Wavepiston Newsletter April ‘22

Denmark is acting on the energy crisis - and so is Wavepiston

In our most recent newsletter (before Russia’s invasion of Ukraine), we highlighted a report from the International Energy Agency about the gas crisis and the resulting high energy prices. This situation has escalated due to Russia’s war and all over the European Union governments are looking towards alternative energy sources.

The Danish government has launched an initiative to speed up the transition to renewable energy sources. Unfortunately, wave energy is not part of the plans. Wavepiston (alongside with our colleagues in the Danish Partnership for Wave Power) has launched a campaign to rectify this mistake contacting politicians, media, NGOs etc. This far the campaign has led to both media coverage and the arrangement of visits from parliamentarians.

You can read our campaign brief **here**

WAVEPISTON

Russia’s war in Ukraine

Wavepiston joins the world in condemning the Russian acts of war on Ukraine and our hearts go out to the Ukrainian people. Prior to the invasion, Wavepiston had been invited by the Russian ministry for development of Arctic and The Far East to discuss a wave energy project in the Sakhalin province. In light of the Russian invasion we decided not to continue with further discussions of this or other projects with Russia.

As a consequence of the war, politicians in Denmark and the rest of EU have put increased focus on the transition to renewable energy sources. But at the same time there are short term effects, including a surge in energy and other prices as well as a disruption of the European steel supply. All of this puts uncertainties into everyone’s plans.

Photo: Pexels

Everything is now connected on the test platform.

The set-up on the PLOCAN test platform is now complete with piping and wiring in place. Our two containers for power generation and desalination are ready to receive pressurised seawater from our energy collectors and lead the water back into the ocean following electricity generation and desalination via reverse osmosis. Work is continuing on the piping off the platform, with divers engaged for the underwater assembly.

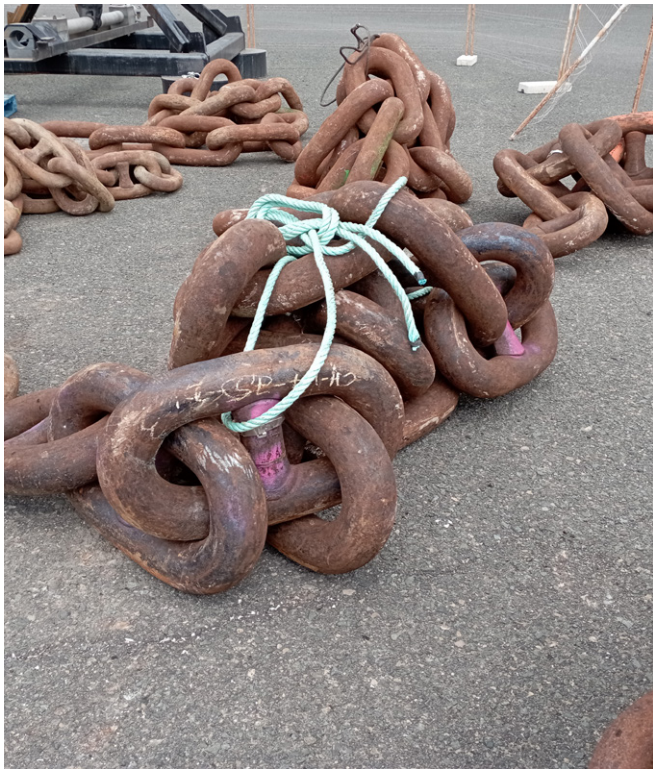
Dry testing of the monitoring system has been completed successfully and we are ready to go for testing in water. Steps are also being taken to prepare for installation of the full-scale system in the sea later this year with assembly of the anchors and preparing all mooring items. We continue our simulation work of the system aka digital twin (see more under the description of the VALID project).

The 30 m pressure pipe being hoisted for installation inside the PLOCAN platform.

