

European project POSEIDON: paving the way for the decarbonization of European shipping sector with synthetic methanol

Horizon Europe project POSEIDON has just started: the POSEIDON project officially started on September 1st 2023 and will run for 48 months. It focuses on the production and the use of synthetic methanol (e-methanol) as fuel in shipping. The kick-off meeting was held in Karlsruhe, Germany, on September 6th and 7th bringing together 19 organizations from 7 EU countries. The 2-day event allowed partners to get to know each other, to validate an action plan for the upcoming months for a smooth implementation of the project, and to have a first exchange with the members of the Advisory Board who will provide guidance throughout the project.

POSEIDON as key enabler of new value chains based on synthetic methanol

The overall goal of the POSEIDON project is to demonstrate the use of synthetic methanol for the decarbonization of the shipping sector. The project will prepare the implementation of local value chains based on e-methanol as fuel for shipping in the ports of Valencia, Spain and Thessaloniki, Greece. This will be achieved by connecting local stakeholders and collecting requirements through the formation of locally organized groups of people who collaborate regularly (so called Communities of Practice) and by building a performant power-to-e-methanol demonstration plant based on a novel concept including CO₂ capture and production of e-methanol. This plant will be tested in relevant operational environments and the produced e-methanol will be used in 2-stroke and 4-stroke engines to evaluate the fuel quality and compatibility.

Detailed technical, economic, environmental, and social assessments will be performed to quantify the economic value created under different scenarios and to identify potential barriers and optimisation potentials. To pave the way for market uptake and future deployment of e-methanol in the EU, local roadmaps and a replication tool to evaluate the feasibility of deployment of e-methanol in EU ports will be developed, so that external EU stakeholders can make use of the results of POSEIDON.

An important aspect of the project will be to foster public acceptance by raising awareness of the benefits of new renewable fuels for shipping, in particular methanol. Project partners plan to regularly share project activities, progress and achievements with academia, industry, policy makers and other relevant stakeholders.

First partner meeting in Karlsruhe to kick-start the first activities

The inaugural meeting of POSEIDON was organized over two days. On the first day, the project coordinator and work package leaders presented the main activities of the project.

In the afternoon, partner Karlsruhe Institute of Technology (KIT) invited all partners to a visit of the Energy lab 2.0 located at the KIT campus North. Energy Lab 2.0 is a cooperative project of the three Helmholtz Centres KIT, Forschungszentrum Jülich and German Aerospace Center. It is a test bed where several innovative energy solutions including Power-to-X plants, storage solutions and hydrogen electrolyzers are demonstrated. It allows to run real simulations and test cutting-edge sector coupling technologies for shaping the future German energy system. Project partners could have a look at the proof-of-concept e-methanol plant to be upscaled within POSEIDON. After the site visit, partners enjoyed a short city tour in Karlsruhe and a joint dinner.

The second day was dedicated to first meetings between the consortium and the EC project officer as well as the members of the Advisory Board. These were followed by short workshops moderated by work package leaders that helped in kick-starting early project tasks and

assigning responsibilities to ensure a smooth implementation of POSEIDON. The next partner meeting will take place in March 2024.



Group picture of POSEIDON project partners during kickoff meeting

POSEIDON as a driver of fossil fuels removal and decarbonization of EU shipping industry

POSEIDON will help decrease the dependence on fossil fuels which will make the EU less subject to economic and political pressures in line with the REPowerEU plan. The project will contribute to mainstream synthetic methanol as fuel in EU ports and the associated key technologies such as e-methanol production plants and engines for ships. Several players positioned all along the value chain such as industrial feedstock providers, engineering companies specialised in renewable synthetic fuels, ports, project developers, engine manufacturers and ship builders are expected to benefit from the growing e-methanol market. Furthermore, the steady implementation of e-methanol based value chains across EU will contribute to the decarbonization of EU ports and shipping. The new methods, tools and results produced by POSEIDON will be shared with the scientific and research community and EU citizens to respectively promote innovation and raise awareness of benefits of synthetic fuels for clean shipping.

The POSEIDON project in short

The project, coordinated by European Institute for Energy Research (EIFER), started in September 2023 and will run until August 2027. It consists of 19 partners from 7 European countries: EIFER, EDF, KIT, RINA, Fundación Valenciaport, Aristotle University of Thessaloniki, ICODOS, Fincantieri, Isotta Fraschini Motori - IFM, Winterthur Gas & Diesel - WinGD, Steinbeis Innovation gGmbH, Global Omnium, Port of Thessaloniki – ThPA S.A., CERTH, CNR-STEMS, Swedish Maritime Administration, Inventors, CAO Hellas, and AVEBIOM.

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