

**Capital Markets
Day 2019**

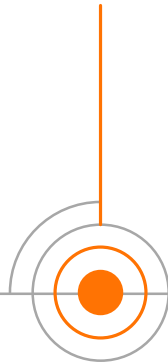


LEADING THE WAY TOWARDS A MORE SUSTAINABLE MARITIME FUTURE

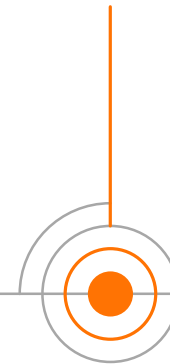
ROGER HOLM
PRESIDENT, MARINE & EXECUTIVE VICE PRESIDENT

TOPICS FOR TODAY

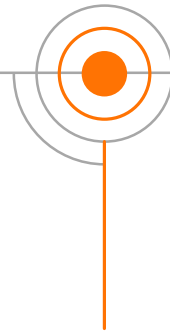
Short- to medium-
term outlook



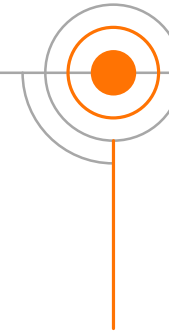
Our Marine Business is
transforming



Decarbonisation
as an opportunity



Smart Marine
Ecosystem in action



SHORT- TO MEDIUM- TERM OUTLOOK

**SHORT- TO MEDIUM-
TERM OUTLOOK**

**DECARBONISATION
AS AN OPPORTUNITY**

**OUR MARINE BUSINESS
IS TRANSFORMING**

**SMART MARINE
ECOSYSTEM IN ACTION**

THE MARITIME INDUSTRY IS UNDER PRESSURE

Short-term trends

Vessel contracting remains low

Contracting activity expected to improve. Modest seaborne trade growth and trade wars create uncertainty

Fleet utilisation & earnings

Lower fleet growth is helping the markets to recalibrate and improve profitability for shipping

Today's choices have an impact on long term competitiveness

Importance of fuel flexibility growing

LNG is widely recognised as the no.1 fuel option for new vessels

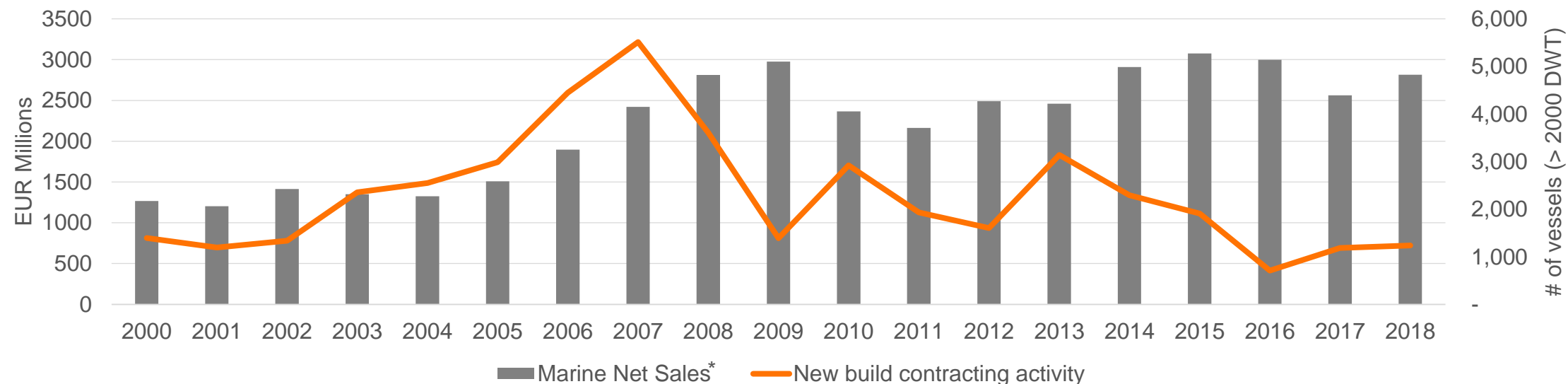
Decarbonisation in focus

Regulatory framework to be developed. The industry is coming together to find ways to meet GHG reduction targets

Increasing ecosystem cooperation

Industry players are cooperating to solve challenges and improve sustainability

...BUT OUR UNIQUE COMPETITIVE POSITIONING HELPS OFFSET SOFT MARKET CONDITIONS



An unrivalled portfolio of products and services



Engines

+



Propulsion

+



Automation

+



Gas systems + Exhaust gas systems

+



Navigation and control systems

+



ECDIS + situational awareness

*Illustrative. No restatements made.