Valve in the foreground controlling the flow of pressurised seawater into the power generation unit. In the background the outlet allowing water to flow back into the ocean.

30 m pressure pipe being connected with the pipe to the power generation unit.

Vryhof anchor assembled in the Port of Arinaga and ready for installation.



Green Impact Week:

30th and 31st of May we are taking part in the Green Impact Week event in Copenhagen, organised by Sustainary, where we will have two presenting slots with a Q&A panel as well as being part of a roundtable on Offshore Energy. The event is a great opportunity to promote wave energy as a part of the sources around the upcoming energy islands in the North Sea. This activity is funded by a grant under the “SMV Grøn” programme which is part of the REACT-EU-programme aimed at mitigating the economic consequences of COVID-19. If you are interested in joining Wavepiston at the event, please contact us for admission.

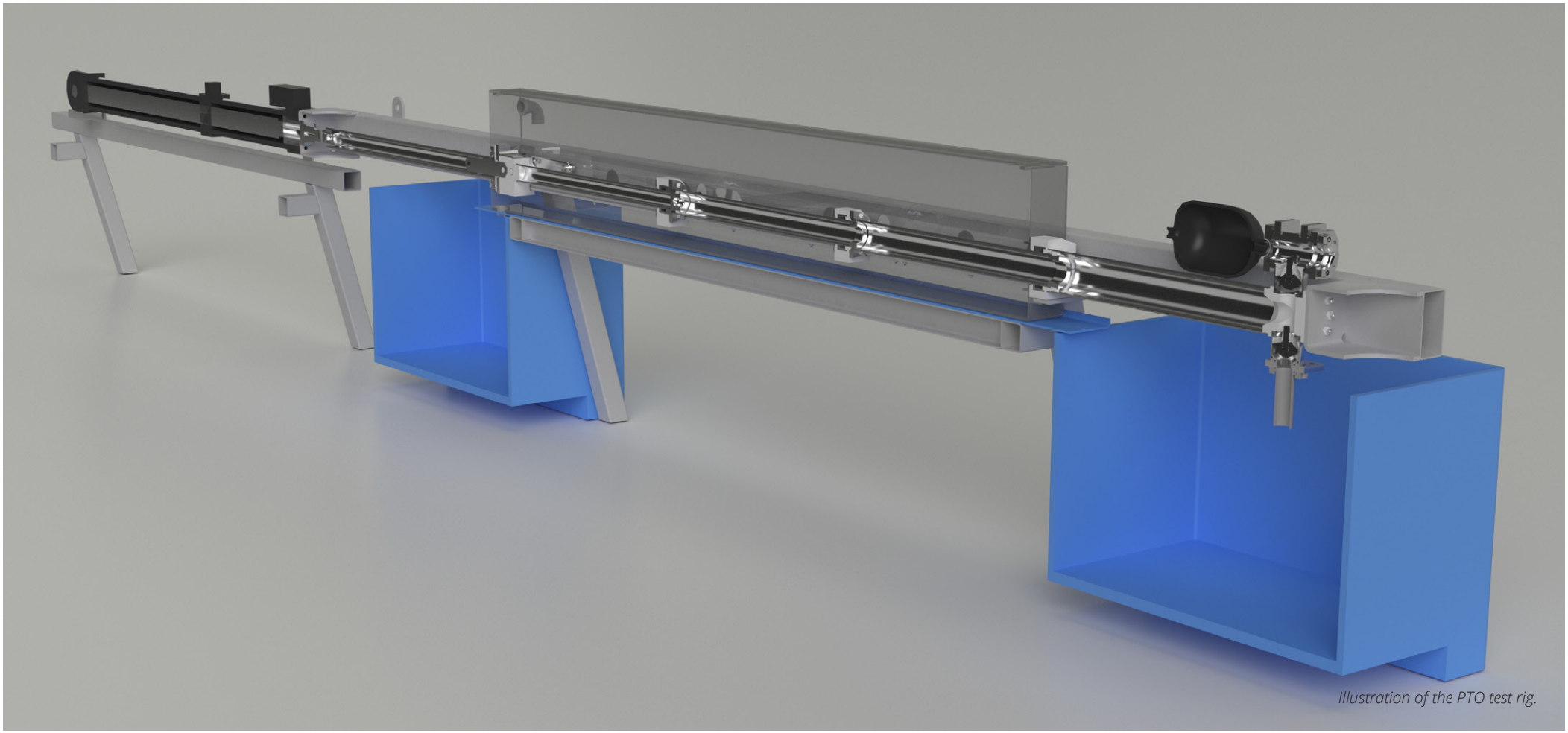


Illustration of the PTO test rig.

VALID

Accelerated and virtual testing: Horizon 2020 - Verification through Accelerated testing Leading to Improved wave energy Designs (VALID)

The Wavepiston PTO (power take-off) system is based on hydraulic rams sending raw, pressurised seawater to a land-based turbine. The seals of these rams are highly loaded due to both the aggressive environment and the fact that the rams operate at app. 60 bars. Understanding and reducing wear on these seals is key to Wavepiston's success.

Our team has created the first version of a numerical model that simulates the movement and pressure variations in the hydraulic rams. We have also designed a physical platform for testing hydraulic rams at realistic speeds and pressures.

Upon completion, this will be mounted with a hydraulic ram which will be moved according to the numerical predictions. The platform will feed back performance data, including pressure, leak volume and friction, into the hybrid model.

These simulations, aka digital twin, are crucial for the physical and virtual testing, including understanding the hydraulics and forces on the system.

News on our equity issue:

