FASTWATER

FAST Track to Clean and Carbon-Neutral WATERborne Transport

Project introduction

The project has received funding from the European's Horizon 2020 research and innovation programme (Contract No.:860251)

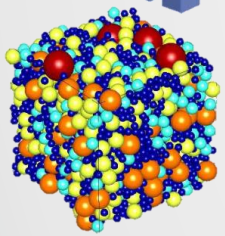
Triple S criteria for choice of ship propulsion

Suitable energy carriers and powertrains to ensure long term solutions for (waterborne) transport?

Must be:

- Sustainable
  - closed cycle for energy carrier and materials of powertrain

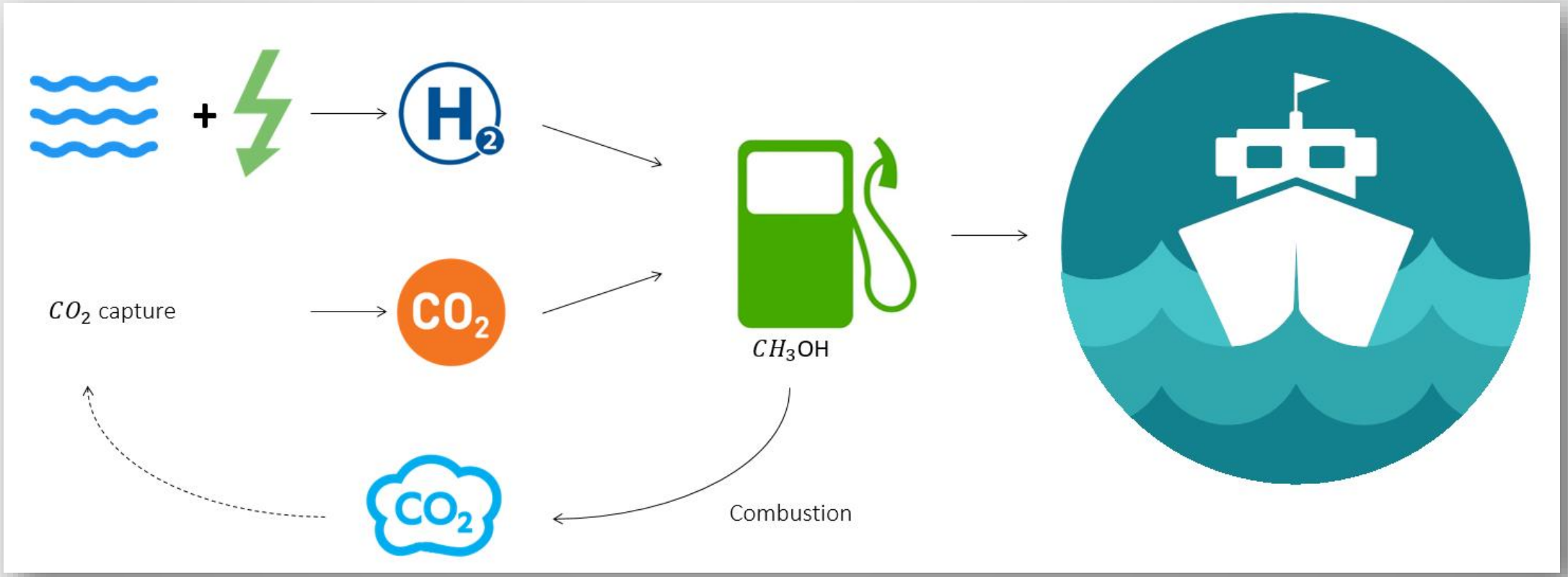
- Scalable
  - use abundantly available (and therefore cheap) resources



- Storable
  - sufficiently compact, i.e. high energy and power density

➔ we need renewable, “solar” fuels
(electrofuels, e-fuels, “liquid electricity”, ...)

