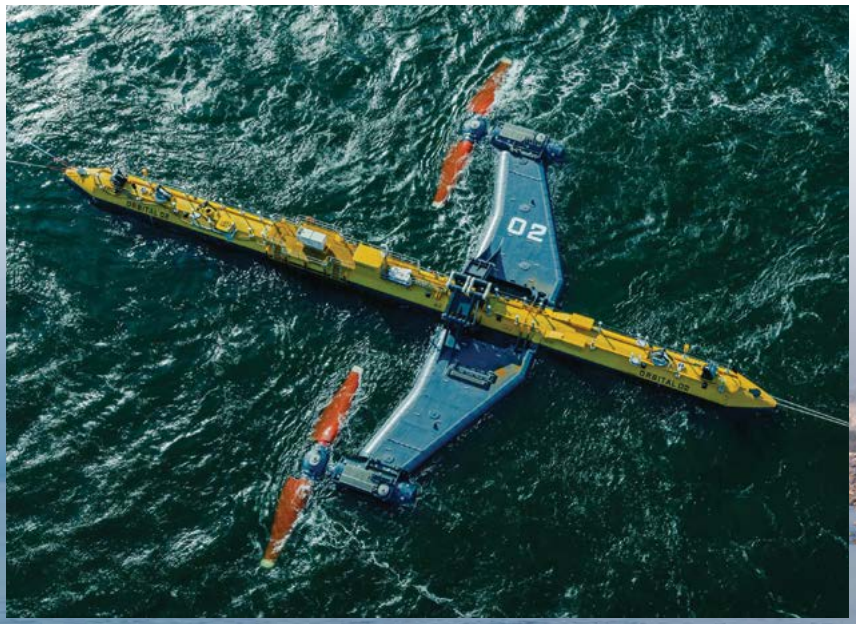
Not only will the project boost the UK's global leadership in renewable energy and drive adoption of tidal power, it will also strengthen the economy and employment on the Isle of Wight. We will enhance the island's growing reputation as a hub for renewable and sustainable innovation, securing a successful and prosperous future.

The project achieved full consent in 2016 but was delayed by a change in government policy. Now, backed by a partnership with the European Marine Energy Centre (EMEC) and anticipated new government support, we plan to be operational by 2025.

EMEC has 20 years of experience delivering tidal projects on Orkney, Scotland and in other island communities. Since 2003 EMEC has delivered cumulative impacts in Orkney of £35.3 million Gross Value Added and 820 years' worth of full-time work.

The benefits of tidal power

Tidal power is a highly reliable source of renewable energy. It is predictable and guaranteed.



Orbital O2 turbine

Tidal energy contributes to UK and international targets for renewable energy generation and with this project we will help achieve the government's declared objective of Net Zero by 2050.

The tidal energy industry could contribute £1.4 billion to the UK by 2030, including the creation of 4,000 high quality jobs *(ORE Catapult Report, 2018)*.

Benefits to the Isle of Wight and beyond

- PTEC will bring the Isle of Wight and the Solent to the centre of an exciting new global energy sector, unlocking significant investment and job creation, skills and training opportunities.
- PTEC has the capability to produce over 80,000MWh/year of clean electricity, enough to power more than a quarter of all Island homes.
- Our project will generate renewable energy for at least 15 years, resulting in long term investment and revenues which will boost the economy both nationally and locally.
- The project may enable grid upgrading works to Isle of Wight electricity distribution network, which could boost capacity and unlock future renewables investment.

"This project will be integral in driving a prosperous future for the Isle of Wight. It will create new supply chains, jobs and investment in local business and infrastructure, putting the island on the map for renewable energy and the sustainability sector. It will secure new career paths, innovation and a positive future."

Rob Stevens, *Chairman, PTEC*

Benefits of a similar project in Orkney

Through working in marine energy and developing tidal and wave projects, our new partner the European Marine Energy Centre (EMEC) has delivered millions of pounds of investment into Orkney and created hundreds of jobs. Full time salaries were around 40% higher than the average for the local area.

