



European
Commission

BIOFUELS AND
BIOREFINERIES

INNOVATION FUND

Deployment of net-zero and innovative technologies



FirstBio2Shipping: First Bio-LNG to Marine Shipping

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

To contribute to the energy transition in the shipping industry, 3 parties have joined forces to close the supply chain of renewable fuels and show how the marine industry can meet the increasing CO2 abatement goals. Attero, a large Dutch waste processing company with an existing organic waste digester, will supply biogas that will be converted into Bio-LNG with the innovative iLNG technology developed by the Dutch SME Nordsol. The high-quality Bio-LNG will be delivered to the marine industry via the infrastructure of Dutch SME Titan LNG as 100% drop-in fuel.

Nordsol has spent over a decade to develop the state-of-the-art technology in this project up to TRL7. The goal of this project is to demonstrate the Zero-series of a commercialized fully integrated flexible/scalable design (to fit any biodigester in Europe), with zero-emissions (resource efficiency of liquefaction process is 100%) and increased energy

COORDINATOR

ATTERO BV

LOCATION

Netherlands

CATEGORY

Energy intensive industries (EII)

SECTOR

Biofuels and bio-refineries

AMOUNT OF INNOVATION FUND GRANT

EUR 4,336,058

EXPECTED GHG EMISSIONS AVOIDANCE

87,764 tonnes CO2 equivalent

STARTING DATE

01 January, 2022

ENTRY INTO OPERATION DATE

31 March, 2024

FINANCIAL CLOSE DATE

30 September, 2022

efficiency (20%). This project is a giant leap forward and brings the technology to TRL8.

The FirstBio2Shipping project directly enables the following impacts:

- Annual valorisation of 6 million cubic meters of biogas into high-quality low-carbon fuel
- Annual production of 2,445 tons of bio-LNG substituting 3,019 tons of heavy fuel oil (HFO)
- Annual avoidance of 8,776 tons of CO₂-eq

The project is very mature, having all relevant permits in place and feedstock and existing

digester in place. Technology is largely off-the-shelf and validated in previous projects to enhance replication, cost efficiency and scalability. Letters of support for Bio-LNG offtake contracts are in place. Goals is to reach financial close within 3 months after signing the grant agreement and start production within 21 months.

Attero and Nordsol are highly experience in the realization of projects of comparable size and nature and will jointly invest in the hardware and operate it for 10 years and beyond. Titan has the proven experience to deliver LNG to any maritime customer.

| Beneficiaries

ATTERO BV	Netherlands
BIO LNG HUB WILP BV	Netherlands
ILNG BV	Netherlands
NORDSOL PROJECTS B.V.	Netherlands
TITAN LNG BV	Netherlands