Project core idea



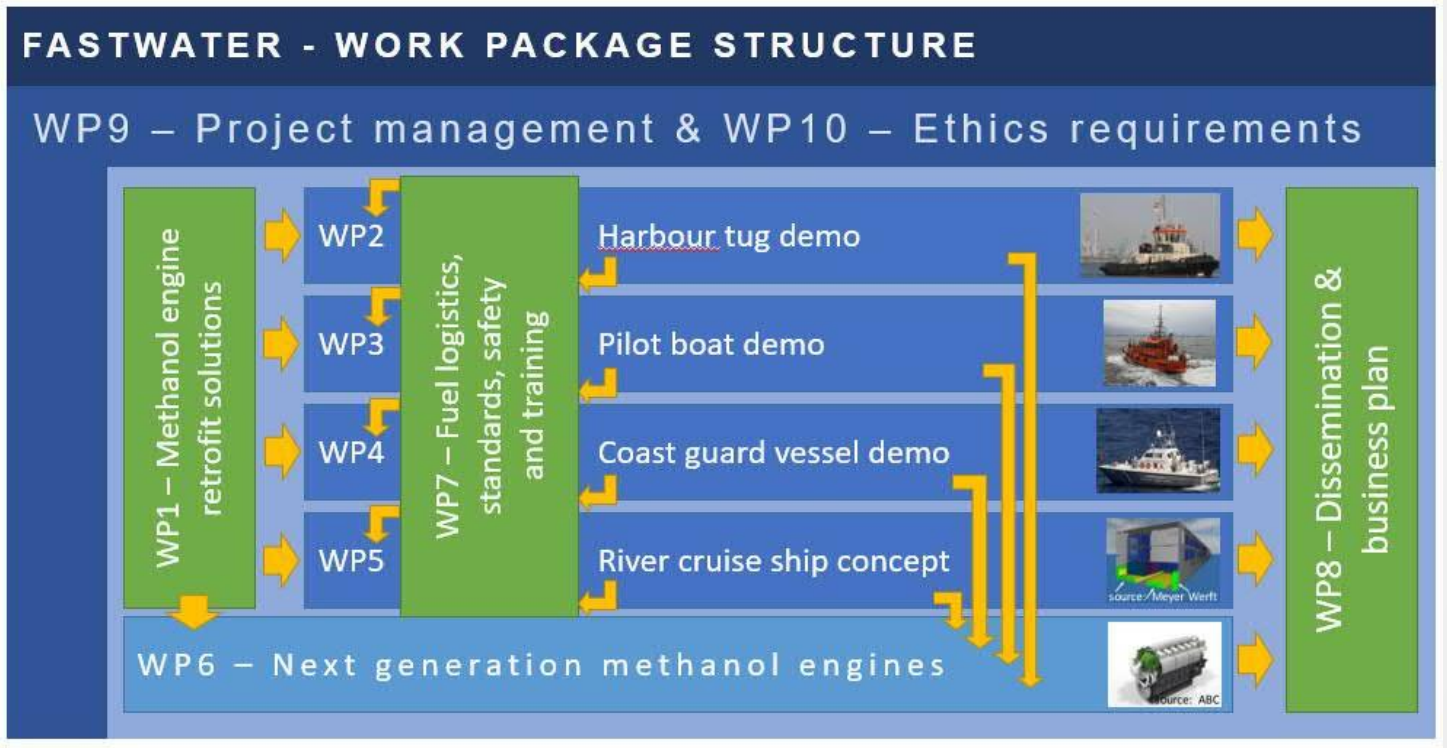
Challenges to be tackled by the project

- Four-stroke methanol engines, and retrofits of marine engines to methanol operation, not commercially available
  - i.e. power range 100 kW – 10 MW
- No demonstration of the full chain of renewable methanol production to ships sailing on it
  - Production – distribution – bunkering – sailing
- Rules and regulations not mature yet
  - Need practice, on different vessel types, need to be challenged if required

Objectives

- Retrofit
- Next generation
- Supply chain
- Rules and regulations
- Training
- Assessment
- Commercialise

Work-package structure



Partners

Timeline: 01.06.2020 – 31.5.2024

Budget: 6.3 mill. EURO

Universities and research institutes

Naval architects and consultancies

Engine manufacturers and equipment suppliers

Fuel supplier and distributor

Shipyards

Classification society

Fleet owners
Port authority / administrations

RETROFIT

Develop and demonstrate **universal, scalable retrofit kits** for converting ships to methanol use for a wide power range (200 kW – 4 MW)

Next Generation

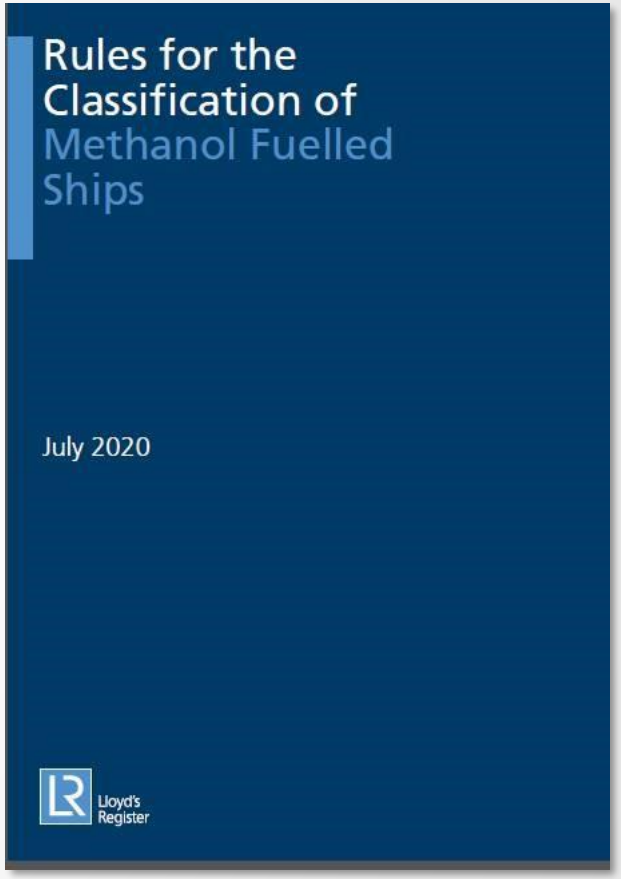
Develop the next generation of methanol-fuelled engines for further advances in efficiency, and further reductions in emissions and cost

