

MARINERG-i
Stakeholder’s perspective

08/10/2026

-- Sensitivity - Public --

WHY?

Europe urgently needs massive new local renewable capacity

but is running out of suitable space and time

01

Land scarcity

Onshore projects are capped at MW scale and permitting takes 2–4 years.

02

Grid bottleneck

Grid congestion across Western Europe, NL has 70 GW of connection requests on the waiting list

03

Climate urgency

The EU needs 400+ GW of new PV by 2030 and 1 TW+ by 2040, today's pace falls short.

04

Energy independence

The growing uncertainty of global energy markets has become an increasingly strategic vulnerability for Europe.

Four independent pressures make offshore solar relevant across transition scenarios

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SEAVOLT's SOLUTION

Unlocking immense offshore solar capacity

SeaVolt is an offshore floating solar platform engineered for harsh ocean conditions. Purpose-built for North Sea-grade waves, salt spray and storms, and co-located with offshore wind to unlock gigawatt-scale clean energy.



Scalable

Modular, MW to GW - adaptable across offshore sites and deployment configurations.

Wind-farm hybridisation

Capex-efficient; complementary production profile.

Proven in harsh conditions

Patented design survives open-sea waves and storms.

Eco-integrated

Low ecological footprint; optimised artificial-reef effect.

