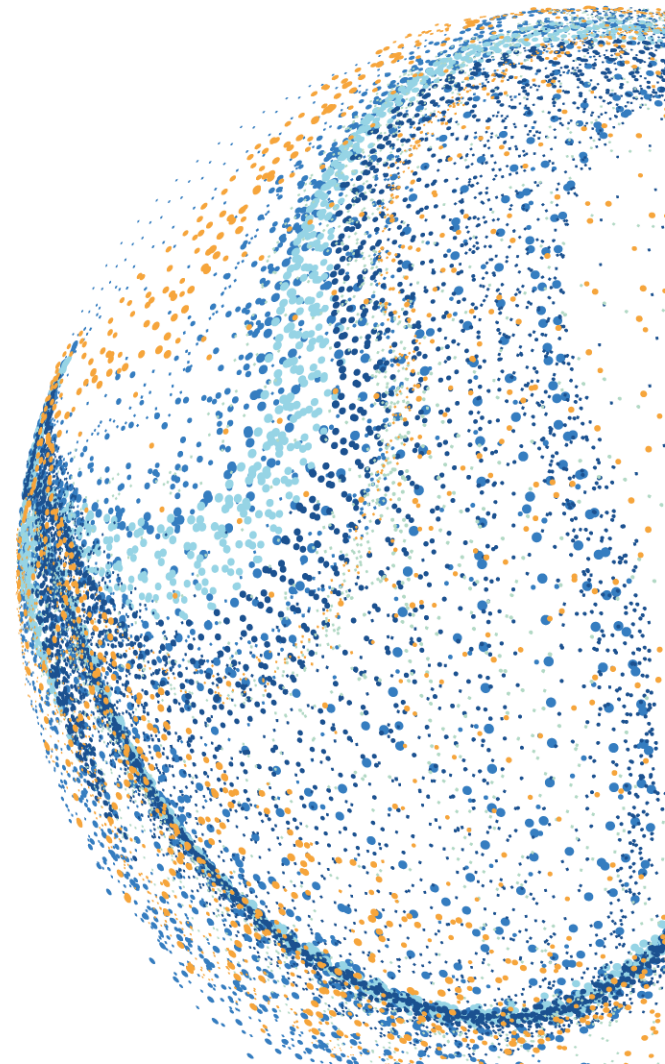


# Wilhelmsen Group presentation

Eric Engelbrecht – Account Manager, West Coast North America  
October 11<sup>th</sup>, 2018



# Background & Introduction

Eric Engelbrecht – Account Manager, West Coast NA; *Wilhelmsen Ships Service*



Combined 20+ years of experience in the marine industry, ranging from vessel operations, manufacturing, construction, business development, sales and engineering

- Former US Navy Nuclear Submarine Officer
- Systems Engineer/Six Sigma Black Belt for high speed marine diesel engine manufacturer
- Project Manager/Project Engineer for new vessel construction, maintenance and repair
- Principle and Project Manager for naval architecture & engineering firms
- Technical Sales & Business Development Manager for high specification steel and aluminum products servicing the marine and manufacturing markets
- Joined Wilhelmsen in January 2018

# We are Wilhelmsen

Shaping the maritime industry

## Why

To enable sustainable global trade.

## What

We enhance our customers' business and simplify their operations with the leading people, services, and solutions of the maritime industry.