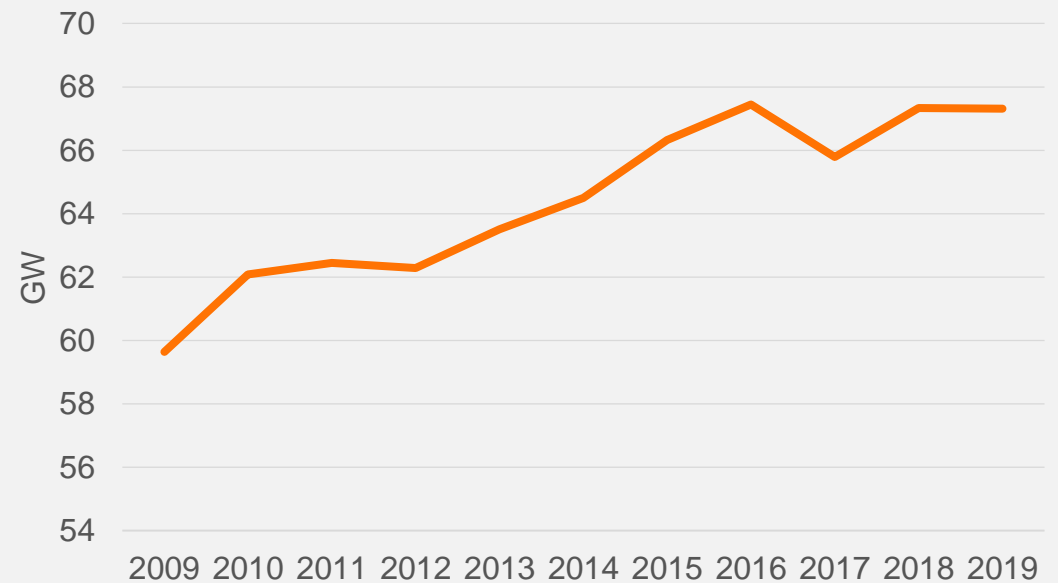
INSTALLED BASE GROWTH IS A KEY DRIVER FOR OUR SERVICES BUSINESS

50,000

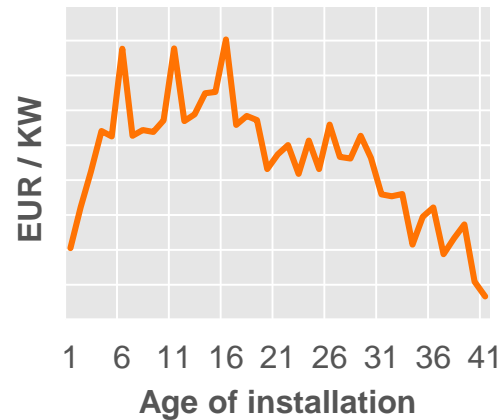
vessels have one or more pieces of Wärtsilä equipment installed

67 GW

Current installed base of 4-stroke engines



STRONG FUNDAMENTALS FOR OUR SERVICES BUSINESS



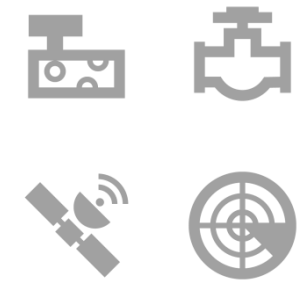
Dry dockings at 5, 10, and 15 years are prime time for services revenues

2030 GHG targets

Driving demand for retrofits, fuel conversions, and upgrades



Agreement coverage of installed base has been growing



Leveraging our services network to grow in services to new product lines

...YET WE STRIVE FOR MORE

4 minutes

1 request for quotation
received every 4 minutes
(24/7/365)

135,000

Requests for quotations
in 2018

1,400,000

Quotation line requests
for spare parts in 2018

7,000

Customers placed
a spare part order in 2018

**Harvesting the power of data analytics to better serve our customers
and grow the business**

TAKING OUR PARTNERSHIPS TO THE NEXT LEVEL: WÄRTSILÄ EXPERT INSIGHT

Predictive maintenance service enhances safety, reliability, and efficiency of equipment



DETECTION

EVALUATION

DIAGNOSIS AND
RECOMMENDATION

SUPPORTING
RESOLUTION

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DECARBONISATION AS AN OPPORTUNITY

