

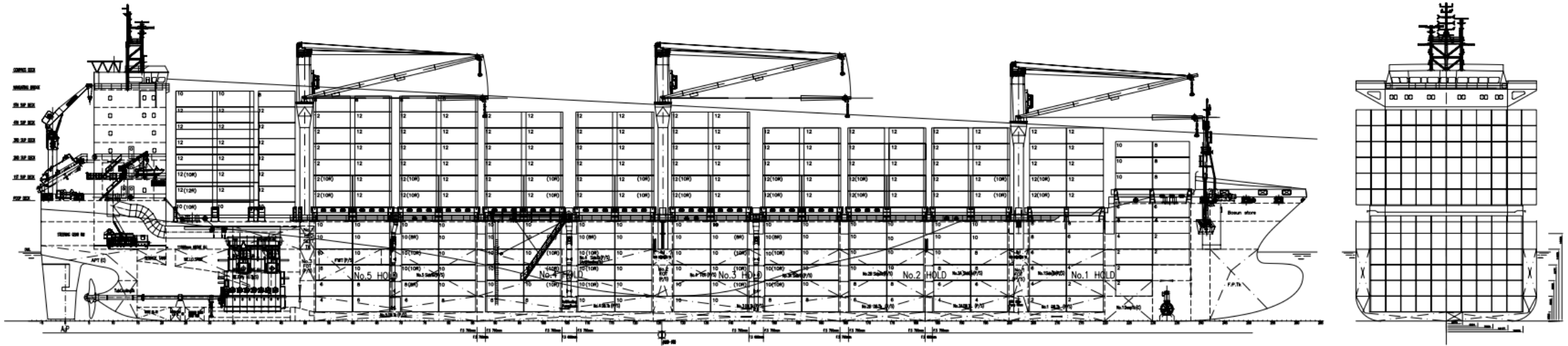
A greener workhorse

Is it technically and economically feasible to retrofit a midlife container feeder to operate on green methanol?

Or is energy efficiency conversions a sufficient alternative?



The vessel – Sealand Philadelphia



Ship type

Fuel consumption

CO2 emissions

Similar vessels

Total CO2

- Container vessel

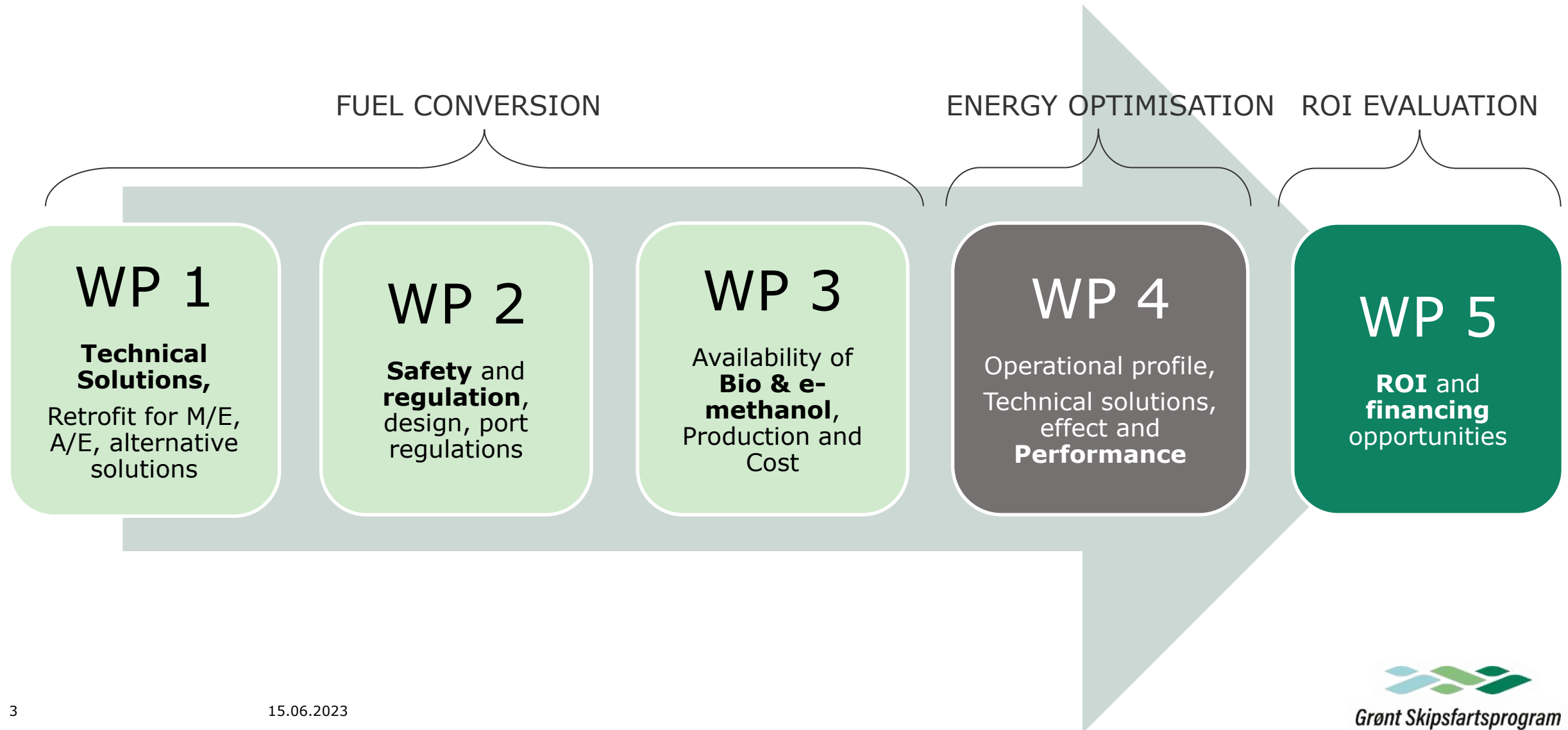
~100 t/day (design speed)