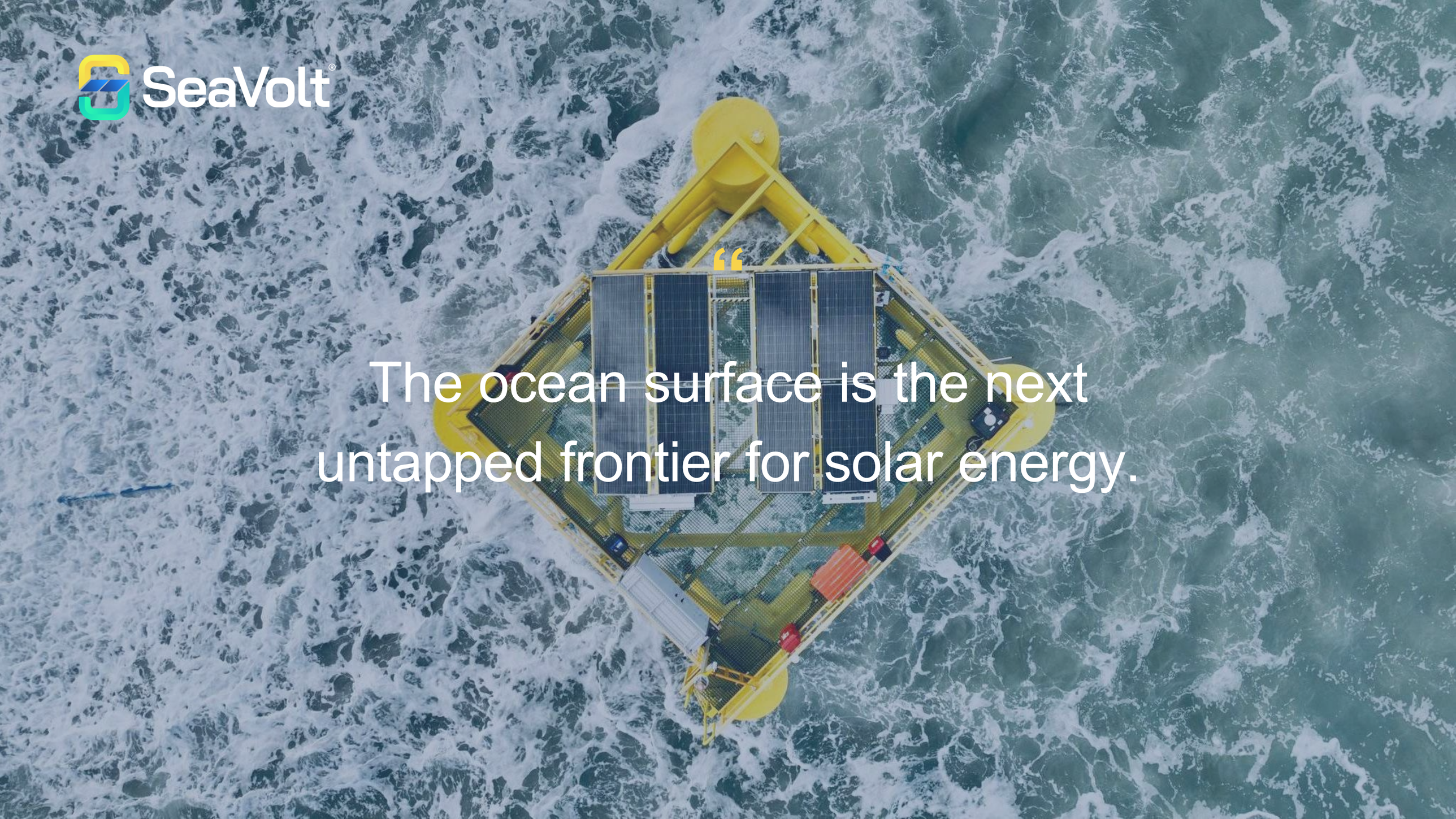
Increased irradiance

Offshore sites gain irradiance and a shifted output profile.

5+ years of engineering

Built by an industrial consortium.

SeaVolt®



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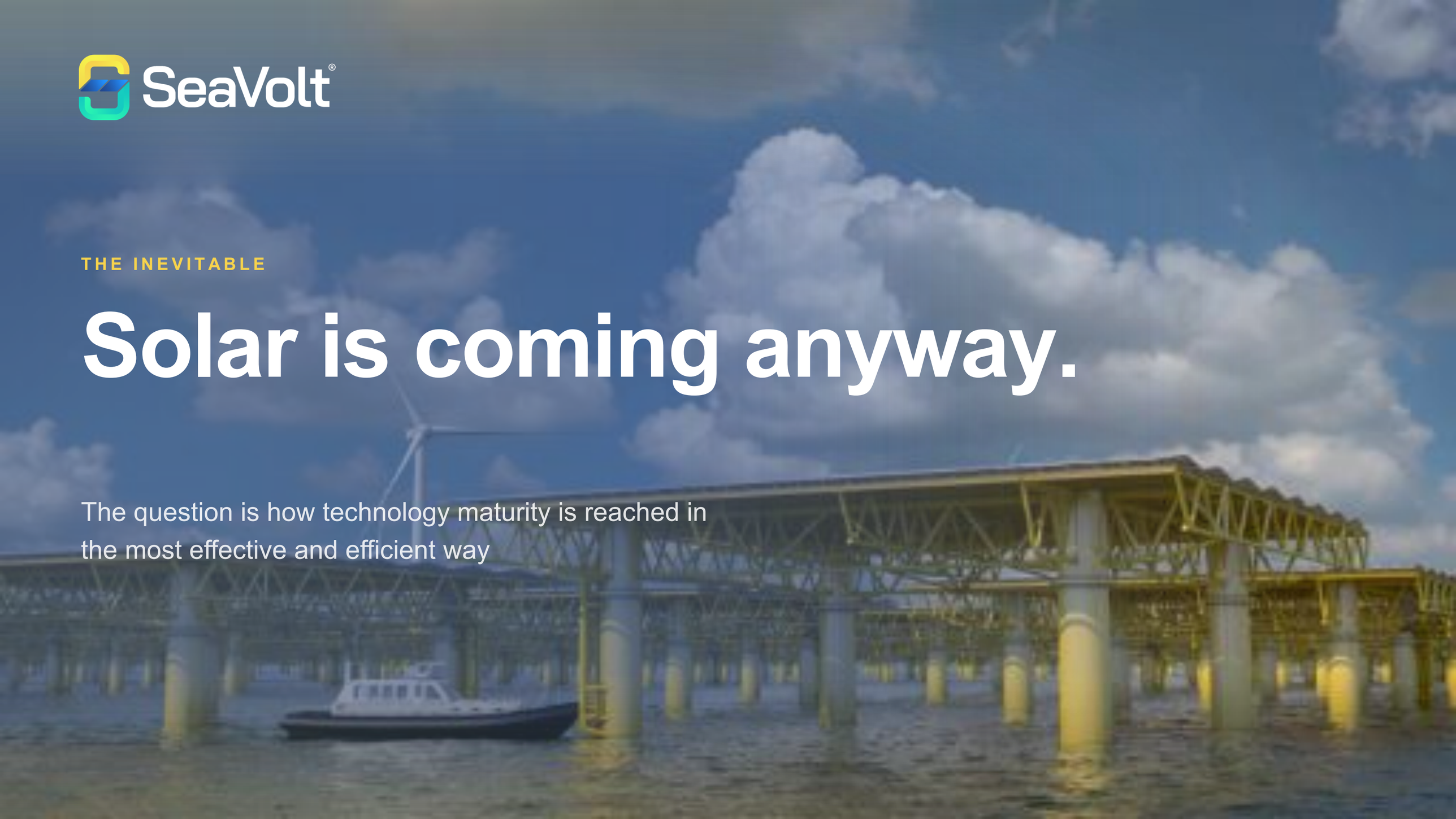
The ocean surface is the next untapped frontier for solar energy.