# A global presence

70

countries

2 200

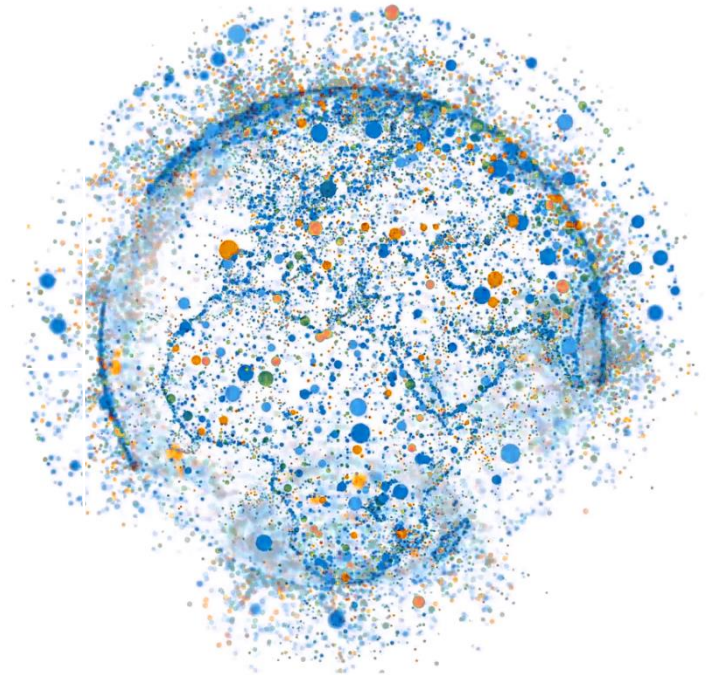
locations

50%

of the world's merchant fleet as customers

21 000

employees



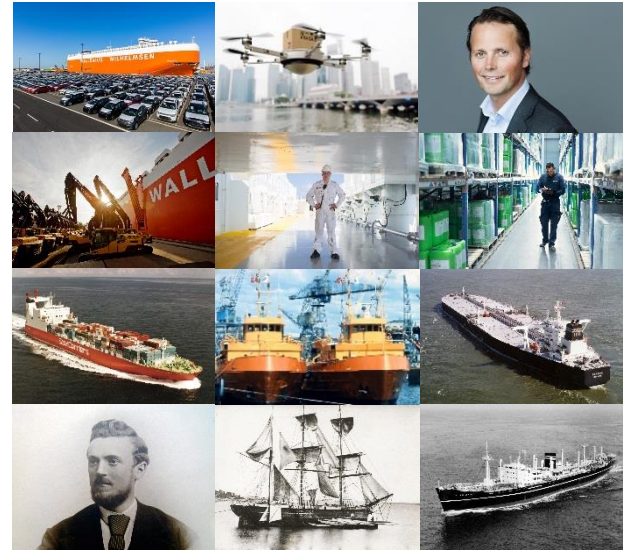
# Our story so far

We started up in 1861 and we have done it all within the maritime industry.

However, in recent years we shifted over to service industries for the global merchant fleet. We provide an unparalleled around-the-world network.

To put it differently, you can't sail around the world without interacting with us in some way. We do our best so our customers can work efficiently and create value. Every day we enable global sustainable trade.

We are ready for tomorrow and the continuous responsibility being the shaper of the maritime industry.



# Wilhelmsen group structure



# What we do



## Maritime services

Providing ships agency, maritime products, technical ship management and crew to more than half of the global merchant fleet



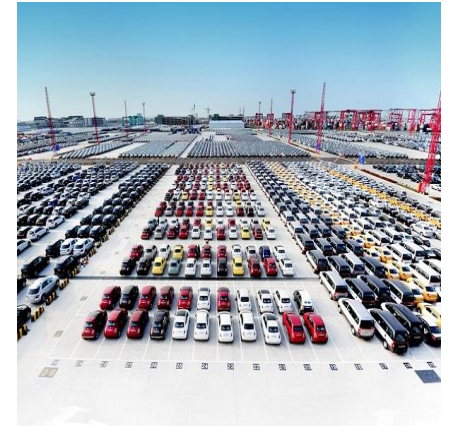
## Supply services

Providing supply bases and integrated logistics solutions to the offshore industry and defence



## Other interests

Push and shape the maritime industry into the future through innovation and new ways of working



