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Project details

Project number: 101084348

Project title: Novel eco-cementitious materials and components for durable, competitive, and bio-inspired offshore floating pv substructures

Project Acronym: NaturSea-PV

Granting authority: European Climate, Infrastructure and Environment

Executive Agency

Start date: 01 November 2022

Duration: 48 months

EU Contribution: Euro 3.621.694,10

Contacts

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NATURSEA-PV

NOVEL ECO-CEMENTITIOUS MATERIALS AND COMPONENTS FOR DURABLE, COMPETITIVE, AND BIO-INSPIRED OFFSHORE FLOATING PV SUBSTRUCTURES



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Project

The strategic objective of NaturSea-PV is to improve the overall lifetime, reliability and maintainability of marine substructures for offshore floating photovoltaics (PV), to reduce degradation and failure rates, and thus investment risk and Levelized Cost of Electricity (LCOE).

Objectives

- Develop a new conceptual concrete substructure;
- Development of new circular materials and treatments;
- Develop improved predictive computational tools for durability aspects;
- Testing and validation in realistic conditions of developed material, components and computational tools;
- Compatibility with socio-economic activities and maximization of sustainable impact in line with the Mission Healthy Oceans.

Our approach

NaturSea-PV will develop a lily-inspired PV substructure solution to meet the specific needs for Offshore Floating PV.

The substructures will be built using newly developed environmentally friendly low carbon ultra-high performance concrete, and it will be coated with new biobased antifouling and anticorrosive coatings.

The lily's concept of radial and tangential girders will take advantage of the flexibility and lightness of the new eco-concretes to withstand the harsh offshore metocean conditions.



*Victoria Amazonica (left)
showing underside of a leaf (right)*



Conceptual Offshore Floating PV sideview

The computational toolkit will serve to optimize materials properties and plan timely maintenance operations.

NaturSea-PV will strongly collaborate with associations, public bodies and regulators to assess the implementation barriers and potential impacts on the socio-economic activities and the environment, to propose corrective measurements and ensure social acceptance.

Impacts

