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European Union

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INFORMATION NOTE

From: General Secretariat of the Council

To: Council

Subject: Any other business
European leadership in renewables - the state of marine energy
- Information from the Commission

Delegations will find attached an information note from the Commission.

"European leadership in renewables – the state of marine energy"

Marine renewable energy technologies are emerging and can be the next generation of renewables next to others like wind and solar. Floating offshore wind, wave and tidal converters, can contribute to reaching the energy and climate objectives of the European Union. Europe is currently the global leader in these technologies. In order to turn this technological advantage into industrial leadership, the deployment of these technologies needs to start in the early 2020s. Thanks to the industrial links it has with hydropower, shipbuilding, wind turbines and offshore oil and gas, a number of Member States can contribute and benefit from the deployment of marine renewable energy technologies.

To ensure continued European leadership, the Commission supports this sector through various programmes and initiatives and has engaged with Member States in different fora, including the Strategic Energy Technologies Plan (the SET Plan).

During this AOB, the Commission would like to raise the awareness of the current state of marine renewable energy and highlight possibilities for future joint actions.

Annex I – Background information on marine renewable energy in Europe

Marine renewable energy comprises a set of technologies, such as bottom fixed and floating offshore wind, wave and tidal converters. While bottom fixed offshore wind is now an established industry, emerging marine renewable technologies have also a vast potential, globally, for Europe and its outermost regions. By 2030, these technologies could have installed capacities between 5 GW and 10 GW if the right policies are adopted. For wave and tidal energy technologies alone, the industry sees a potential installed capacity of 100 GW in Europe and creating up to 400 000 jobs by 2050. EU waters offer favourable natural conditions to harvest renewable energy offshore. Capacity factors of emerging marine renewable technologies are much higher than other renewables. They could offer stability and complementarity of the energy mix.

The European Union as a whole and many of its regions stand to benefit from marine renewable energy. The deployment of these technologies and the building up of a manufacturing and maintenance industry, could boost economic development well beyond coastal areas. The operation and supply chain is already pan-European and involves many Member States, with innovative SMEs and large manufacturers, benefitting from its links with other mature industries, such as the offshore, mechanics, automotive, aerospace business where Europe has leading companies. Europe could be home to the first pilot farms for floating offshore wind, wave and tidal energy in the early 2020s. European companies are already exploring export potential.

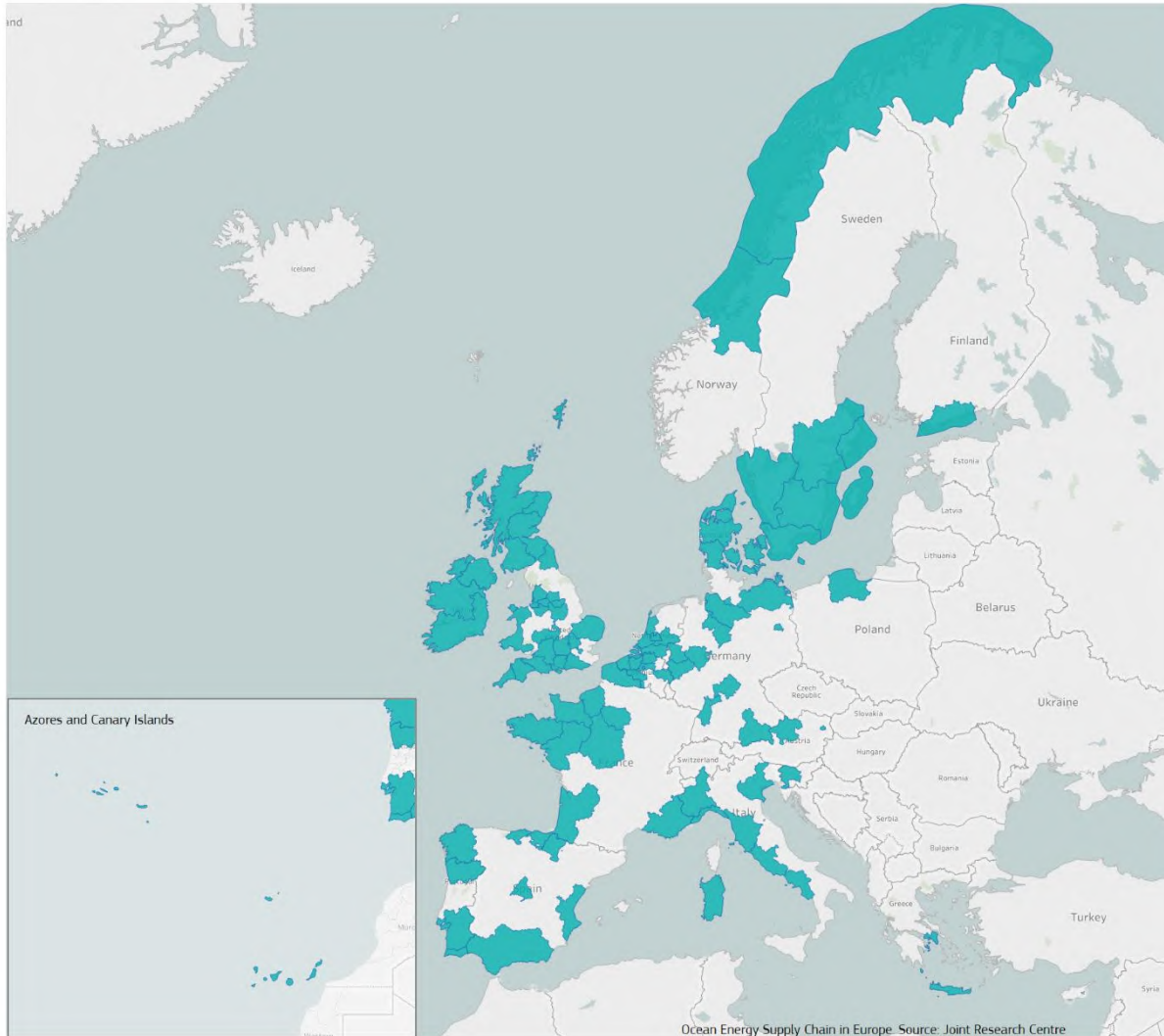
Thanks to its investment in research and development, Europe is today the clear global leader in this sector: 50 % of the world's tidal energy developers, 60 % of wave energy developers, 70% of ocean energy capacity and 75% of floating offshore wind projects in the world are European. The Commission, Member States, and the private sector have invested more than EUR 4 billion over the last 10 years for research and pilot projects. In the context of the SET-Plan, Member States and the Commission have set cost-reduction targets for the next decade: for tidal stream technologies, the costs should come down to 15ct€/kWh by 2025 and 10ct€/kWh by 2030, and for wave energy to 20ct€/kWh by 2025 and 15ct€/kWh by 2030. These targets are ambitious but reachable. Bottom fixed offshore wind was at 15 ct€/kWh only 4 years ago.