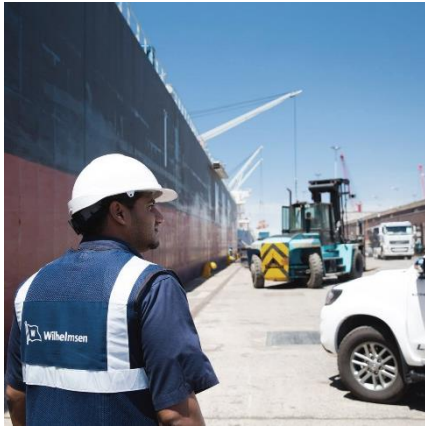
## Shipping and land-based logistics

Investments in two of the largest ro-ro and land-based networks in the world

# Maritime services

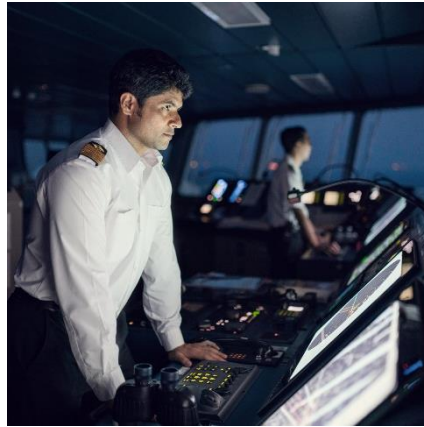
Companies:

Wilhelmsen Ships Service - Wilhelmsen Ship Management - Wilhelmsen Insurance Services - Survitec



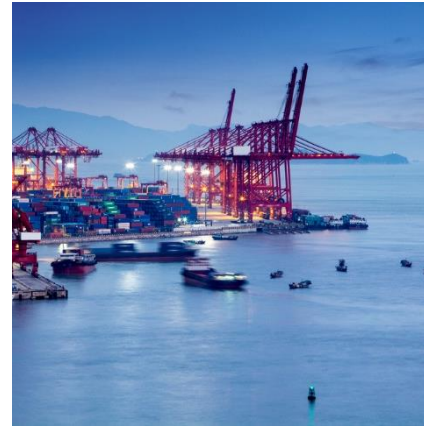
## Ships service

Worlds largest maritime network supplying products and services



## Ship management

Technical and crew management for most vessel types



## Insurance services

Marine and non-marine insurance solutions



## Survitec

A global leader in safety survival solutions.



# Supply services and solutions

Companies:

Norsea Group - WilNor Governmental Services



## **Norsea Group**

Logistic support to offshore activities anywhere in The North Sea basin and beyond



## **WilNor Governmental Services**

Provides military logistic services in Norway and internationally

# Shipping and land-based logistics

Companies:

Wallenius Wilhelmsen Logistics ASA - Treasure ASA - Qube



## Wallenius Wilhelmsen Logistics ASA

A global logistics company



## Treasure ASA

Investments in Hyundai Glovis



## Qube

Logistics company based in Australia

# Other interests

Companies:

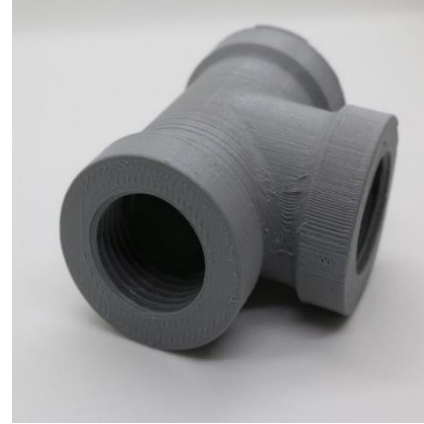
Wilhelmsen Venture – Maritime Innovation Lab – Ivaldi – Dolittle



