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Overview of the project

Acronym:	FB2S
Full title:	FirstBio2Shipping
EU funding programme:	Small Scale Innovation fund
Coordinator:	Attero
Beneficiaries:	Nordsol BV
Associated Partner	Titan
Duration (start date/end date):	January 1 th 2022 (63 months)
Project budget:	7,2 m
EU contribution:	4,3 m

Attero, Nordsol en Titan gaan hier organisch afval omzetten in de duurzame brandstof bio-LNG voor de maritieme industrie.



Layout

CO₂ storage tank

Centralised Chiller

CO₂ Liquefaction



Membrane stage

Active Carbon Filters

Project planning

- Project development 2019 – 2021
- Project start January 2022
- FID (6 months amended) September 2022
- Start construction May 2023
- Commissioning and start-up January 2024
- Operational production March 2024

Your solutions and how they contribute to climate neutrality

- *Technological and/or non-technological solutions*
 - *A more energy efficient process to convert biogas into bio-LNG has been developed*
 - *Direct integration of a new cryogenic liquefaction technology with biogas upgrading and CO₂ capture and liquefaction*
 - *Higher performance, reliability and availability of gas treatment and liquefaction technologies*
- *Environment, economy, society Impact:*
 - *GHG emission avoidance 92%*
 - *Absolute GHG avoidance (10 years) 87.764 tons*
 - *Substitution fuel for HFO/ natural LNG*
 - *Local production of alternative shipping fuel*

Which were the main challenges?

Main challenges & Lessons learned

- *Market based mechanism necessary for CO2 CCS/CCU in NL (subsidy)*
- *Severe indexation on raw material and energy due to post Covid and Ukraine war (rebalancing partnership)*
- *Leadtimes major equipment (still managing)*
- *Unknown technology at permitting authority (supporting studies especially on safety issues, standardized design)*

Positive enabling conditions

- *REDIII shipping included in biofuel obligation (biofuel tickets)*
- *Mass balanced and physical BioLNG both necessary to decarbonize shipping*
- *Fuel EU / EU ETS shipping (challenge: < 5000 GT)*
- *Solid supporting base on existing production site at authority and neighbouring residents*

www.firstbio2shipping.nl

Project website

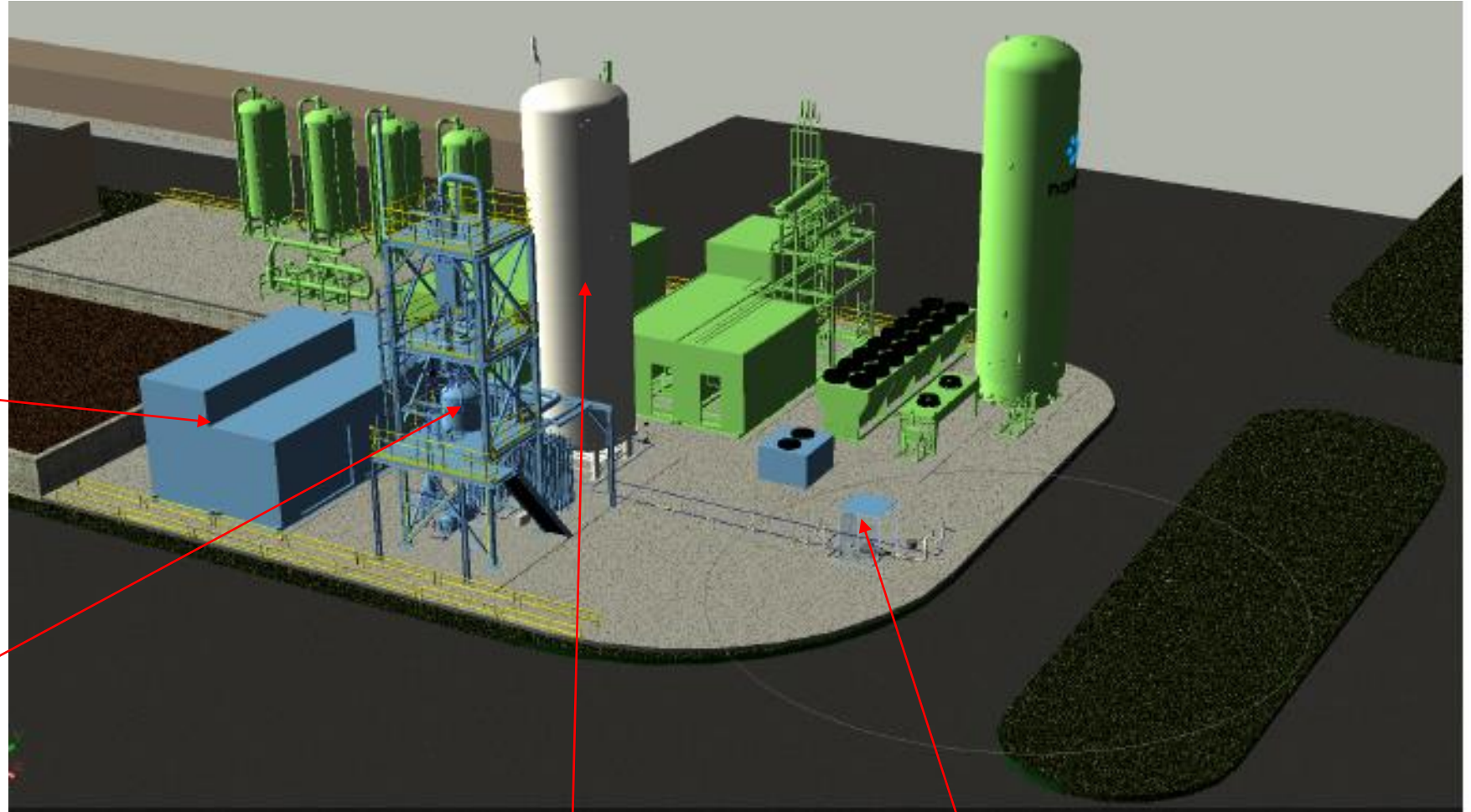
- Goal and description of the project
 - Bio-LNG production details
 - GHG reduction details
 - EU innovation fund
- Ongoing updates and knowledge sharing



Layout

High pressure unit

Cryo tower



Bio-LNG
storage tank

Bio-LN-
loading skid