It requires political leadership and joining efforts to ensure that Europe turns the technologies which it has created and financed into industrial leadership, with the associated benefits of job creation, investments and renewable energy production. The sector needs to move from learning-by-research to learning-by-doing, from pre-commercial demonstrators to commercialisation. Europe needs a strong home market for these technologies. Cost reduction and commercialisation will not happen without further public support, as was the case for offshore wind only a few years ago. Investors and developers need visibility and certainty in public policy, for instance through the National Energy and Climate Plans and support measures that will eventually offer revenue and business perspective for private investors and the industry. In the absence of such leadership, there is the risk that the knowledge developed in Europe moves abroad, taking potential jobs with it.

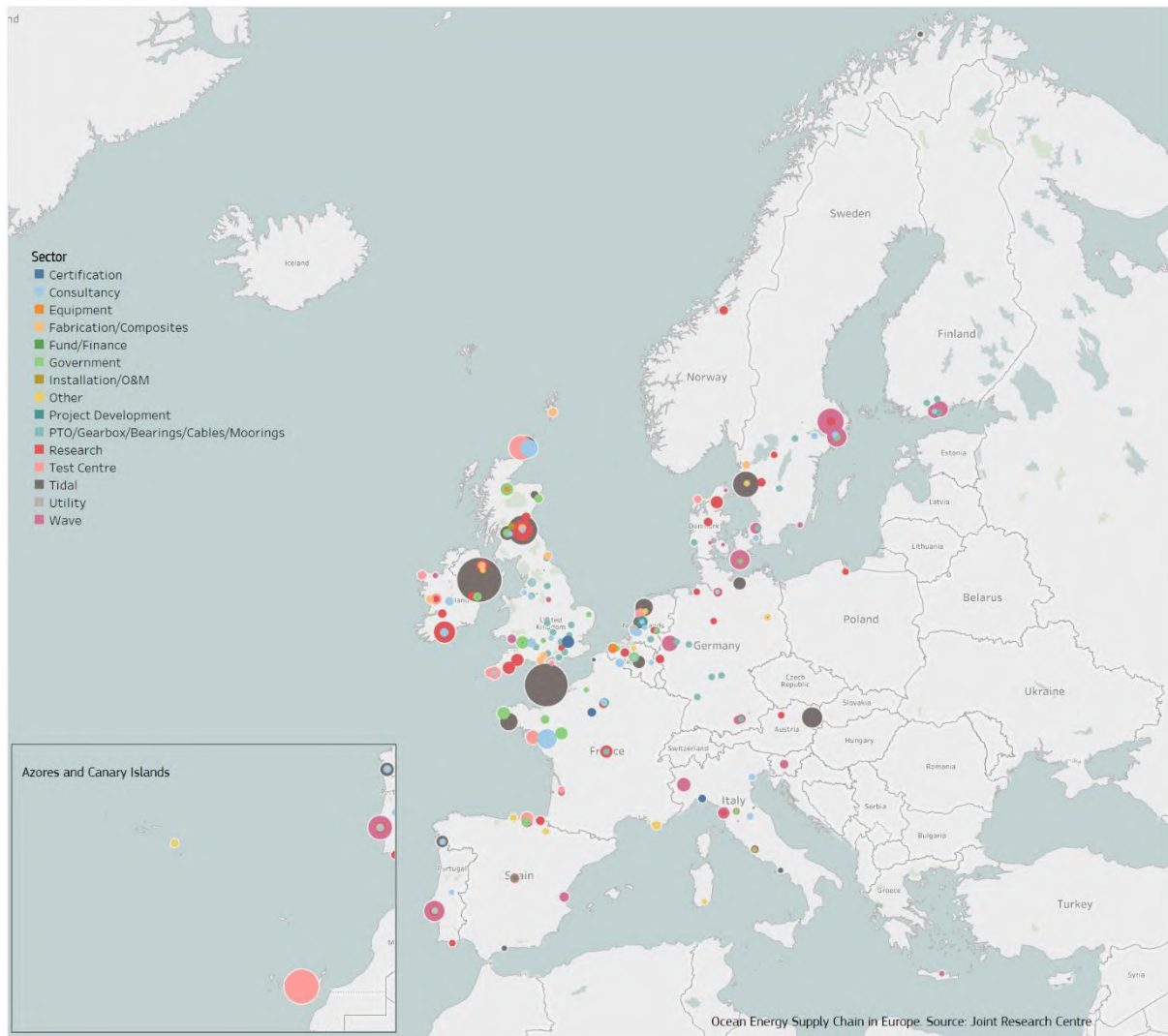
Action at the level of an individual Member State might not be sufficient. Through cooperation and deployment in several Member States, Europe as a whole could provide the framework conditions needed for the development of this sector, also in view of reaching the energy and climate targets for 2030. The Commission will continue to support the strategic development of the sector in the European Energy Union, through such programmes and initiatives as the Blue Growth Strategy, the Strategic Energy Technology Plan, the Clean Energy Industrial Forum as well as in the context of the Clean Energy for EU Islands initiative. Marine renewable energies could soon compete with expensive diesel generation used on the vast majority of islands and offshore installations in Europe and in the rest of the