Our equity issue of EUR 2m to ensure adequate funding to finalise the current projects and prepare for the next phase is still ongoing. Main existing shareholders are interested in supplying capital for this round and we still plan to supplement this round with an equity crowdfunding campaign. Please contact Wavepiston if you are interested in increasing your investment in our company. Please feel free to also share this opportunity to become part of our journey to other potential investors.

You can read much more about the case for investing here

- 2-page teaser document
- Pitch deck

BlueInvest Day 2022

Our CEO, Michael Henriksen was speaking at the European Commission's Maritime Forum BLUEINVEST DAY 2022. He shared how Wavepiston benefited from the Readiness Assistance coaching programme and secured €2.4 million from several investors and a crowdfunding round in 2021.

DESAL - Living Lab

The world is in desperate need of fresh drinkable water. The United Nations is foreseeing a 40 per cent shortfall in freshwater resources by 2030 and coupled with a rising world population, this has the world careening towards a global water crisis.

This is why the UN's Sustainable Development Goal number 6 is about access to water and sanitation for all; and why the UN General Assembly launched the Water Action Decade in 2018, to mobilize action that will help transform how we manage water.

We at Wavepiston are working to help solve this challenge. Our system will harvest the energy in ocean waves and use it to put seawater under pressures up to 60 atmospheres - enough to produce clean, fresh drinking water through reverse osmosis and produce electricity.
We are currently setting up our Wave to Energy and Water (W2EW) system at the Plataforma Oceánica de Canarias (PLOCAN) test site off the coast of Gran Canaria where we will demonstrate our system at full scale later this year. In parallel we are contributing to the DESAL+ Living Lab project, where PLOCAN, Technological Institute of Canary Islands Instituto Tecnológico de Canarias, University of La Laguna Universidad de La Laguna and University of Las Palmas de Gran Canaria ULPGC (Universidad de Las Palmas de Gran Canaria) are working on making the process of desalination cleaner, more energy efficient and cheaper.

Enjoy this Video from Desal+ describing some of the challenges and solutions.

The W2EW Project has received funding From European Union´s Horizon 2020 Research & Innovation FTI Instrument Programme Grant Agreement 831041.

To learn more click on below material:

Video presentation

LinkedIn update

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