SeaVolt®

THE INEVITABLE

Solar is coming anyway.

The question is how technology maturity is reached in the most effective and efficient way



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TECHNOLOGY TRACK RECORD

5+ years of industrial R&D, now entering the validation phase

2019

R&D begins, VLAIO Blue Cluster project MPVAQUA

2021

Concept confirmed by wind and wave lab testing.

2023

First offshore test in the Belgian North Sea.

2024

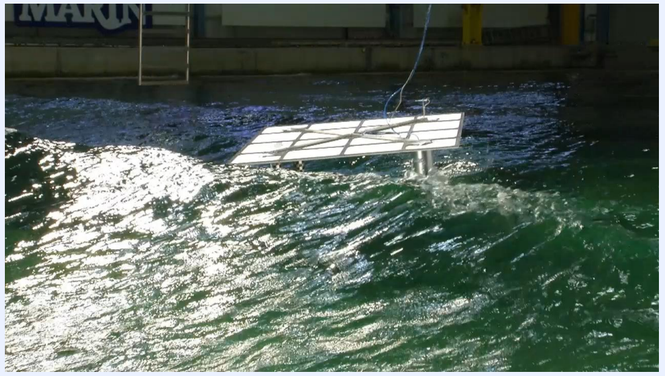
5 mo. test data collected; LCOE roadmap

2025

Ecosystem assessment shows no red flags (EcoMPV, with RBIN).

2026

Development of demonstrator project, derisked by further lab testing







Lab testing

Wave lab **MARIN** (NL) : floater concept hydrodynamic behavior

Wind lab **VKI** (BE) : assess wind loads to refine design

Field testing

Blue Accelerator (BE)

- Hydrodynamic behavior
- Solar PV performance
- Aquaculture co-use of floater

Lab & Field Eco testing

KBIN & UGENT (BE)