Visits to Orkney to view the project totalled 5,250 nights, generating around £525,000 for local hotels and B&Bs. £23 million was invested in local infrastructure.

How does tidal power work?

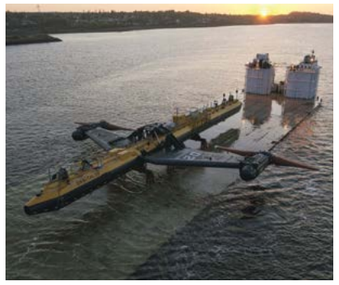
The gravitational pull on our seas from movement of the moon around the earth, and the interaction of the earth with the sun, creates tidal currents or 'streams', which can be harnessed as a renewable energy source.

By placing tidal turbines in these streams, their blades slowly rotate, activating a generator to produce electricity.

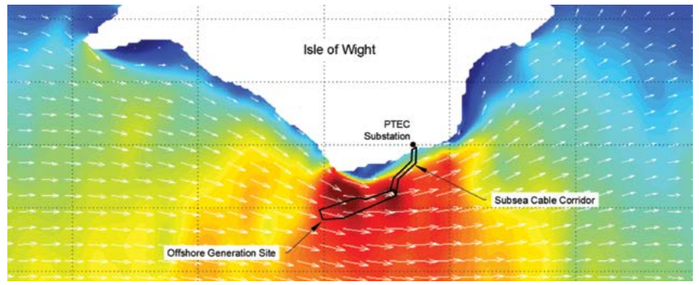
Tidal power is becoming more popular because:

- The electricity generated is renewable, sustainable and inexhaustible.
- Technology advances now mean tidal power is becoming more cost effective.
- Tides are predictable, reliable and unaffected by weather, making it possible to consistently generate green power.
- Tidal energy contributes to UK and international targets for renewable energy generation and creating a carbon neutral energy system.
- The environmental footprint is 1/8 of the size of an equivalent wind farm and not believed to harm marine life.

The marine area to the south of the Isle of Wight is an ideal location to harness tidal power due to strong tidal streams in this area.



A tidal turbine being shipped into position in Orkney



Tidal Streams off the Isle of Wight

What does the PTEC project involve?

There are three main elements to the PTEC tidal power project:

1

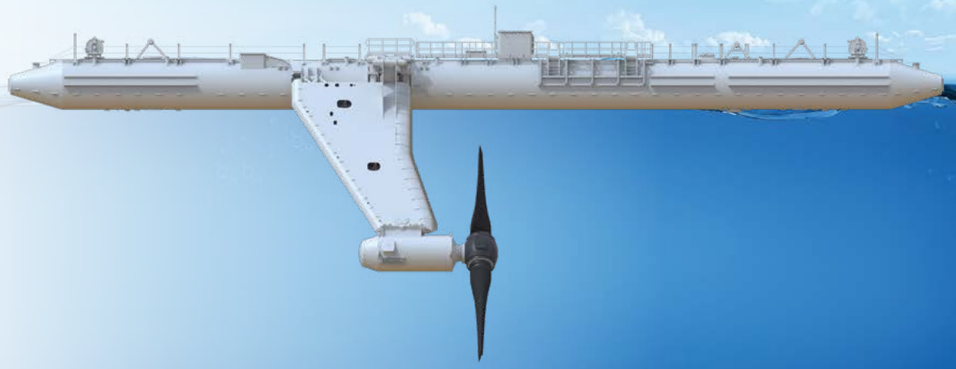
TIDAL TURBINES installed in a 5km² area of the English Channel, approximately 2.5km south of St Catherine's Point and around 6km from Ventnor. These turbines slowly rotate with tidal currents, generating electricity.

2

UNDERSEA 'ARRAY' CABLES connecting the turbines to 'export' cables which will carry the power to shore.

3

A SUBSTATION to be built within the Southern Water Services compound to the west of Ventnor at Flowers Brook. This substation will export the electricity from the PTEC project to the local distribution network and monitor the offshore equipment. The maximum length of the substation will be 37.5m with a maximum width of 12.0m.



The Orbital O2 turbine in operation

What kind of turbines will be installed?

