The **European Green Deal Call**

**Demonstration of innovative critical technologies to enable future large-scale deployment of offshore renewable energy technologies and their integration into the energy system.**

To decarbonise Europe, clean renewable power production must become the main source of energy. A Clean planet for all, provides estimates for the offshore wind capacity in Europe of 240-440 GW by 2050. This increase would represent a paradigm shift in the European energy system and require a modern infrastructure to transport offshore renewable energy power to onshore, including through the option of power-to-X. This buildout needs to be attained while also protecting the environment and biodiversity and securing a just transition, all while ensuring cost-efficiency. There is a need for more efficient and cost-effective technologies using wind, wave and/or tidal resources, considering the potential of the different European sea basins.

**Targeted Impacts:**

- To accelerate the development of innovative critical offshore technologies for the realization of a clean renewable power production system needed to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050.
- To accelerate the future roll-out of large-scale deployment of offshore renewable energy, considering market perspective and social, environmental and economic impacts.
- To increase incentives for investment and economies of scale in offshore bringing down costs and it will create new business models and services

as of 20/4, MS comments not included
Demonstration of innovative critical technologies to enable future large-scale deployment of offshore renewable energy technologies and their integration into the energy system.

Proposed activities:

Demonstration of critical offshore renewable energy innovations at sea considering the efficiency, reliability and sustainability that is needed in all areas of the offshore renewable energy system notably:

- **Offshore renewable energy power generating systems**: innovative large scale integrated systems, floaters and substructures, mooring and anchoring systems specifically conceived for floating offshore considering the varied subsea conditions for floating offshore systems.

- **Grid infrastructure**: demonstration of innovative High Voltage Direct Current (HVDC) technologies and systems (like multi-vendor Multi Terminal HVDC (MT HVDC) systems, grid forming converter, and DC circuit Breaker); for floating renewable energy technologies innovative dynamic inter-device/inter-array cables and connections to converter stations at sea or offshore hubs have to be considered.

- **Power to X /storage systems**: innovative storage and/or green power to X (including hydrogen) systems to maximise the use of offshore resources.

It shall address at least the offshore renewable energy power generating systems and the related energy system integration requirements, and may address grid infrastructure and/or power to X/storage systems.

Proposals shall address marine spatial planning (making multi-use of the seas possible), industrial design and manufacturing processes, installation methods, transport and operation & maintenance and supply chains.