- Primary production
- iNIS
- biofouling

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TECHNOLOGY DERISKING

Field testing

Test scope

PV technology

Hydrodynamic performance

Structural health and materials

Aquaculture

Fouling

Coatings



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Test set-up

Module orientations

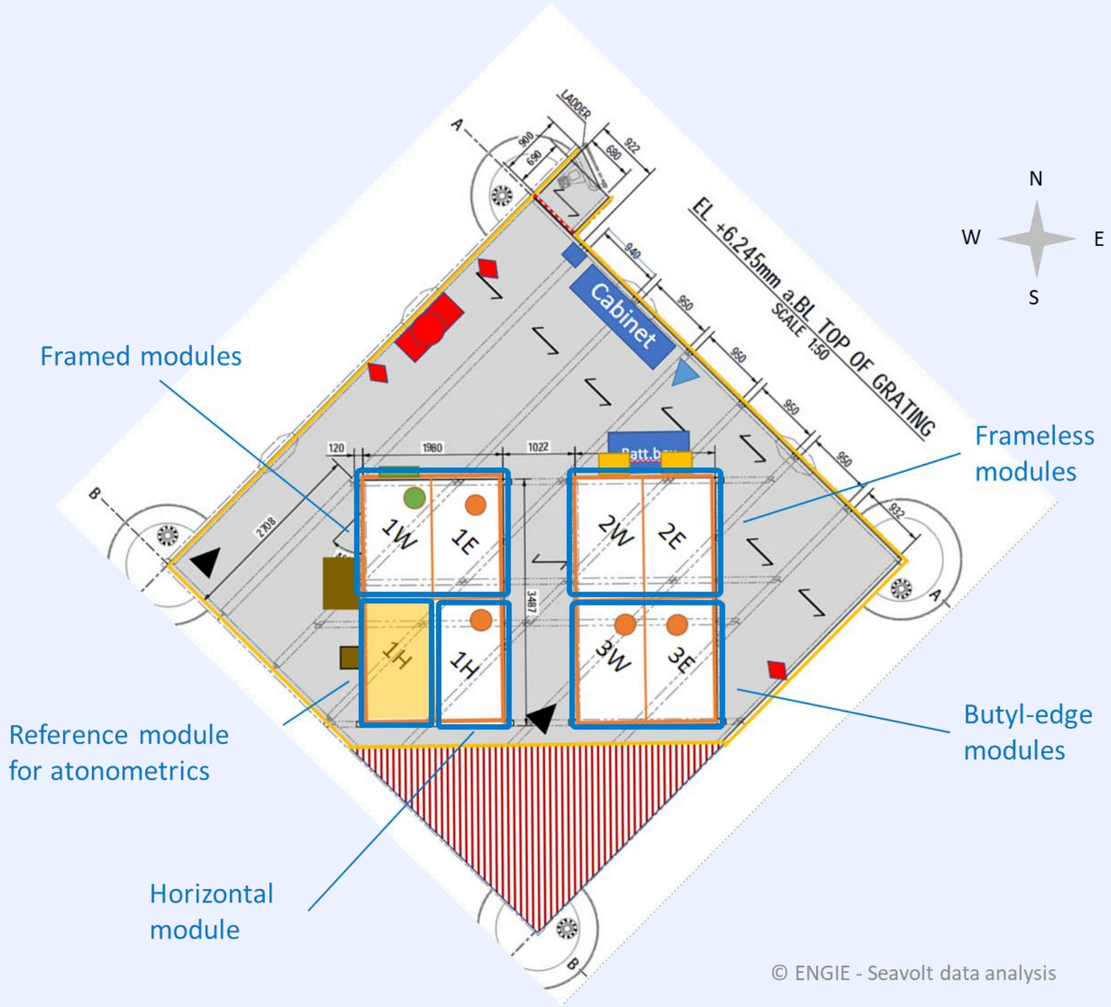
East, west and flat

East–west configuration

Three strings of two modules, each with a different module type: framed, frameless and butyl-edge.

Flat and reference modules

One flat module and one dedicated to the RDE300 soiling measurements.



© ENGIE - Seavolt data analysis

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Test Results – Energy yield

Motion impact <3%

No wave-slamming impact. Cooling impact assumed limited, but not measured accurately in this test set-up.

Soiling observations

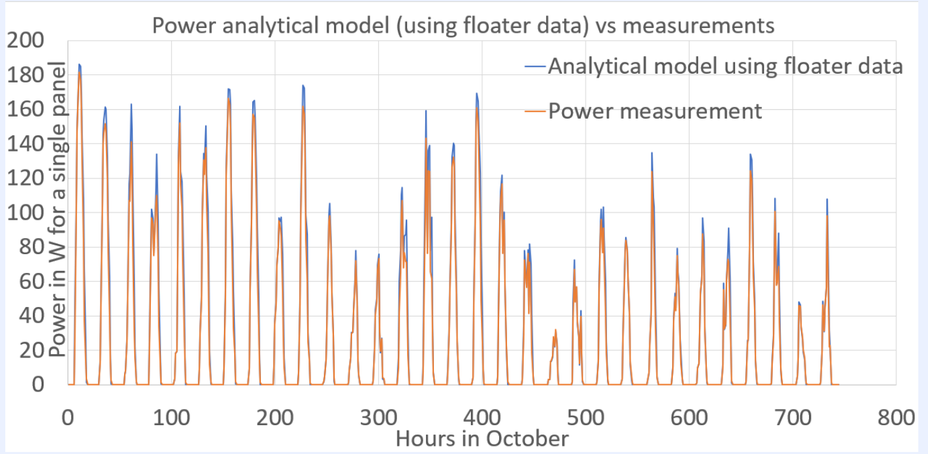
No birds observed during sunny periods. Rain removes bird soiling within a few days.

Bird droppings have a limited effect on overall production (~5%).

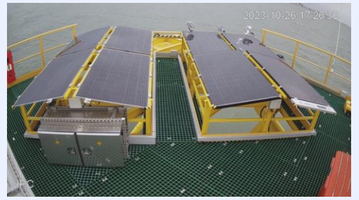
More harbour dust than salt. Site-specific soiling still needs assessment.

Overall: limited effect

Potential mitigations: stabilisation and/or cleaning. Further comparison with actual onshore installations is ongoing, rather than a theoretical case.