We are currently in discussions with a variety of tidal turbine manufacturers. A partnership has now been confirmed with Orbital Marine Power, creator of the world's most powerful tidal turbine known as the O2.

Orbital plans to install O2 turbines at the PTEC site. The O2 turbine is a floating device with twin 1MW power generating units and 12m blades that drop down into the water. The blades sweep more than 900m (based on a 24m rotor diameter) to capture flowing tidal energy. The floating structure is held in place by a multi-point mooring system.

The O2 is designed so that installation and maintenance can be carried out by local vessels as part of an Island-centric supply chain. Electricity is transferred from the turbine via a cable along the seabed to the local onshore electricity network.

We will update on further turbine manufacturers as partnerships are agreed.

How big will the substation be?

Our onshore substation will be sited alongside an existing water pumping station at Flowers Brook. It will be no longer than 37.5m with a width no greater than 12.0m – this includes the control room and transformer enclosure.

We will design the substation with landscaping and noise in mind. Options such as turf roofing, local materials and sympathetic planting will be explored to reduce the visual impact of the onshore infrastructure. The cables connecting to the substation will be underground and not visible following the construction phase.

We are in the process of updating various studies and assessments as part of the onshore planning process.

Verdant Power's seabed-mounted turbines en-route for installation in East River, New York

Our consultation in 2014:

Following our public exhibition back in March 2014, 80% of attendees were in support of PTEC.

97% of people believed it was important for the UK to develop sources of carbon free energy

THE MAJORITY OF COMMENTS WELCOMED BOTH TIDAL POWER AND ITS DEPLOYMENT AT THE ISLE OF WIGHT:

"The whole idea of tidal energy is very exciting and has my support"

"Tidal energy is constant and free. The IOW is perfect for this kind of energy"

"We really need this. The bigger and sooner the better"

What's changed since PTEC's last update?

- A major shift in government policy in 2016 put the PTEC project on hold as it significantly restricted investment into tidal energy.
- In 2020 the government set new, ambitious plans to drive UK green energy with marine energy schemes playing an important role.
- PTEC has now joined forces with The European Marine Energy Centre (EMEC) in Orkney to deliver tidal stream energy in the next four years.
- PTEC is in the process of engaging world leading turbine operators for deployment. This includes UK based companies.
- Turbine technology has greatly advanced and the devices are becoming increasingly efficient.
- PTEC is now engaging with the Isle of Wight Community to update on its plans and give people the opportunity to ask questions and share their views.

About us

Perpetuus Tidal Energy Centre Limited is an independent company working with The European Marine Energy Centre in Orkney to harness tidal stream energy.

Perpetuus Energy is a private renewables developer, led by Chairman Rob Stevens and Project Director Mark Francis.

The European Marine Energy Centre (EMEC) in Orkney, Scotland, has joined forces with PTEC, contributing its extensive global experience. Established in 2003, EMEC is the first centre of its kind to operate tidal devices in real sea conditions. With two scale test sites and a further thirteen grid-connected test berths, it is home to some of the most innovative marine energy devices currently in development.

Next steps

We are in the process of engaging world leading turbine operators for deployment on site. This includes UK based companies.

A planning application for the onshore elements of the project will be submitted to the Isle of Wight Council in the coming months.

If consent is granted, onshore construction work is anticipated to commence in 2023. The overall construction programme, both offshore and onshore, is expected to last no longer than 18 months. We are sympathetic to the needs and concerns of the community and will seek to ensure minimal disturbance to local residents and businesses.

Share your views

It is important to us that we understand the community's views and concerns about the PTEC project. In previous consultations we were encouraged by the high level of support for tidal power and renewable energy.

There are a number of ways you can share your thoughts and ask questions:

1 VISIT OUR WEBSITE

Our site at **perpetuustidal.com** is regularly updated with the latest developments and will direct you to the online survey below.

2 COMPLETE AN ONLINE SURVEY

https://www.surveymonkey.co.uk/r/PTEC-Feedback-Form

3 JOIN A WEBINAR

Ongoing Covid-19 restrictions mean we are unable to run community events, but we will be running webinars where you can hear from the project team and raise any questions.