Supply Chain

Demonstrate the complete supply chain from renewable methanol producers to ship bunkering, including setting up bunkering procedures for safe and efficient bunkering in a port environment

Rules and Regulations

Work with regulatory agencies to develop rules & regulations for methanol as a fuel (including a methanol fuel standard)



Training

Develop a training programme for crew, gain experience with it during the project, and formulate best practices for use beyond FASTWATER

Demonstrate the feasibility in demo-case tests

Project indicative timeline

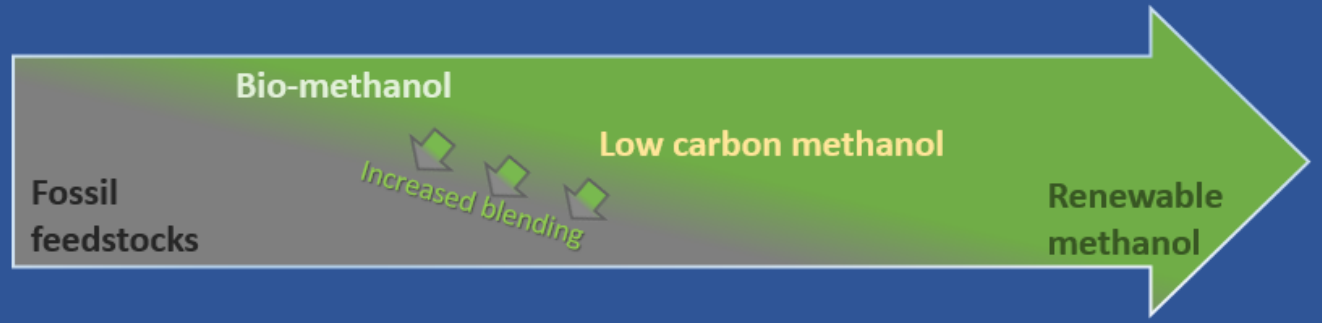
- Tug sailing Q2→Q4 2022
- Pilot boat sailing Q3 2022 → Q1 2023
- Coast guard vessel sailing Q1 → Q4 2023
- ABC DF engine commercially available Q3 2022
- SCA MD95 engine commercially available Q1 2021
- HZM retrofit commercially available Q3 2022

VISION ROADMAP
To sustainable powertrains for shipping

Defossilizing shipping

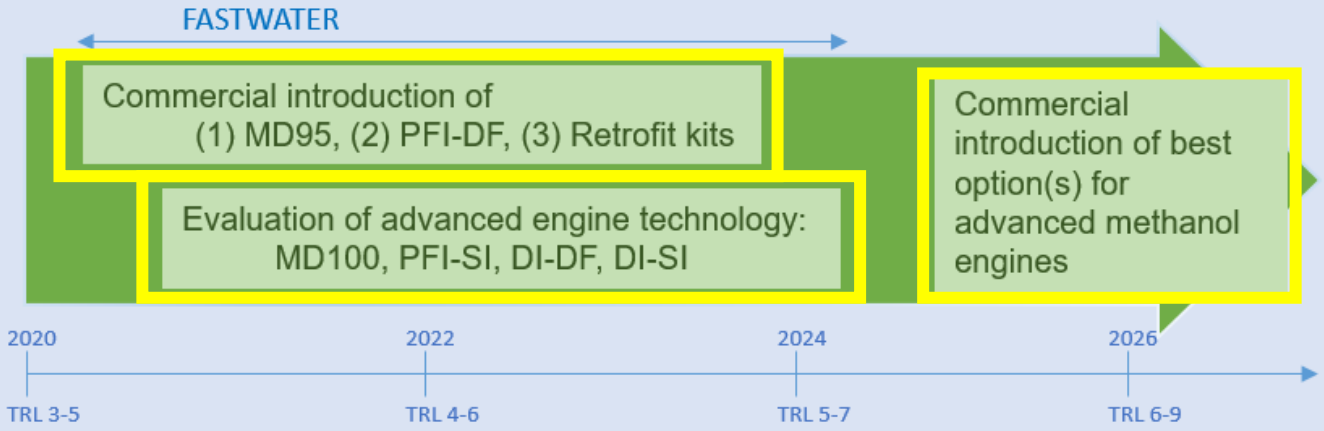
- Via electrification (battery electric systems & hybridization)
- Via sustainable fuels & conversion technologies

DEFOSSILIZING METHANOL



Out of scope Fastwater

DEVELOPING METHANOL ENGINE TECHNOLOGY



In scope Fastwater

Project outcomes benefiting other initiatives

- High and medium speed methanol engines commercially available
- Engine retrofit kit commercially available
- Real life demonstrators that can be visited to get a hands-on feel for practical applications
- Tested training material for crew and on-shore personnel
- Simplified rules and regulations
- Renewable methanol supply chains
- Business plans to support investment decisions

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