**Wilhelmsen Venture**  
Investments within offshore industry



**Maritime Innovation Lab**  
Collaboration hub



**Ivaldi**  
3D-printing company from California



**Dolittle**  
Digital developer company

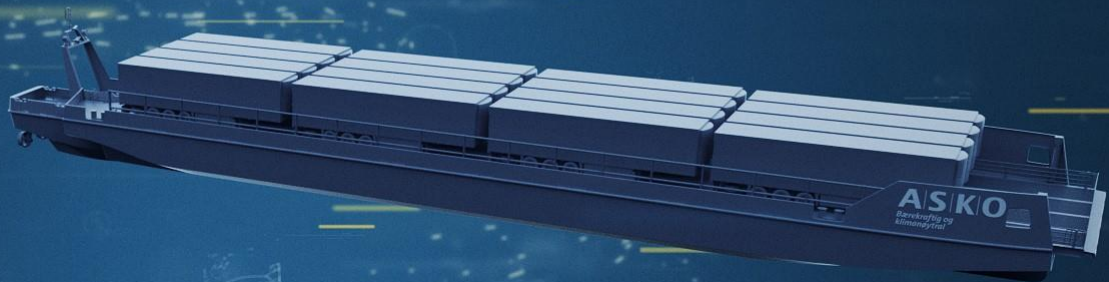
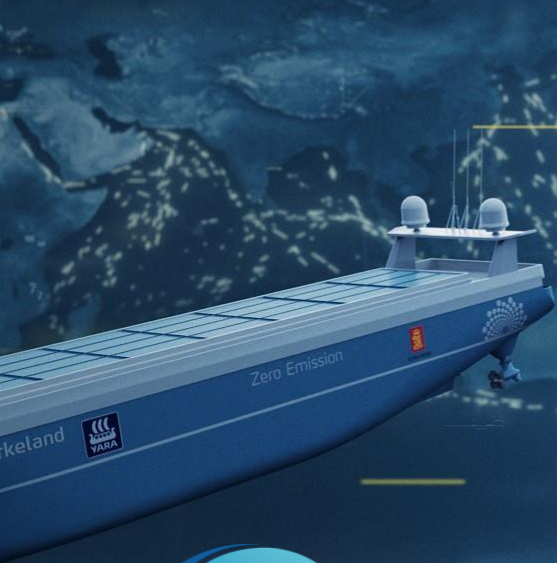
# Ready for the digital transformation

Embracing new technologies and new ways of thinking



We are building a culture that embraces new ideas and utilises new technologies.

By leveraging digital tools and exploring new ways of thinking, we drive business results.



massterly

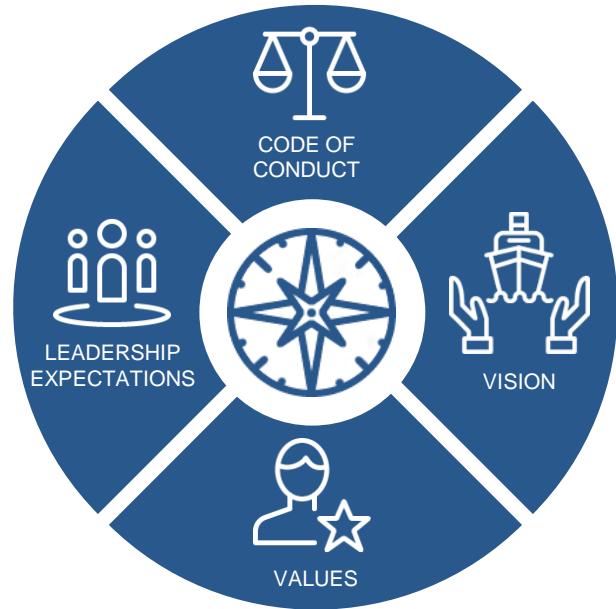
a Kongsberg Wilhelmsen joint venture

# Achieving the right results, the right way

Enhance and protect our brand and reputation

“Our business standards and performance is how we do business. That is not something we turn on and off at will: it is permanent, it is a commitment.”