These events will take place on:

7th June at 6.00pm AND 8th June at 1.30pm

To secure your place, call, email or write to us via the details on the right.

4 BOOK A TELEPHONE APPOINTMENT

Book an appointment to speak to our team by phone, ask questions and share your thoughts. The Telephone Surgery takes place on **4th June**. Call, email or write to book your slot.

5 COMPLETE AND RETURN THE FORM ON THIS NEWSLETTER

The following two pages of this newsletter give you the opportunity to share your thoughts. Simply fill it in and return to **FREEPOST PTEC**.

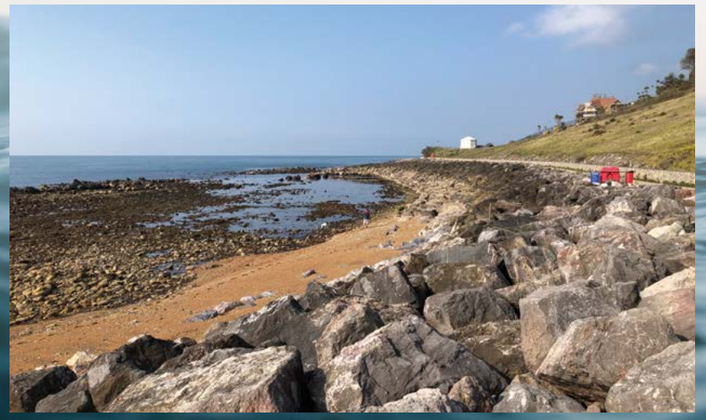
CONTACT US

Freephone: 0800 4703745

Email: contact@ptec-consultation.co.uk

Freepost: FREEPOST PTEC

Website: perpetuustidal.com



A view from shore towards the tidal turbine site, and where the undersea electricity cables will reach land

Feedback form

PERPETUUS tidal energy centre

Please detach the feedback form and return it using **FREEPOST PTEC**.

1. Do you support the development of renewable energy in the UK?

◯ Yes ◯ No ◯ Don't Know

Comments:

2. Do you consider tidal energy to be an important future global source of green electricity?

◯ Yes ◯ No ◯ Don't Know

Comments:

3. Were you aware of the PTEC project before receiving this newsletter? ◯ Yes ◯ No ◯ Don't Know

4. Do you support the proposed PTEC project? ◯ Yes ◯ No ◯ Don't Know

5. Which of the following do you consider to be the most important to the Isle of Wight? *Choose up to three:*

- ◯ Putting the UK on the map for tidal power
- ◯ Introducing a new source of reliable, renewable energy for the UK
- ◯ Economic investment on the island
- ◯ Other *[Please state]*
- ◯ Boosting the island's reputation as a hub of sustainability innovations
- ◯ Job and career creation for local people
- ◯ Attracting visitors

Comments:

Feedback form continued overleaf

Feedback form *(continued)*

PERPETUUS tidal energy centre

6. Is there anything that you are concerned about within the PTEC proposal? ◯ Yes ◯ No

Comments:

7. Do you have any feedback on the proposed substation/control room? ◯ Yes ◯ No

Comments:

8. Do you have any feedback on the proposed offshore element of the project i.e. the installation of tidal turbines? ◯ Yes ◯ No

Comments:

9. Do you have any feedback on the electricity cabling proposed? ◯ Yes ◯ No

10. Do you have any further comments on the proposals? ◯ Yes ◯ No

Comments:

11. Which of the following sources of information have you looked at/attended?

◯ Newsletter/Leaflet through the door ◯ Webinar

◯ PTEC website ◯ Telephone surgery

12. How useful have you found the information provided?

◯ Very useful ◯ Somewhat Useful ◯ Not very useful ◯ Not useful at all

Comments:

Please share the first four letters/digits of your postcode if you are happy to inform us of your location.

If you wish to add further comments, please enclose them on a separate sheet.

The data you provide here is being collected by Athene Communications on behalf of Perpetuus Tidal Energy Centre and stored securely in line with the General Data Protection Regulation (GDPR).