SHORT- TO MEDIUM-
TERM OUTLOOK

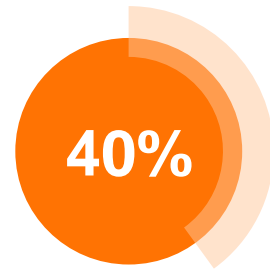
DECARBONISATION
AS AN OPPORTUNITY

OUR MARINE BUSINESS
IS TRANSFORMING

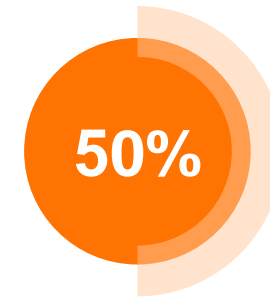
SMART MARINE
ECOSYSTEM IN ACTION

THE INDUSTRY IS ADDRESSING THE CLIMATE CHANGE CHALLENGE: IMO GHG REDUCTION TARGETS

Reduction of CO₂ emissions
per vessel by 2030



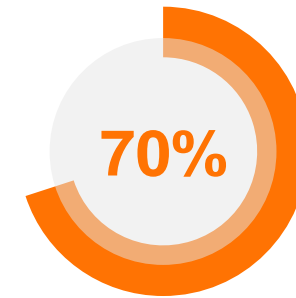
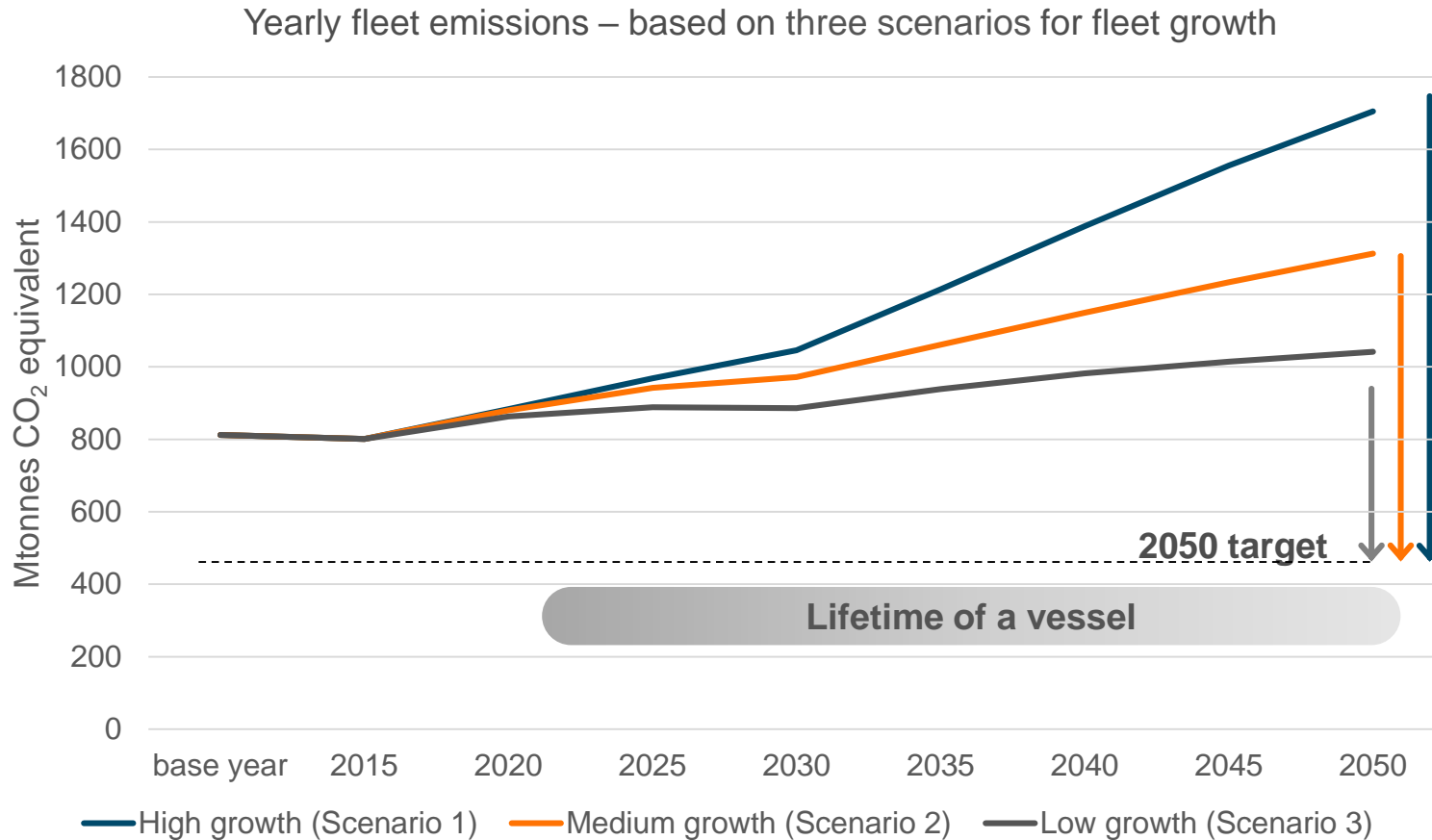
GHG reduction at **global fleet**
level required by 2050*