Thomas Wilhelmsen  
*Group CEO and fifth generation owner*





# A healthy way of doing business

Delivering profitable and sustainable results

We support the UN's 17 sustainable business goals through:

- Providing safe working conditions that support healthy, motivated and competent employees
- Supporting local communities
- Contributing to and advocating a healthy and ethical business world without corruption
- Developing innovative and sustainable business solutions for our stakeholders
- Applying sustainability standards in our supply chain
- Improving our environmental performance

# Main solutions

Products and services carefully tailored within six areas



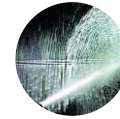
## WATER

Nalfleet™ water treatment products to treat and protect your on board systems.



## MAINTENANCE AND REPAIR

Unitor™ welding, refrigerants, gases and cylinders to optimise the performance of your vessel.



## CLEANING

Unitor™ chemicals and equipment to cover the essential cleaning needs of all parts of your vessel.



## OIL

Unitor™ fuel treatment chemicals to improve your fuel quality and reduce sludge and emissions.



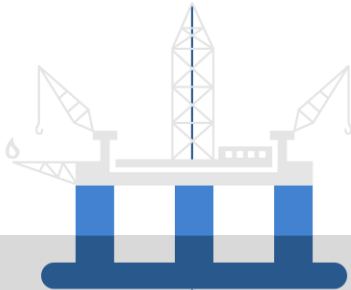
## ROPES

Our Timm™ ropes are the result of continuous development and craftsmanship since 1772.



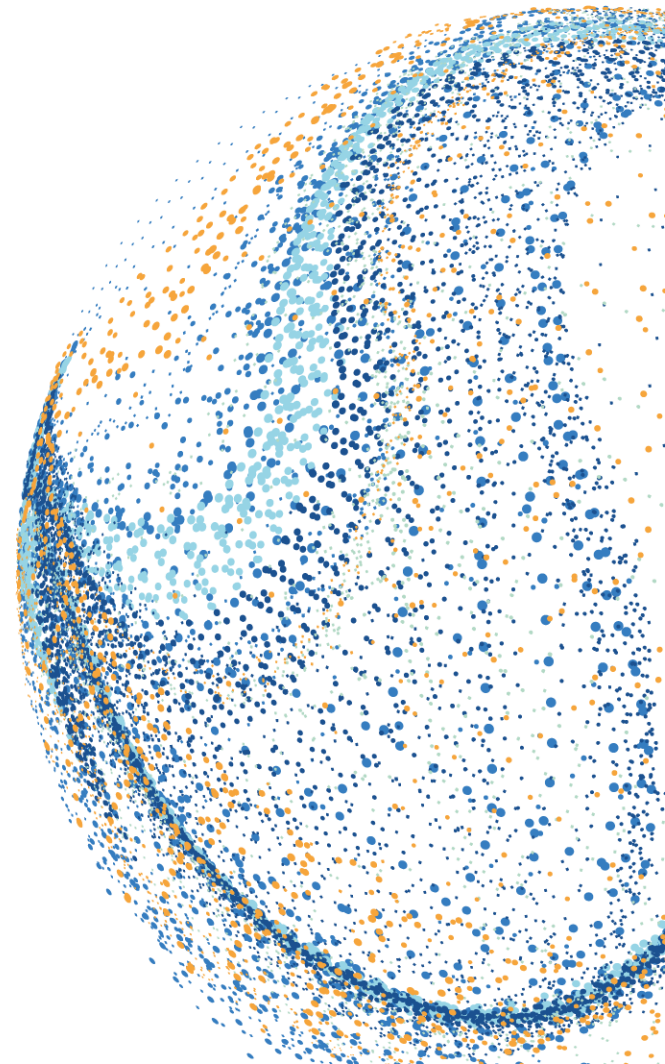
## OFFSHORE

Tailored solutions to standardise your chemical consumption, and maintenance and repair challenges.