Bird presence



Salt spray



Bird soiling



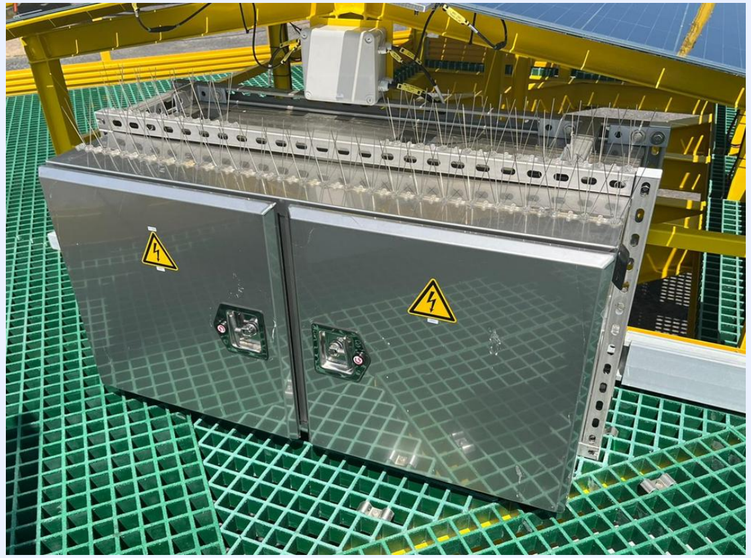
Dust spray



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TECHNOLOGY DERISKING

Test Results – Electrical



Connections remained secure

No electrical parts came loose.



Electrical protection

The control box, battery and other electrical assets remained well protected from seawater.



Structural protection

All structural frames and secondary steel infrastructure remained well protected from seawater.

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Test results – Hydrodynamics



Wave-lab observations confirmed

Observed movements match the simulations.

Tension and buoyancy

Correct tension matters across the floater, mooring and anchor assembly.

Technical specifications must include the weight of every component because it is critical for buoyancy.



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Test Results – Environmental impact



Aquaculture on MPVAQUA

Oyster baskets and mussel lines: basket-design testing, floater integration and farming.

Multi-use of a floating structure is complex and is not the short-term focus of SeaVolt development.



Biofouling testing

Evaluation of fouling on different materials.

Collection and investigation.

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Production, transport and installation



Logistical challenges

Suitable weather windows for transport and installation.

Vessel availability for short-term jobs requires access to the spot market.

Transport and mooring

Towed from the inner harbour to the test site.

1. Pre-laid drag anchors and mooring lines
2. Connected to the platform
3. Tensioned to final tension

Technical challenge

Shallow water makes pre-tension critical.

Account for it from concept development through design, manufacturing, installation and monitoring/maintenance.

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Test Results – Accessibility



Access only in the calmest sea conditions

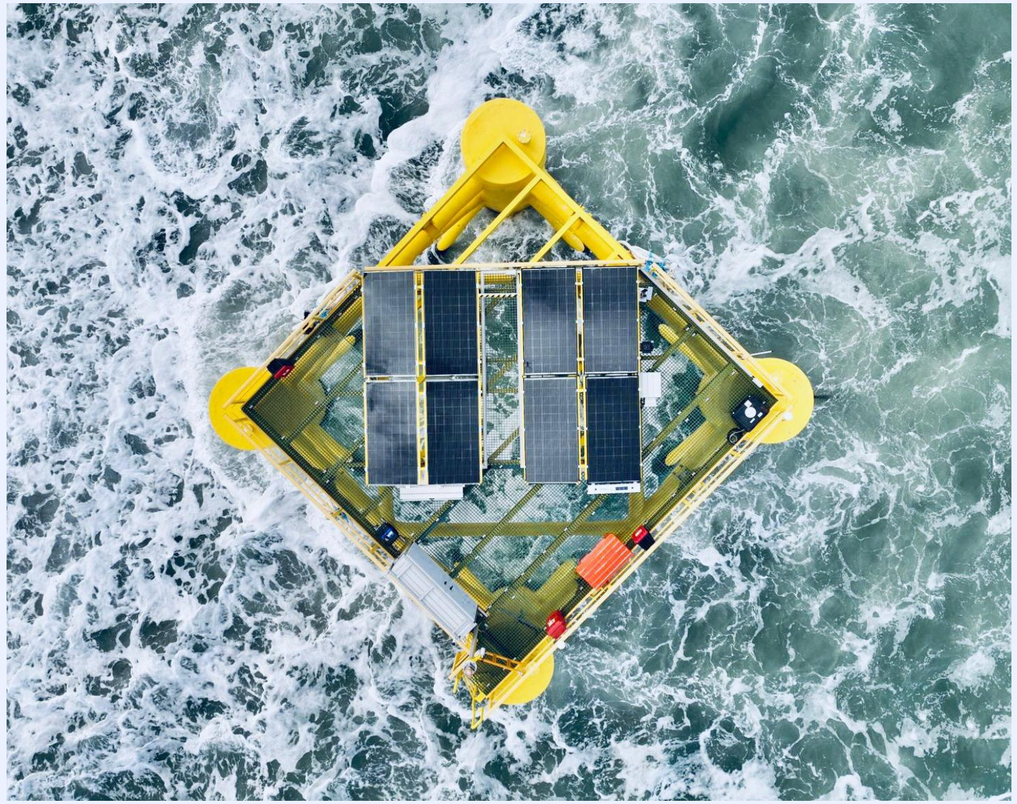
Rehearse platform access in the harbour before tow-out.

