**The Hague presents its blue economy during the Ocean Energy Europe Conference**

**By harvesting the renewable energy of the ocean, Europe can generate a large part of its current electricity needs. At the North Sea, a blue economy is rising.** **The Hague is the center stage in the pursuit of exploiting the significant potential of wave and tidal energy. During the 10th Ocean Energy Europe Conference & Exhibition the ‘City by the Sea’ presents the latest technologies and innovations from all over the world.**

According to the organisation of the [Ocean Energy Europe](https://www.oceanenergy-europe.eu/) Conference ocean energy can provide 10 percent of all electricity in Europe and create 500,000 jobs by 2050. The UN Intergovernmental Panel on Climate Change (IPCC) estimated the potential of global production of wave energy at [29,500 Terawatt](https://www.ipcc.ch/site/assets/uploads/2018/03/Chapter-6-Ocean-Energy-1.pdf) per year, almost ten times the current European power consumption. The International Renewable Energy Agency (IRENA) estimated the global resource of tidal energy to be [1200 Terawatt.](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Dec/IRENA_Innovation_Outlook_Ocean_Energy_2020.pdf) Ocean thermal energy conversion (OTEC) is the largest of all ocean energy sources with a potential of 44 000 Terawatt per year. This explains why the [EU](https://energy.ec.europa.eu/topics/renewable-energy/offshore-renewable-energy_en#:~:text=EU%20strategy%20on%20offshore%20renewable%20energy,-To%20ensure%20that&text=The%20strategy%20sets%20targets%20for,GW%2C%20respectively%2C%20by%202050.) has set a target to generate 40 Gigawatt of ocean energy by 2050.

**Seeing is believing**

The new blue economy around The Hague focuses on tidal and wave energy. In this case, seeing is believing, says Dutch Marine Energy Ambassador Sander des Tombe of the Dutch Marine Energy Centre ([DMEC](https://www.dutchmarineenergy.com/markets/marine-energy-farms)), based at the Scheveningen harbour. That is why scale models of wave and tidal turbines will be presented at the exhibition of the conference. “They are very large, but in real life, these turbines are much larger. These scale models are very helpful in showing innovations though,” he says. “We have sometimes brought parties with boats to these innovations, but then you have to ensure that the weather is good and that people do not get seasick. Even then the most is underwater and they can’t see anything. If you want to attract investors, you really have to show it.”

DMEC demonstrates such innovations with virtual reality. At the conference itself, DMEC will even present its newest VR video about ‘Multi-use at the North Sea’.

**Biggest conference in Europe**

[OEE2023](https://www.oceanenergy-europe.eu/annual-event/oee2023/) takes place on 25 and 26 October at the Amare Theatre in The Hague. It is the biggest sector conference in Europe, attended by European Commissioner for Energy, Kadri Simson, and her colleague Virginijus Sinkevičius, EU Commissioner for Environment, Oceans and Fisheries.

The event will bring together ocean energy technology developers, decision-makers, investors, and researchers from over 40 countries to share the latest news on ocean energy. The Dutch Pavilion is hosted by DMEC, together with the Association of Dutch Suppliers in the Offshore Energy Industry ([IRO](https://iro.nl/nl/)), the Dutch Ministry of Infrastructure & Water Management, the Municipality of The Hague and the Province of South-Holland.

**Blue Economy**

Most people in industrialized Europe live near the sea. Therefore more and more economic activities on offshore renewable energy are expected to take place at sea, from food and protein production to energy generation. “There is a sustainable blue economy emerging and the Netherlands is leading the way. Many people in this blue economy already work in The Hague and we will need many more. Hopefully they come from this region and are educational institutes and trained here,” says Des Tombe. To achieve this, DMEC collaborates with all kinds of companies, municipalities, education and museums.

