OceanSET webinar | 26 May 2021

Ocean Energy progress in Europe – Q&A session

As you are taking 2019 figures, is UK still considered as a member state?

Yes, UK will be considered in the data until the end of the OceanSET project. Our last year of data collection is indeed 2020.

Last year, OceanSET reported the following figures for wave: 12.7 MEUR/MW for CAPEX, and 0.7 EUR/W/year for OPEX. Today, these figures have been reported at 2.01 EUR/W and 0.32 EUR/W/year. Is this correct? How have these cost-reductions been achieved so fast, in a year time?

Although it is tempting to say that we are seeing significant reductions in costs, the reality is that we would probably see more realistic figures the more data we would get from the more projects. The figures are a reflection of the data that we receive, of the amount of information we had in the first year compared to the amount of information we got in the second year, as well as from the number of projects. In the first year, we received data from 12 projects. In the second year, we received data from 25 projects. We can only report the figures that we receive. If projects aren't engaged and providing us with figures, we can't include them in our analysis. If projects and technology developers don't agree with our data and analysis, we would ask you to contact us and provide us with that information. The more data we have, the more confident we can be.

Is Deliverable 2.2. "Annual mapping and analysis report" public?

No, this report is only submitted to the European Commission. Three reports looking at different aspects (mapping and outcomes of the surveys, financial gap analysis, monitoring report) are produced at the same time. We extract and combine the information from these three reports and put them out publicly in the annual report. We ensure that the information published are anonymized, aggregated and give a general reflection of what's going on.

Do you plan to include more regional organisations in future surveys and if yes, how? Regions can have a more detailed view on ocean energy projects funded and implemented on their territories.

Absolutely. During the last period that we were collecting information, we found that reaching out to the regions was really beneficial to get the information, especially the most detailed ones. In a couple of situations where we weren't getting responses initially, we identified other contacts or regions that we could reach. We are more than happy to work with the Member States and to contact the regions directly, provided that we get contact points. However, our first contact is the Implementation Working Group (IWG) that is in place for the SET plan. If we don't get responses, we then try to contact the regions. If there are regions that want us to contact them directly, we will be happy to facilitate

that while keeping the SET plan contact informed in order to ensure that we are getting as much information as we can from each country.

How does EU/SETplan communicate with Member States to get their commitment on the targets for Ocean Energies at political level?

We discuss the strategies with the Member States in different settings (SET-plan steering committee, energy working parties, etc.). We also have separate meetings with Member States about the NECPs, Marine Spatial Planning… We consider joint meetings with Member States around one of the sea basins. There, we will check if ocean energy is getting enough attention. National governments need to be convinced that they have sufficient developers in their country.

How does the ocean energy SET Plan engage with stakeholders beyond Europe?

the European Commission is part of the IEA-OES Technology Collaboration Programme in which the United States and Canada are present as well. Within this framework, we are having discussions about what we can do together. IEA-OES is a very good platform for having a constructive dialogue. We are also exchanging through Mission Innovation, the G20, etc. There are actually many different platforms where we are meeting non-EU countries.

What ambitions on Ocean Energy, like the number of MWs mentioned in the 'offshore renewable energy strategy', are embedded in EU-policy already? In short: what are ambitions and what is policy?

The European Commission's overall objective for Ocean Energy is to reach 1GW by 2030 and 40GW by 2040. This is set out in the Offshore Renewable Energy Strategy. As part of the strategy, the future energy system is being modelled to help inform policy. Discussions will be held with each Member State as part of this process. Each Member State in turn will need to deliver their own policies including National Energy and Climate Plans (NECPs) and Marine Spatial Plans.

The data collected in projects like OceanSET also help inform decisions in terms of investment and funding that will be needed. The Ocean Energy Implementation Plan is currently being reviewed and updated to align the plan with the Offshore Renewable Energy Strategy, specifically to target 100MW by 2025.