world. The Commission intends to continue to provide funding via regional development funds and the R&I support programmes, with the upcoming Horizon Europe Programme and its InvestEU programme. Increased cooperation between Member States is working well for example for offshore wind energy in the North Sea. A similar approach could be considered for marine energy. The Commission stands ready to assist and cooperate with Member States who wish to concretely support marine energy deployment together.

Annex II – Background information on marine renewable energy supply chain and projects

Regional supply chain for wave and tidal technologies



Wave and tidal energy supply chain in Europe by main activities



Examples of ongoing and planned projects in demonstration phase in Europe:

Tidal: Sabella (FR)	1MW	France
Hydroquest (FR):	1MW	planned in France
Minesto (SE)	0.5 MW	UK, planned project Faroe Islands
Orbital Marine Power (UK)	2MW	UK
Simec-Atlantis Meygen (UK+AT)	6MW	UK, projects planned in France
Nova Innovation (UK+BE)	0.3MW	UK
Tocado (NL)	1.75 MW in NL + 1.2 MW expected in UK	
Schottel Hydro (DE)		Canada and Asia
Magallanes (ES)	2MW	UK
GKinetic (IE)		FR

Wave:

Corpower (SE)	0.15 MW	UK
Wello OY (FI)	1 MW	UK + 1MW expected soon
AW Energy (FI)	0.35 MW in PT + 5.6 MW pipeline	
Laminaria (BE)		UK
Idom-Oceantec (ES)		ES
Wegde global (ES)		ES
Ocean energy (IE)	0.5 MW	USA
Wavepiston (DK):		DK and SP
40SouthEnergy (IT)		IT
Nemos (DE)		DE
SinnPower (DE)		EL
Weptos (DK)		DK
Seabased (SE)		SE/Ghana
Wave4Energy (IT)		IT

Floating Offshore Wind

Equinor (NO)	30 MW	UK - 2017
Windfloat (PT)	27 MW	PT - 2019
(FR) Four demonstration farms of 24 MW each in FR		early 2020s
FloCan5 (ES)	25MW	ES - 2021
Balea (ES)	26 MW	ES -2020
Nautilus (ES)	5 MW	ES - 2020
Gaelectic (IE)	30 MW	2021
SeaTwirl S2 (SE)	1 MW	2020