~314 t/day

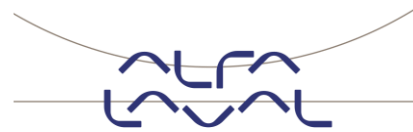
~800 globally

~ 50 mill t/yr.

Feasibility study – Conversion to methanol



Partners and contributors to the project



KONGSBERG



Grønt Skipsfartsprogram

Possible recommendations



Methanol conversion of ME in combination with Basic + Hybrid III. 2030 compliance: Yes
CII compliance: Yes, beyond 2038 Carbon reduction – 81%
CAPEX: \$\$\$\$\$ ROI: Highly depending on methanol pricing and carbon taxation levels
When: Most products available 2024-25

Basis + Hybrid III. 2030 compliance: Yes
CII compliance: Yes, until 2037. Carbon reduction – 26.6%
CAPEX: \$\$\$\$ ROI: 2.1 years
When: Now

Basis + Hybrid II. 2030 compliance: Yes
CII compliance: Yes, until 2036. Carbon reduction – 23.7%
CAPEX: \$\$\$ ROI: 2 years
When: Now

Basis + Hybrid I. 2030 compliance: Yes
CII compliance: Yes, until 2035. Carbon reduction – 21%
CAPEX: \$\$ ROI: 1.8 years
When: Now

Basic modification. 2030 compliance: Yes
CII compliance: Yes, until 2032. Carbon reduction – 11.5%
CAPEX: \$ ROI: 1.4 years
When: Now

“Doing nothing”. 2030 compliance: No
CII compliance: Yes, with EPL (20.22%), until 2027
CAPEX: \$ ROI: Short
When: Now

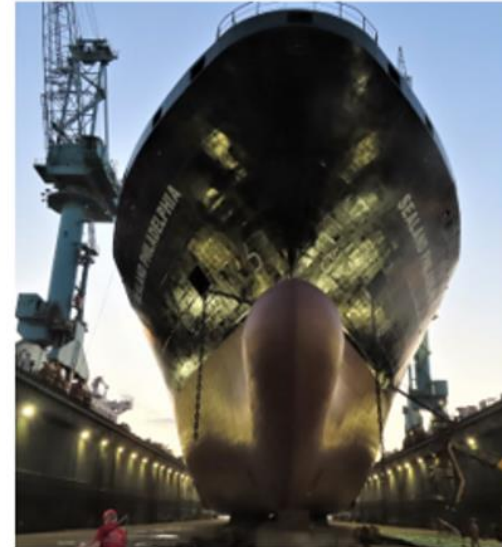
Results and next step

Methanol conversion:

- ME+AE: 2024/25
- Tanks + FSS: Available now
- Rules & Regulation: In place
- Availability green methanol: Not yet
- Cost: Coming down? When?

Energy efficiency:

- Next DD
- CII compliance – yes possible



A GREENER WORKHORSE

Pilot Report - Feasibility Study

ABSTRACT

Growing recognition of the threat posed by man-made climate change has spurred government institutions, industry, and science to find clean fuels to power economic activity. Deep sea container vessels consume large amounts of fuel and is a considerable contributor to global maritime emissions. There are around 500 vessels in the container segment 2000-3000 TEU, each consuming around 110 tonnes of fuel every day! The intention of this pilot project is to investigate the technical and economic feasibility of retrofitting a 2500 TEU deep-sea container ship to run on methanol as the current maturity level of methanol fuel technology is higher than those of other renewable fuels. Due to high cost of renewable fuels, the study will also consider energy-efficiency measures such as battery hybridisation to reduce fuel consumption as much as possible. The aim of the study is to execute a thorough techno/economical and safety pre-study of emission reduction, including products to choose and activities needed as a first step towards realisation.

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