# Maximize and protect your investment in scrubber installation



# 983

Vessels with scrubbers installed or on order

Main installation yard\*



See colour key to right



Number of ships with scrubbers installed or on order

**63%**  
Retrofitted Ships



Number of scrubber towers installed or on order

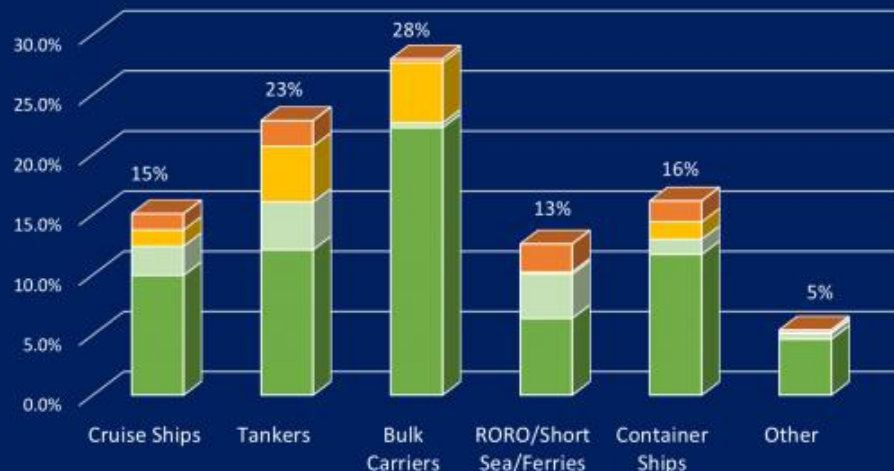
**63%**  
Open Loop Scrubbers



Largest power engines by scrubber type installed or on order (MW)

