

BioCH4-to-Market objectives

- 1) Progress an already prototyped (TRL 5) mobile biogas upgrading module to TRL 7
- 2) Progress an already prototyped (TRL5) mobile BioMethane Storage and Refuelling module to facilitate a virtual gas grid
- 3) Re-Design a tailored dual fuelling injection system, and retrofit an existing marine generator, as to allow fuel-efficient utilisation of BioMethane in a Drop-In-fuel Injection strategy
- 4) Emissions monitoring including methane slip

BioCH4-to-Market challenges to be addressed

- 1) availability of alternative fuels
- 2) development of the supply chain to meet the needs of the relevant market
- 3) design and implementation of the appropriate dual fuel injection system to utilize both conventional diesel fuel and gaseous fuel



Consortium

Coordinator:



Partners:



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Find out more about BioCH4-to-Market



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The Decarbonisation challenge in shipping—the role of biomethane

The implementation of sustainable means of transport is vital to the global energy goals and climate objectives. Accelerating the deployment of advanced biofuels is a main EU and IMO strategy for a sustainable yet competitive maritime transportation sector. Biogas produced from the treatment of organic waste, in an Anaerobic Digestion process, has proved to be a renewable yet cost-effective transport fuel in the upgraded form of BioMethane. For countries, such as Cyprus, without relevant CNG infrastructure, the uptake of biomethane is extremely difficult.

BioCH₄-to-Market aims to:

Prove the use of biomethane as marine drop-in bio-fuel

Further develop novel technological solutions for biogas to biomethane upgrading

Retrofitting a marine diesel genset to combust biomethane as a drop-in fuel

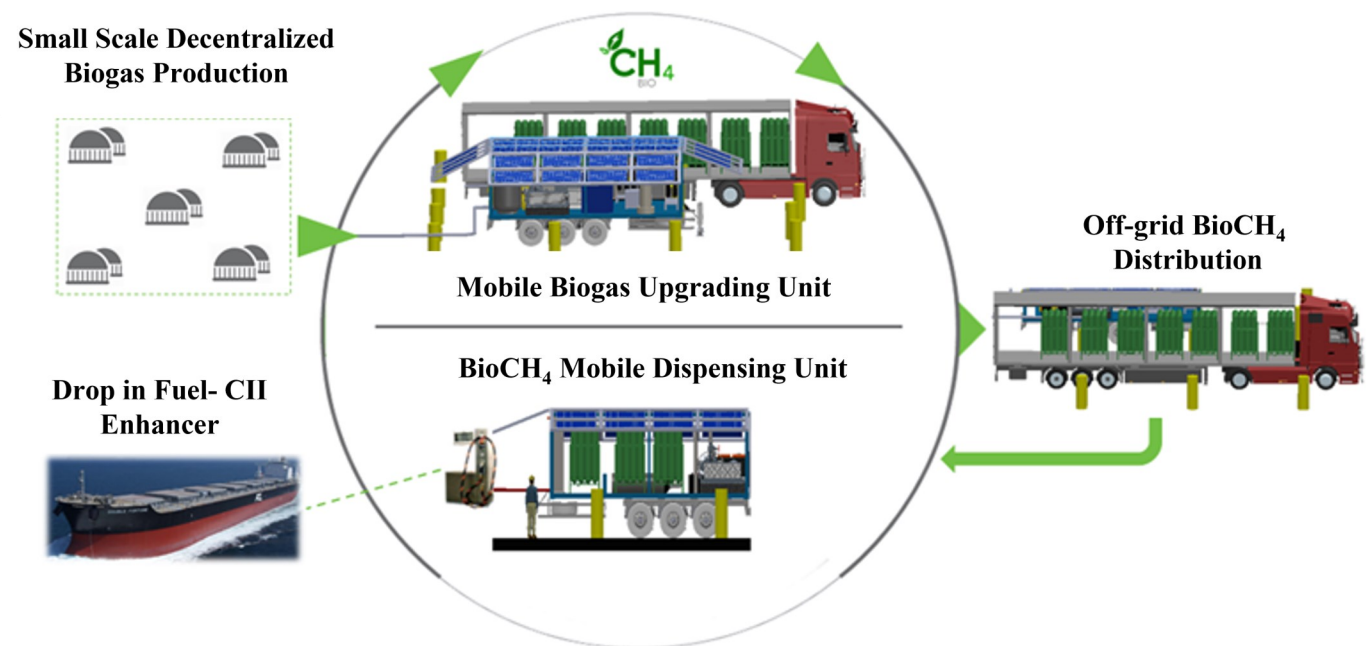
Combustion strategies and emissions measurement and monitoring for biomethane in a marine genset

Develop an appropriate business plan to prove the feasibility of compressed biomethane in the maritime industry

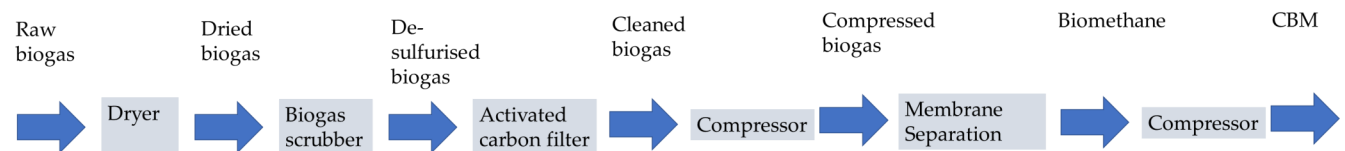
Activities to enable market access via a virtual distribution network

BioCH₄-to-Market innovation and originality

- 1) Clustering of individual biogas plants and upgrading biogas onsite
- 2) Creation of a virtual gas grid able to bridge the supply gap between BioMethane production and potential consumers. Especially to facilitate BioMethane distribution in countries without CNG infrastructure
- 3) Compressed BioMethane retrofit of an existing ship for sustainable and cost-effective measure towards compliance with IMO's EEXI and CII emission regulations



Biogas to Biomethane upgrading process:



Mallouppas, G., Yfantis, E.A., Ioannou, C., Paradeisiotis, A. and Ktoris, A., 2023. Application of Biogas and Biomethane as Maritime Fuels: A Review of Research, Technology Development, Innovation Proposals, and Market Potentials. *Energies*, 16(4), p.2066.