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Destination 3

SET Plan Flagship topic Ocean energy

HORIZON-CL5-2027-02-D3-09: Innovative technologies and solutions to improve wave and tidal energy systems



SET Plan FLAGSHIP Ocean

HORIZON-CL5-2027-02-D3-09: Innovative technologies and solutions to improve wave and tidal energy systems

IA

43M€

43M€

Per topic

Per project

- Activities are expected to achieve TRL 6-7 by the end of the project Activities may start at any TRL
- The page limit for proposals is increased to 60 pages.
- Beneficiaries must provide financial support to third parties (FSTP) - The maximum amount to be granted to each third party is EUR 800.000.
- **Timing:** call opening **3 December 2026**, closing **31 March 2027**



SET Plan FLAGSHIP Ocean

Expected outcomes

- Advance in the realisation of the Strategic Energy Technology (SET) Plan's research and innovation priorities and targets for ocean energy;
- Energy producers and consumers benefit from increased performance of wave and tidal energy technologies with the focus on efficiency and flexibility, reduced cost, improved reliability and sustainability, operation and maintenance, robustness and security during all stages of the lifetime of an ocean energy farm from installation, operation and maintenance to decommissioning;
- Efficient and effective support to ocean energy research and innovation through alignment and cooperation among different actors, avoiding fragmentation of efforts providing effectively a significant developmental boost of wave and tidal energy technologies.
- Increased contribution of ocean energy to the energy system, with minimal impacts on health and the environment (notably biodiversity) and at the lowest possible cost.



SET Plan FLAGSHIP Ocean - Scope

The overarching objective is the development and demonstration of cost-effective wave and tidal energy systems that can survive in a harsh ocean or sea environment with minimal impacts on health and the environment and biodiversity. The challenge is open to proposals seeking to steer wave and tidal energy development for different type of resources in an effective way at a European level and to bring these technologies to the market. In this action the following can be considered:

- The development and demonstration in controlled environment of innovative wave energy devices.
- The development and demonstration in controlled environment of innovative next generation tidal energy devices
- The development and demonstration of new sustainable materials in ocean energy converters, moorings and foundations whilst ensuring structural integrity, durability and circularity can be considered.
- The development and demonstration of sustainable tailored mooring and connection of electrical or other power transmission systems (cable system, electrical equipment, ...) for wave and tidal energy devices. Advance combined mooring and electrical connectors or hydraulic power transmission to reduce component cost and number of connection operations, included in systems for sharing an anchor between devices in arrays. Develop novel systems for safe and quick connection/disconnection that do not require large vessels and/or diving teams.
- The instrumentation for condition monitoring and predictive maintenance of ocean energy devices and structures. Apply recent advances in condition and structural health monitoring from other sectors to ocean energy. The use of Artificial Intelligence (AI) in ocean energy technology development.
- Advanced manufacturing of ocean energy devices and structures and auxiliary equipment considering reduced energy, manufacturing costs and materials consumption, high production throughput and optimization of logistics.
- Development of technologies and solutions for the installation, maintenance and decommissioning of wave and tidal energy devices.

SET Plan FLAGSHIP Ocean - Scope

The R&I activities are divided into three challenges:

➤ Breakthrough challenge

to develop new solutions, tools and new knowledge to increase the competitiveness of the ocean energy sector and on the acceleration of ocean energy deployment at scale. The aim is that the innovative technologies have been at least validated towards the end of the project.

➤ Validation challenge

to validate technologies, tools and innovative solutions both in a laboratory and in a relevant environment which have been developed in the project or have been developed previously or separately in other European and national projects. FSTP can be used for new illustrative application use-cases demonstrating well defined added value to end users.

➤ Demonstration challenge

to carry out demonstration activities (up to TRL 7) in line with the priorities set by the SET Plan ocean energy R&I priorities and targets and accelerate the take up of innovation by the industry. The demonstration activities will be selected using the stage gate approach developed by the IEA OES task 12.

The breakthrough and the validation challenge can be carried out both through activities directly implemented by the core consortium and through FSTP activities. The demonstration challenge will solely be implemented by the core consortium.



SET Plan FLAGSHIP Ocean – Key features

- **The Demonstration challenge**
 - The project is expected to carry out at least three demonstration activities
 - The focus of each demonstration activity should be clearly different from each other
 - Maximum amount of funding for demonstration activities is 24 million EUR
- **Go/no go milestone** (*More information in CINEA presentation at infoday - the end of session 5b CID call*)

The project is expected to include a **clear go/no go milestone**, for **each demonstration activity**, before entering the deployment phase.

Before each go/no-go milestone, the project is expected to show evidence of having in place

- i) all needed **permits for deployment**,
- ii) complete, detailed and realistic **engineering plans**, compliant with the applicable standards and
- iii) a complete **business and implementation plan**.

The **project proposal** is expected to present a **clear and convincing pathway to obtain necessary permits** for the demonstration activities and allow for appropriate timelines to achieve these.



SET Plan FLAGSHIP Ocean – Key features

- **Financial Support to Third Parties (FSTP)**

The use of financial support to third parties should allow a faster implementation of research and innovation activities, and to respond to disruptive developments, attracting different stakeholders and innovators.