**72MW**  
Largest Engine Power

Vessel types with scrubbers installed or on order



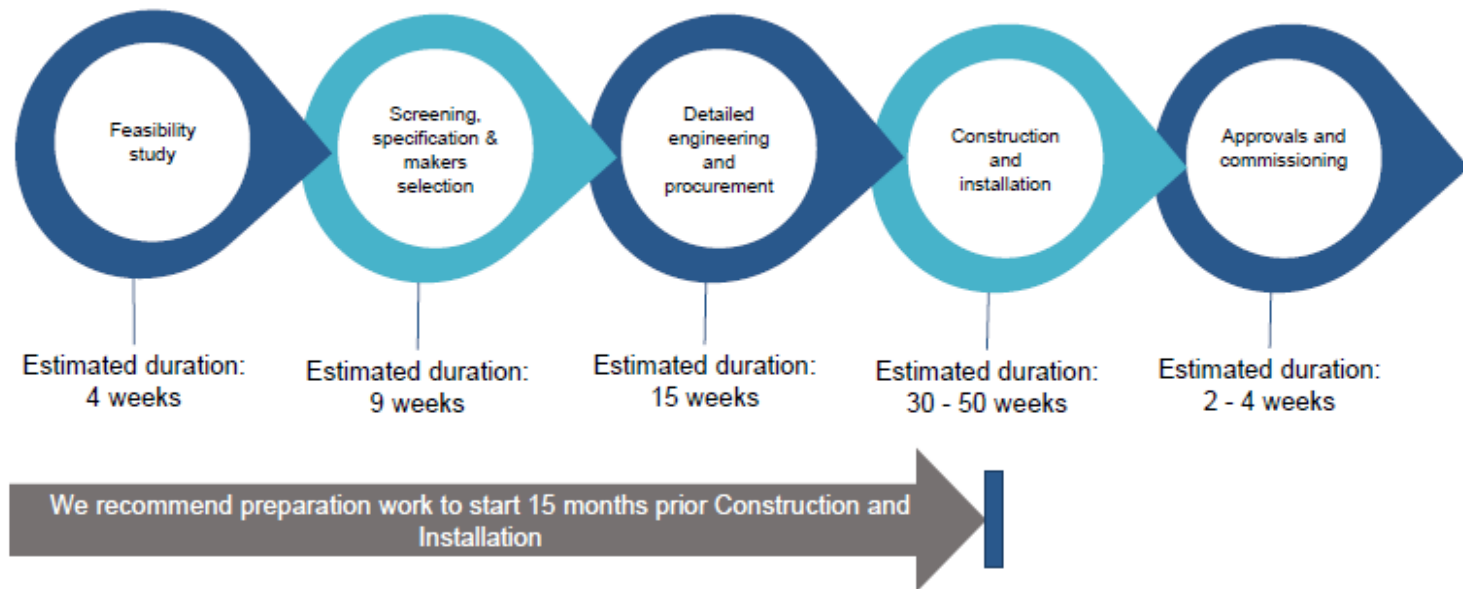
Key to bar and pie charts

- Retrofit Open Loop
- New Build Open Loop
- Retrofit Hybrid
- New Build Hybrid

Data as of 31 May 2018

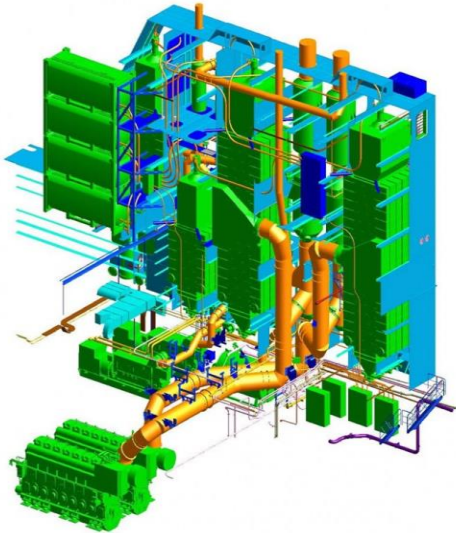
\* Retrofits and new building installations. Not including riding gangs. 5% main installation yard unknown/undecided

# Scrubber installation – key process & estimated duration



\* Above will differ a lot depending on supplier and demand and should only be looked at as guidance.

# Feasibility Study

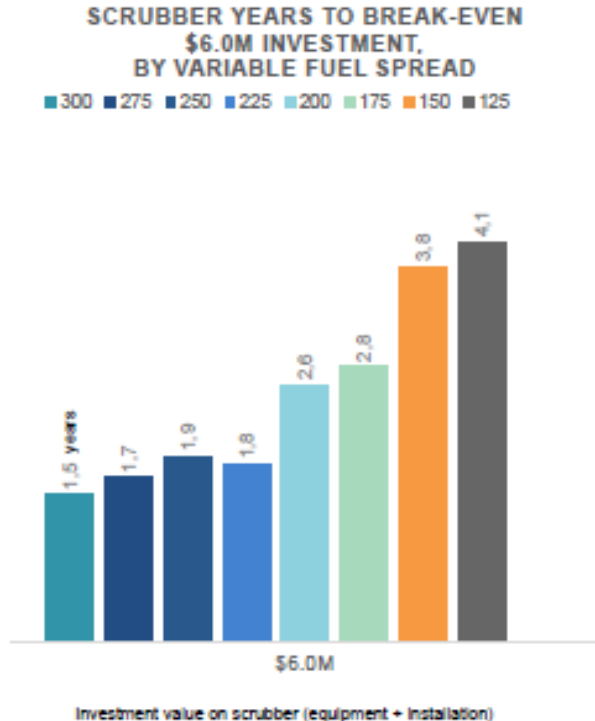


The feasibility study is prepared by either owner or consultants and should cover the following information :

- Regulatory background for scrubber
- Review of scrubber technology
- Review of technical feasibility
- Review of commercial feasibility

The purpose of this study is to provide a specific guidance in technical and commercial aspects for installing scrubber

# Breaking even on your scrubber investment



Scrubber could be a good investment :

- Low payback time
- Engine operate on same fuel – less maintenance required
- Safety – no switching fuel
- No issues on mixing hybrid fuels

# Screening, Specification & Selection



Make your own outline specification and budget



Screening of makers

Compare between scrubber makers – criteria such as: current lead time, technology, benefits and installed units