**International accelerator**

DMECs core business is the coordination of some of the biggest Dutch and European projects on offshore renewable energy. The independent foundation is an international accelerator for this kind of energy solutions, helping start-ups, scale-ups and other companies to advance their offshore renewable energy technologies from concept to commercial deployment. DMEC does not develop or invent technologies itself, but facilitates them being deployed and brought to market. “We are kind of a spider in the web”, says Des Tombe. “We make calculations ourselves to see whether something can be a viable business case. We then seek the right partner from our large international network and look for a suitable European subsidy. This often does not cover everything, so we have to obtain some funding from the industry or other sources. We then form a consortium and coordinate the project. For example, we can help a wave energy developer with certification, calculating and improving its business case, life cycle analysis (LCA), choice of materials, etc..”

**153 million of investments**

Over the past seven years, DMEC has raised more than 153 million euros in public and private investments, helped more than 130 technology companies improve their innovations and collaborated with 95 international partners. For instance, with research institutes such as TNO and their European equivalents. “Experts from all over Europe often come here and we proudly show them our tidal turbine on our doorstep. They always find that very interesting because those things normally are always under water”, Des Tombe says.

**Simple tidal energy**

The tidal turbine at the port of Scheveningen is from the [Oosterscheldekering](https://en.wikipedia.org/wiki/Oosterscheldekering), the largest storm surge barrier in the Delta Works, designed to protect the Netherlands from flooding from the North Sea after the disaster of 1953. It shows how simply tidal energy can be generated. Simply by using the sea current at low and high tide. The water flowing in or out through the gates of the sea barrier causes the turbine propellers to rotate, generating power via a dynamo in the pod.

Des Tombe: “You can use the same turbines in a floating platform, literally a boat that is attached to anchors. These are located in locations where the sea becomes narrower and the water has to pass through faster. Another option to generate tidal energy is with an underwater tidal kite. The Dutch start-up [SeaQurrent](https://seaqurrent.com/) is working on a great innovation in this area near Ameland. The kite turns a figure eight underwater. Using a dynamo you can generate electricity with the difference in force exerted on the cable.”

**Super predictable**

The beauty about tidal energy is that it is super predictable. You can predict it decades in advance, down to the minute. “We recently had a working visit from a European Commissioner to the Oosterscheldekering. She wanted to know what time she had to be there. Then I said: you have to be there at twelve past eight. That is when the water flows the fastest”, Des Tombe says.

Yet, the amount of tidal energy generated in the Netherlands is relatively small. “The major tidal energy projects are currently being set up in the United Kingdom,” he says.

**From drawing board to practice**

The easiest variant of wave energy is a buoy that goes up and down. Then you mainly use the vertical energy of waves. A Dutch start-up like [Weco](https://www.joinweco.nl/) mainly uses horizontal energy in its wave energy convertor. In addition, there are many ways to convert the energy of waves into electricity. The question is how these technologies can be applied in practice. “You may have a good idea on the drawing board, but it is important that your device is not too expensive, that it can withstand the waves and that you have enough projects. So that you can continue to develop and there are no delays. So you have to take a lot of things into account and we try to help these parties with that”, says Des Tombe.

The largest wave energy turbine of [CorPower Ocean](https://corpowerocean.com/corpower-oceans-wave-energy-converter-deployed/) was recently stationed near Portugal. It is nineteen meters high. Wave energy can also play an important role in the energy supply of islands, which are still dependent on diesel generators. “Energy prices are very high there. The diesel has to come from the mainland and if something breaks, you immediately have a problem,” says Des Tombe.

*Watch here how CorPower Oceans wave energy converter works:*

<https://corpowerocean.com/wave-energy-technology/>

**Combination with solar and wind**

DMEC is also looking at combinations of wave and tidal energy with offshore floating solar farms or (floating) wind farms. Right now specifically in the deeper seas in Ireland and Portugal and the deeper parts of the North Sea. Des Tombe: ,,The reason we want to combine this, is that by combining sources like wind and solar, energy can be produced in a more space efficient manner. And because wind, waves and solar energy are complementary. This boosts energy reliability and security.”