

**SUMMARY****Ocean Energy: Technology readiness, patents, market status and outlook**

**Side Event – IRENA 7<sup>th</sup> Council  
3 June 2014 (Over lunch)**

**Suite 801, 8th floor, Sheraton Hotel, Corniche, Abu Dhabi**

The potential of ocean energy is huge, with estimates of potential ranging between 100% and 400% of global annual electricity consumption. Furthermore, ocean energy technologies can complement other forms of renewable energy by providing more predictable source of electricity. Yet, the contribution of ocean energy to the global energy mix in the short term remains small, with technologies still in the early development and demonstration phases and very few at the commercial deployment stage.

A side event was held on the 3<sup>rd</sup> of June 2014 at the margins of the 7<sup>th</sup> IRENA Council to present to members the results of IRENA's first package of work on ocean energy. This output consisted of:

- An overview report on the technology readiness level (TRL) of various ocean energy technologies, including assessment of current status, trends, barriers to enhanced deployment, the status of patents originations and registrations. The report also identifies opportunities and policy needs to increase the share of ocean-based renewables in the global energy mix in the short and medium terms;
- A set of comprehensive technology briefs that give deeper insights into the performance of technologies and the state of existing projects for the conversion of tidal, wave, salinity gradient and ocean thermal energy into electricity.

The studies show that even though tidal range technologies are already deployed at scale, and wave and ocean thermal energy conversion (OTEC) are approaching maturity, there still remains significant barriers that need to be overcome before significant potential of ocean energy can be realised. The session provided insights into the key findings of the studies leading to this conclusion, and solicited inputs from countries present on aspects of work that IRENA should focus on with regards to further work on ocean energy in the next work programme.

The event was chaired by the Deputy Director General of IRENA, Frank Wouters, and attended by a number of countries including Argentina, France, Malaysia, Denmark and the USA.

Ambassador Alfredo Morelli of Argentina was very interested in the work and requested further information on how to strengthen ocean energy technology development in Argentina.

Mr Tim Williamson of the U.S. expressed interest and support for IRENA's work on ocean energy. He suggested to contact Dr Robert Cohen, a U.S. engineer who works with Lockheed Martin on the development of OTEC over the last five years. Dr Cohen could enrich the ocean energy technology report with further information on OTEC, particularly with regards to costs aspects.

Ms Martine Kubler-Mamlouk of France provided comment on the presentation and highlighted some of the various activities on ocean energy going on in the country. France prefers to consider all

renewable energy produced at sea in the category of ocean energy, i.e. including offshore wind. France has put in place a number of incentives and proposals to promote energy produced at sea, including pilot energy produced at sea farms, and support for further RD&D on ocean energy. France would like to lead and coordinate an interest group in IRENA on ocean energy for islands. France also proposed during the meeting to start work on islands with evaluation of potentials as this is a very lengthy and problematic issue, possibly at the occasion of the planned seminar with IRENA at La Martinique end of the year. France would like to share a small study it conducted to assess information requirements and information deficits on ocean energy as a way of promoting awareness and information sharing to minimise duplication of efforts. The study is currently being updated.

Ms Ruzaida Daud of the Energy Commission of Malaysia expresses the country's interest to develop its ocean energy resources. To this effect, Malaysia would like to work with IRENA to organise an international workshop on ocean energy in the country, particularly with regards to OTEC.

Ms Therese Kofoed Jensen of Denmark asked for clarification on how different IRENA's work on ocean energy is different from what the IEA Ocean Energy Systems Implementing Agreement (IEA-OES) is doing. It was clarified that IRENA's work on ocean energy complements the work of the IEA-OES who invited IRENA to their 26<sup>th</sup> Exco Meeting in May 2014 and requested collaboration with IRENA on various aspects of ocean energy.

Next steps:

Extended outreach and dissemination, including special interest focus areas, depending on demand and support from member states.