Good source to view all scrubber makers : <http://www.egcsa.com>



Create shortlist & select scrubber maker



Contract negotiation

Matching your specification/requirements and makers specification and offer



Scrubber installation depending on your vessel operating area and time

# Detailed Engineering & Procurement



Detailed engineering



Drawings approvals from class



Procurement



Installation preparations

# Construction and Installation



- Equipment delivery
- Prefabrication
- Installation works and site management
  - *Site management is crucial, especially for installation of all the GRE piping*
  - *Significant operational issues can occur due to poor quality of piping installation (gluing process) leading to sea water leakage and possible system shutdown*



# Approvals & Commissioning



Tests



Approvals from flag class



Commissioning



Crew trainings



Handover



Start of lifecycle support

- Approval process could have impact due to limited resources
- Commissioning, there will for sure be lack of skilled commissioning engineers and one should secure this in contract.
- Would recommend service agreement with supplier including training of onboard personnel.

# Major industry challenges related to fuels

## Marine chemicals – next generation fuel treatment

### Distillate fuels

- Challenges occur as distillates behave differently than heavy fuels
- Distillates are prone to deterioration through temperature and oxidation, and exposure to UV light causing gum formation, sedimentation and colour changes

### Heavy fuels

- The quality and consistency of marine fuels have changed due to tougher legislation and refining process developments
- These changes are likely to continue over the next 10 to 15 years

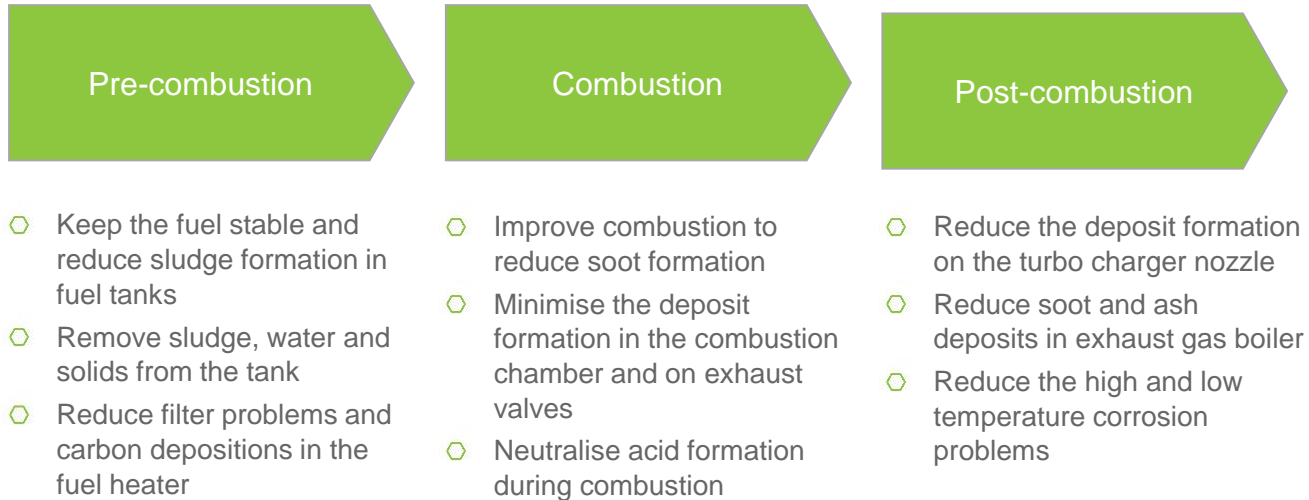
### Slow steaming

- Pressures to increase efficiency, reduce costs and limit environmental impact are bringing vessel speeds down
- Slow steaming can reduce the amount of fuel required and the carbon emissions significantly
- The primary challenge is poor combustion in the engine at low loads

# Optimising performance from bunkering to emissions

## Marine chemicals – next generation fuel treatment

The new Unitor FuelPower and DieselPower ranges address all your fuel problems



# Summary

- Commercial
- Good team
- Project Plan
- Fuel Quality



**Wilhelmsen**