- **Breakthrough challenge** (up to 3 million €)

- Development of breakthrough technologies and innovative solutions in support of demonstrating and upscaling wave and tidal energy considering the full supply chain
- Attracting new partners (academia, SMEs, scale ups) and solutions
- First call in the first year of the project

- **Validation challenge** (up to 6 million €)

- Validation of innovative technologies/solutions developed in the breakthrough challenge or from earlier R&I projects
- To engage other entities not earlier identified

- **Tiered approach** to address **complex R&I challenges** and **subsequent FSTP calls** can be used to give further support to successful initiatives (FSTP actions not longer than 18 months)

- The **proposal** should **clearly describe the objectives and the expected results** of the FSTP calls



SET Plan FLAGSHIP Ocean – Key features

- **Advisory Board** to ensure coherence and alignment with the SET plan activities
 - Independent ocean energy R&I experts
 - SET Plan Ocean Implementation Working Group (IWG) representation
 - Clean Energy Transition Cofund Partnership (CETP)
 - European Commission
- **Consortium composition**
 - The core consortium is expected to demonstrate proven experience in sound financial management of large projects, including public procurement and/or calls and **grants to support third parties**, in particular for the beneficiaries that will manage the FSTP calls.



HE WP 2026-2027 - SET Plan
Flagship for Ocean Energy

**Innovation Action with Financial
Support for Third Parties (FSTP)**

UE Budget: EUR 43 million

Duration: Expected ~5 years

Call: 3 December 26 – 31 March 27

Beneficiary intervention rates

HE IA rates apply

- For-profit ... up to 70%
- Non-profit ... up to 100%

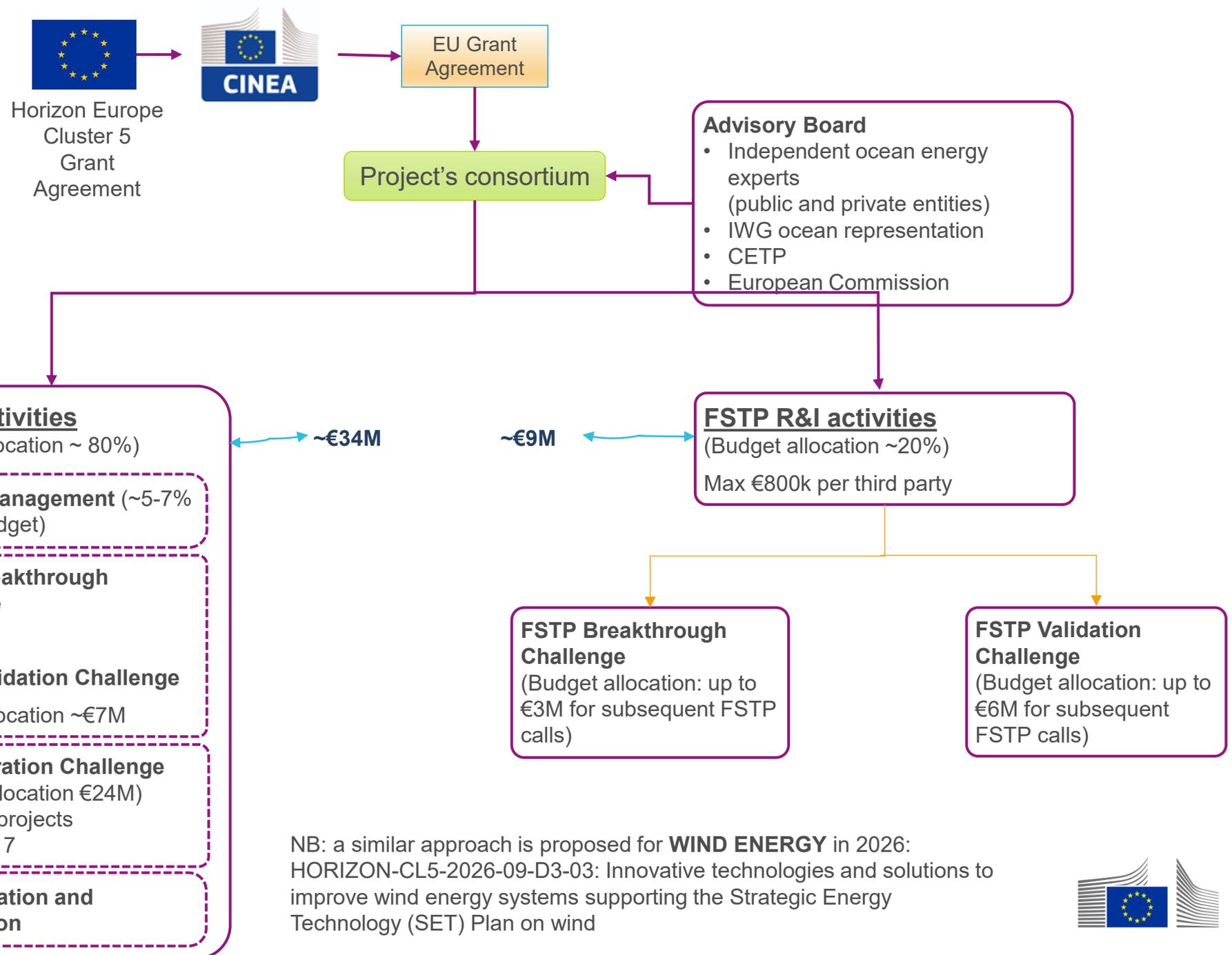
Scope

Advance in the realisation of the SET Plan's R&I priorities and targets of the ocean energy sector

Approach

Partially adopt a 'tiered approach' to R&I challenges ...

- Plan for sequential awards of short duration projects (12-18 months) ...
- Promising solutions can expect subsequent awards to progress the solution



NB: a similar approach is proposed for **WIND ENERGY** in 2026:
HORIZON-CL5-2026-09-D3-03: Innovative technologies and solutions to improve wind energy systems supporting the Strategic Energy Technology (SET) Plan on wind





Thank you for your attention

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