Use trained and certified personnel.

Carry out activity-specific risk assessments, for example before battery replacement.

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Test Results – Overall conclusions



What the tests show

Solar panels produce better than expected.

Cleaning-technology development is not a priority.

Hydrodynamic behaviour is under control.

Current and future design priorities

Full-scale steel floater

Mooring and anchoring system

Dynamic cabling

Integration into an offshore wind farm

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TECHNOLOGY DERISKING

SeaVolt

A strong North Sea offshore sector

TRACTEBEL ENGIE

DEME

DJN Jan De Nul GROUP

UNIVERSITEIT GENT

Laborelec RESEARCH & INNOVATION

24SEA

Versteden

TREE COMPOSITES

MultiTech



with a touch of soltech

EQUANS

ArcelorMittal

BLAUWE CLUSTER

natural sciences .be

POM West-Vlaanderen

Port Oostende

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FUTURE STEPS & MILESTONES

The path from validation to first commercial deployment

2027–28
First offshore demonstrator

2029
Pre-commercial projects

2030+
Full commercial phase

2027–28 DEMONSTRATOR SCOPE

SCALE

1 MW - 4 platforms

INTEGRATION

Belgian North Sea

Strong sector partnership

DE-RISKING

Extensive design checks and lab testing

Certified project

Extensive environmental monitoring

Health and Safety procedures



SeaVolt®

STAKEHOLDER'S PERSPECTIVE

Marinerg-I discussion

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Purpose of Testing Infrastructure

01 Lab testing

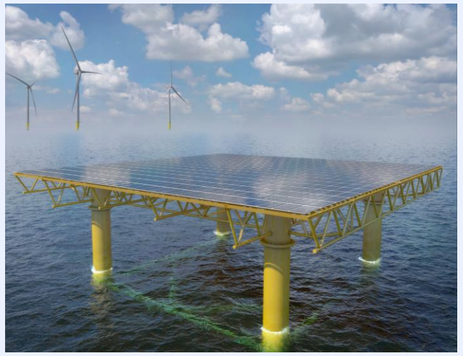
02 ➡ Field testing

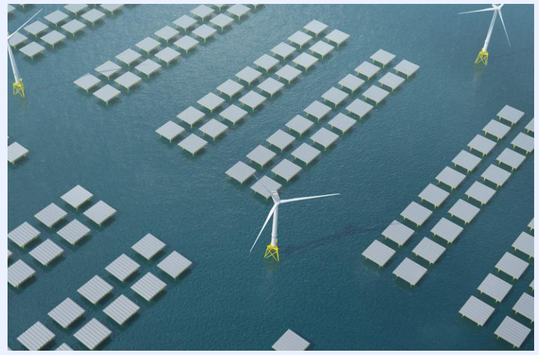
03 ➡ Demonstration phase

04 ➡ Commercial phase









Capex increase

Risk decrease

> **Cost-effective lab testing is crucial before offshore implementation**

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Expectations for MARINERG-i



Strong link with industry

Early involvement of expert suppliers and relevant stakeholders for later deployment

Access to expertise

Access the most suitable combination of infrastructure and expertise, applicable for the specific derisking question

Integrated testing

Combined testing of different aspects, e.g. wave and wind, ecological testing integration. Holistic approach defining test setup.

Standard approach

Aligned approach on contractual procedures / data accessibility / improved interpretation of results

Re-use of material

Reuse of test set-ups, data, knowledge for next phase or different field testing

Time- and Cost-effective programmes

Complete testing roadmap established avoiding duplications or waiting times

Combination of lab/field test infrastructure

Allow for synergies, smooth testing roadmap and collect next-step REX.

Existing infrastructure like windfarms or grid infrastructure to be considered as cost effective field test / demonstrator infrastructure ? How can MARINERG-i facilitate and derisk this next step?

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SeaVolt®

Reliable. Sustainable. Affordable.