Have you monitored the distribution of the wave projects in terms of the kind of technologies involved? e.g. on-shore, off-shore, sea-bed based buoys etc

As part of the OceanSET data mapping and analysis we consider wave and tidal technologies only. Of the 25 projects identified as TRL 7 or above in 2019, 11 were tidal, 12 were wave and 2 were ocean/other projects. In the Annual Report, we further categorised these types of technology as follows:

- **Wave Whole-System Project** which focuses on developing a technology in the wave energy subsector
- **Tidal Whole-System Project** which focuses on developing a technology in the tidal energy subsector
- **Ocean/Other Whole-System Project** which focuses on developing a technology in another ocean energy subsector (non-tidal, non-wave)
- **Wave Sub-System Project** which focuses on developing a subsystem for wave technology/technologies

- **Tidal Sub-System Project** which focuses on developing a subsystem for tidal technology/technologies
- **Ocean/Other Sub System Project** which focuses on developing a subsystem for technology/technologies in more than one ocean energy subsector
- **Wave Support Project** which focuses on developing support mechanisms for the wave energy subsector (technology & non-technology)
- **Tidal Support Project** which focuses on developing support mechanisms for tidal energy subsector (technology & non-technology)
- **Ocean/Other Support Project** which focuses on developing support mechanisms for the ocean energy sector generally or more than one ocean energy subsector

Tidal stream projects reported in the Developers survey were either whole-system or sub-system at Stage 4 (TRL 7-8) of development. All whole-system and most sub-system projects involved horizontal axis turbine technology, while one sub-system involved vertical axis. Tidal-stream projects reported the installation of devices through technologies like floating taut and semi-taut moored or fixed gravity base.

For wave projects, the data showed no clear frontrunner. Whole-system wave projects identified in the Developers survey involved devices mainly in the 0.15 to 1.15 MW range and included several categories of technologies including attenuator, oscillating wave surge converter, point absorber and 'other'. All sub-system projects reported were related to point absorber technology.

A full breakdown of the technologies analysed is in Section 5.2 of the Report

This data mapping exercise is indeed challenging, how do you ensure consistency with other data compilations done for instance by OEE in the annual ""Key trends and statistics"" report or by JRC in their technology/market development reports ?

The Implementation Working Group (IWG) which manages the SET Implementation Plan for Ocean Energy comprises representatives from the European Commission, Member States, regions and other stakeholders including Ocean Energy Europe and Directorate C - Energy, Transport and Climate which is part of the Directorate General Joint Research Centre (JRC) of the European Commission. OEE and JRC are regularly informed of data as it is compiled as part of the OceanSET project mapping and analysis exercise. The work of the OceanSET project also involves checking that the data is consistent with OEE and JRCs reports.

Has the EU assessed the OTEC potential of overseas EU dependencies such as in the Caribbean?

The European Commission is not aware of any specific assessment of the OTEC potential of its overseas EU dependencies. As outlined in the Ocean Energy Strategic Roadmap, being aware of the potential of the Carribean, the European Commission has supported the development of demonstration plant in EU overseas territories (The construction of a 14MW OTEC project (NEMO) in Martinique, France), but unfortunately this project has been put on hold.

Reference: Finding NEMO proves challenging for the French - Offshore Energy (offshore-energy.biz)

Why are the 2030 deployment figures higher than the EU Offshore strategy?

OEE's figures are higher, because as an industry we can be a bit more ambitious. We know the technology, that's why we can be more confident about its potential. This is what we believe can be achieved. We are looking forward to seeing who gets the most accurate predictions.

Do you think that co-location with offshore wind farms of other ocean energy technologies may improve the diffusion of ocean energy?

It would certainly help the Maritime Spatial Planning or the space issue often faced by offshore renewable energy projects.

Why does wave energy become cheaper than tidal energy at some point in the cost reduction curve that you have shown before?

In the cost reduction curve, you can see that wave energy is more expensive than tidal in the beginning. Wave subsequently becomes cheaper than tidal as more capacity is deployed, as there is more scope for design convergence and increases in the size of individual units. In the report, you can find an annex where you can see how we got all the figures and predictions.

We are a small company and we are developing a new concept for a point absorber to wave energy. Our concept can be used in cogeneration with offshore wind. We submitted a project to Portugal P2020 to develop a proof-of-concept prototype, but the project was not financed (because we are a small company). Do you think that there will be funding in the future so that small companies can have the capacity to develop their ideas to harness wave energy?

Obviously, different Member States have different mechanisms, but there tends to be funding mechanisms for the lower TRL technologies. Of the Member States surveyed, a high proportion had funds in place for ocean energy technologies (9 out of 14). There are also European opportunities and under the Horizon Europe programme, there will be calls for wave and tidal technologies. The European commission, through the European Innovation Council (EIC) has also specific calls for lower TRL projects. It is worth having a look.