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Fostering cooperation in offshore renewable energies
A technologically inclusive approach

A non-paper by
Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia and Spain

The aim of the Commission's upcoming offshore renewable energy strategy ("the strategy") is to trigger a manifold increase of renewable energy harnessed at sea. An overwhelming share of today's offshore renewable energy comes from offshore, seabed mounted wind power, a commercially well-developed and mature technology. The deployment of such technology requires however very specific geographic, economic, environmental and weather conditions to be met; such conditions are prevailing in Europe's northern seas but are difficult to find in Europe's other seas and oceans, including islands and outermost regions. Moreover, ocean-based "blue economy" activities, such as marine aquaculture, ocean observation, seawater mining or desalination, face yet other environmental and geographical challenges.

In order to harness the renewable energy potential of all European seas and oceans and to take into account the geographical diversities and alternative uses of the marine environment, a much broader set of technological solutions is needed. Such solutions include floating offshore wind and solar, the energy of waves, currents and tides, the differential of thermal or saline gradients, marine heating, cooling and geothermal energy, marine biomass (algae), the conversion of existing offshore oil and gas platforms, and other technologies still, including synergies between technologies. Such technologies all have in common that they should not have a negative impact on the marine environment. Compared to seabed mounted offshore wind, however, such high potential solutions have a lower technology readiness level, as is the case of floating offshore wind, and a much lower level for the remaining technologies.

Nevertheless, the EU, its's Member States and European companies have in the past decades invested considerable resources in R&D&I to propel them closer to technological and commercial maturity, and substantial progress has already been achieved. Floating offshore wind, for instance, a promising technology to access renewables further from the shore, in areas with deeper sea beds, has experienced a strong development in the recent past with different prototypes and small-scale projects already operating, while contributing to creating business opportunities for European players as one of the technologies closer to industrial development. Floating PV recently has also experienced industrial scale deployment in natural and artificial inland waterbodies and could have promising future developments in coastal and near-shore seas.

The EU is in fact at the forefront of this technological and industrial development and the move from the prototype to the demonstration stage, and from there on to commercial maturity, appears within reach. Achieving the goals of deep decarbonisation implies the deployment of all offshore renewable technological solutions; all European seas and oceans could thus contribute to the Union's energy transition and the long-term 2050 objective. Through targeted support policies over the next 10 years in R&D&I in production facilities and related infrastructures, Europe could maintain and increase its global leadership in a market that is likely to attract significant investments globally by 2050, contributing to jobs, decarbonisation, a clean energy transition on islands, security and economic growth in coastal regions.

Specifically, a joint Mediterranean and Atlantic offshore renewable energy cooperation could analyse and explore in detail the challenges and opportunities of such technologies, encouraging efficient deployment and maximizing socio-economic benefits. The similar geographical characteristics of coastlines and the shared elements of renewable energy policies could facilitate the implementation of such a strategy, with the aim to strengthening the industrial fabric and value chains.

At the same time, however, the development of offshore renewable energy in Europe's seas and oceans, in addition to the technological challenges, should also take into serious consideration environmental sustainability and socio-economic specificities. The Mediterranean Sea, for instance, with its diverse geography, bathymetry, and complexity and length of coastline, hosts a very rich marine biodiversity. Furthermore, marine and coastal tourism oftentimes constitute a substantial part of the EU's Mediterranean economies.

Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia and Spain call for an approach and specific actions that would enable offshore renewable energy technologies to be conducive to a long term vision which would harmonise technological, socio-economic and environmental factors with the EU's climate ambitions. The Commission's strategy, a welcome, comprehensive approach in the EU's energy transition, should envisage instruments to support all offshore renewable energies covering all of Europe's diverse geography and specifically, the Mediterranean Sea and the Atlantic Ocean, including deep water installations. No offshore renewable technology or sea or ocean should be left behind.

- **Support measures -** The great difference in the readiness levels of offshore renewable energy technologies prompts the deployment of very different instruments at the EU and national level in order to support research and development, finance, investment or deployment. The EU strategy – and the actions envisaged in it – should examine all instruments at the disposal of the Union and its Member States, such as increased targeted support in Horizon Europe, the Innovation Fund, InvestEU, EIB financing, State Aid exemptions, technology specific incentive auctions, and others as appropriate, with the aim to deploy prototypes and industrial scale demonstration projects in all offshore renewable technologies and stimulate investment in commercially mature projects.

- **Assessment of resources and potentials -** The limited deployment of floating offshore wind and the relatively low maturity of other marine energy technologies compared to sea bed mounted offshore wind have had the unfortunate effect of stimulating very limited comprehensive and detailed studies on the real potential of offshore renewable energies, including its impacts on marine environment of Europe's seas and oceans. The EU strategy should address this shortcoming with a programme of comprehensive, technologically and geographically well-balanced studies with the aim to accompany and stimulate further public and private efforts, and increase the common scientific knowledge of Europe's seas and oceans, including the marine environment and bird migrations.

  Furthermore, the strategy should also address the special role of islands in spearheading decarbonisation by turning them into laboratories for pilot projects for various offshore renewable energy technologies, including the less mature ones, in order to increase diversification of renewable sources and technologies while contributing to the security of supply in isolated systems and to the EU's climate goals.

- **Maritime spatial planning -** Maritime spatial planning helps allocating offshore renewable energy deployment into unoccupied maritime areas or into regions with ongoing alternative uses. A coordinate maritime spatial planning across all European seas and oceans is deemed indispensable from the outset.
  It should be noted that maritime spatial planning needs to take into account grid infrastructure. Planning where electricity will be generated at sea helps foreseeing cost effective investments in off-shore and on shore grids and in interconnection capacity as addressed in the Governance regulation.

In order to support the Commission's inclusive approach and to sustain the implementation of the EU offshore renewable energy strategy, **Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia and Spain** are furthermore ready to examine the possibility of establishing a regional and technological cooperation framework, based also on existing bilateral or multilateral efforts, aiming at addressing common challenges of offshore renewable energy. This would include cooperation on spatial planning for sea routes, fishing, protected and restricted areas and energy infrastructures; present and deploy joint offshore renewable energy projects; improve collaboration between private and public research; foster dialogue between relevant public institutions, and carry out any other action as appropriate.