

EUA-EPUE Response to SET-Plan Consultation

Key Action No. 1 and 2: "Ocean Energy"

BACKGROUND

This response provides the perspective of the European Platform of Universities in Energy Research & Education (EUA-EPUE) to the consultative process on the European Strategic Energy Technology Plan (SET Plan) - Key Action No. 1 and 2 "Ocean energy".

EUA-EPUE responds to the consultation from the perspective of the universities' role in society. Universities constitute a significant part of the research capacity in Europe. At the same time, they educate the highly skilled work force of our societies. We consider therefore that setting up the SET-Plan projects with ensured integration of innovative research with education, including industrial partners, will provide a high pay-off towards achieving the energy system transition, which is a major objective of the SET Plan and the European Union.

RESPONSE

For the main expected outcome: To make specific recommendations on the priorities/targets proposed in the issues paper(s)

- Do you agree with the targets set in the issue paper?
- Do you think that the level of ambition is correct?
- Are there any standing issue(s) in the way to reaching the proposed targets/priorities?

It may be useful to understand the broader context in which these targets/priorities need to be achieved. If possible, we suggest that the following is addressed as well:

- *What are your specific recommendations on prioritising R&I activities on these issues (and building where appropriate on relevant existing initiatives)?*
- *Who are the best placed actors to implement the targets/priorities (Industry, EU, Member States, regions, groups of countries/organisations/etc.)?*

The Issues Paper provides a short overview of the sources of the ocean energy. The high predictability of the sources, which is a strong point of this type of renewable energy, is duly mentioned. The potential of the ocean energy seems to be underestimated though. According to the IEA Annual Report 2013¹, a global market of 337 GW of installed capacity can be expected by 2050, whereas the Issues Paper mentions 100 GW. Targets in terms of Levelised Cost Of Electricity (LCOE) reduction to reach 7ct€/kwh are proposed.

¹ IEA annual Report, Implementing Agreement On Ocean Energy Systems, 2013.

Proposed targets in “Ocean Energy”

Development of cost competitive ocean energy technologies with high replicability potential.

The LCoE for tidal energy should be reduced to at least 20 ct€/kWh in 2020, 12 ct€/kWh in 2025 and 7 ct€/kWh in 2030.

Wave energy technology should follow the same pathway and reach the same cost targets maximum 5 years later than tidal energy: 20 ct€/kWh in 2025, 12 ct€/kWh in 2030 and 7 ct€/kWh in 2035.

The costs for delivering the electricity to onshore substations are taken into account within the LCoE.

- It is recommended to include in the target ocean biomass which represents one of the ocean energy sources.
- The LCOE reductions are proposed for each technology but more attention should be devoted to the context factors, such as the cost of climate change, the risk of over-cost of decommissioning and human safety. Existing technologies such as nuclear power-plants have a high level risk of decommissioning over-cost, which remains a major challenge in the industry sector. The decommissioning issue should be further investigated in the Issues Paper. Easy-to-decommission and low-risk solutions such as floating energy converters can be given wider attention.
- Almost no attention is paid to the relatively far and large offshore converters of Ocean Energy. This does not seem justifiable given the recent advances in the low-loss energy transmission achieved in the offshore wind applications.
- Although the Ocean Thermal Energy Conversion (OTEC) technologies will be most effective outside of the European borders, it is recommended to invest in these technologies, considering the leading position of the EU in the utilisation of OTEC technologies.
- Mobile ocean energy converters may also become a successful technology for EU exports.
- Priority should be given to engineering solutions with the lowest environmental impact based on global acceptance criteria, such as reduction of CO₂ emission and promotion of jobs with high environmental added value. It is recommended to take into account the “Building with Nature” approach². In particular, the provision of subsidies should take into account environmentally friendly solutions that do not involve large and unnatural modifications of the coastal lines.
- Reaching the target of “device availability of 95% in 2040” requires more effort from the members states, especially when considering operation maintenance.
- Regarding “supply chains” (page 3 in the Issues Paper), reliability and accessibility are very important tasks. Cost reduction could be achieved by the added value of new technologies such as auto-diagnosis, health monitoring and self-repair.

² De Vriend H., Van Koningsveld M., Aarninkhof S., “Building with nature: the new Dutch approach to coastal and river works”, *Civil Engineering, Volume 167, Issue CE1*, February 2014.

COMMENTS ON ANNEX 1:

ADVANCED RESEARCH PROGRAMMES

- *Action 1:* KPI's predictability of resources should include effect of climate change.
- *Action 2:* In the scope, projects should also address the quantification of the added value of health monitoring for both design (feedback and optimisation of next design) and maintenance. KPI's should include the reduction of uncertainties and results from the benefit quantification of monitoring systems.

INDUSTRIAL RESEARCH AND DEMONSTRATION PROGRAMME

- Action 5 is of first importance to overrun the conservatism of existing standards for oil and gas industry.