Shipping accounts for 2.7% of global GHG emissions

*Compared to 2008, source IMO
**Source: World Shipping Council

THE GLOBAL FLEET IS SET TO GROW



A medium scenario on fleet growth means up to 70% reduction of GHG per vessel compared to 2008

DELIVERING ON IMO'S GHG TARGETS



**ENERGY SOURCE
AND FUEL FLEXIBILITY**



**ENERGY EFFICIENT
TECHNOLOGIES**



DATA

Data, technology, LNG, biofuels and renewables will take us to **2030**

Sustainable fuels and advanced technologies will take us to **2050**

...adopted in a Smart Marine Ecosystem

SELECTING THE MOST SUSTAINABLE AND COMMERCIALY VIABLE FUEL IS HIGHLY COMPLEX

ENERGY DENSITY

- MJ/l vs MJ/kg
- Volumetric energy density is a critical factor for marine deep sea applications

SUPPLY CHAIN

- Bunkering availability
- Global production capacity
- Production locations

COST

- OPEX: fuel cost now and at scale
- CAPEX: cost of adoption (newbuild and retrofit)

EMISSIONS

- Well-to-wake GHG
- Local emissions
- Evolution of abatement technology

SAFETY

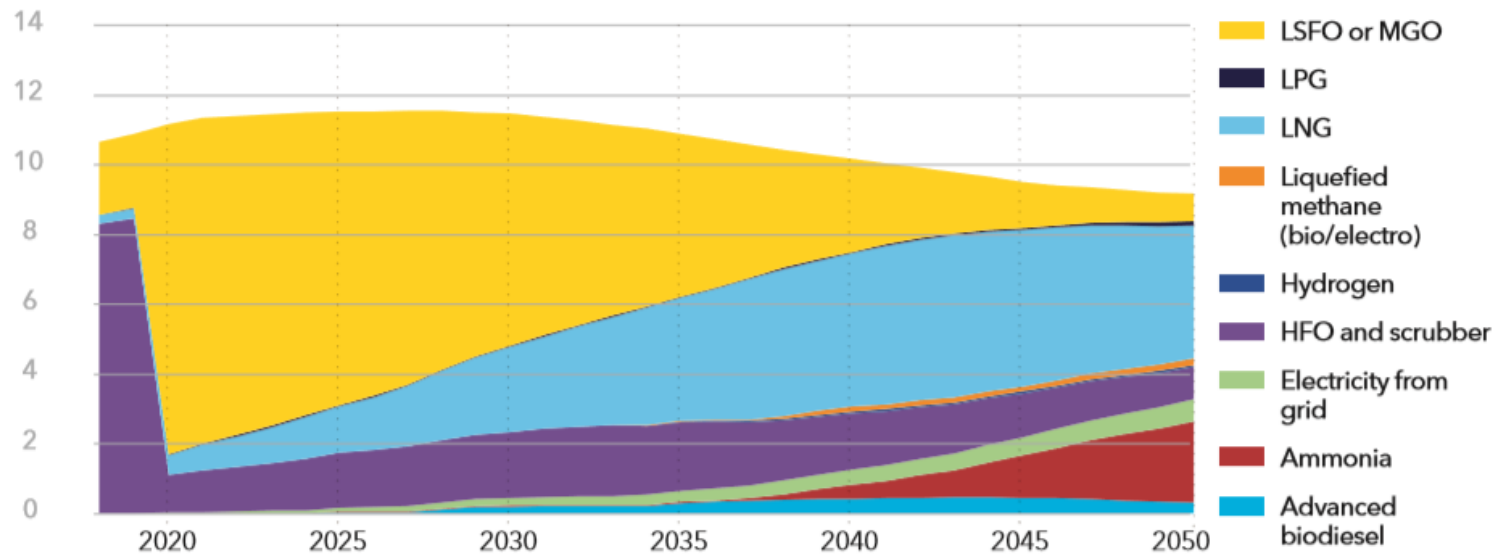
- Regulatory framework still to be developed
- Flammability
- Toxicity

LNG is the best option to reach 2030 IMO GHG targets

LNG IS THE BEST OPTION TO REACH 2030, AND TO BRIDGE TOWARDS 2050

ENERGY USE AND PROJECTED FUEL MIX 2018-2050 FOR SIMULATED IMO AMBITIONS PATHWAY WITH MAIN FOCUS ON DESIGN REQUIREMENTS

Units: EJ/yr



LSFO, low-sulphur fuel oil; MGO, marine gas oil; LPG, liquefied petroleum gas; LNG, liquefied natural gas; HFO, heavy fuel oil; Advanced biodiesel, produced by advanced processes from non-food feedstocks

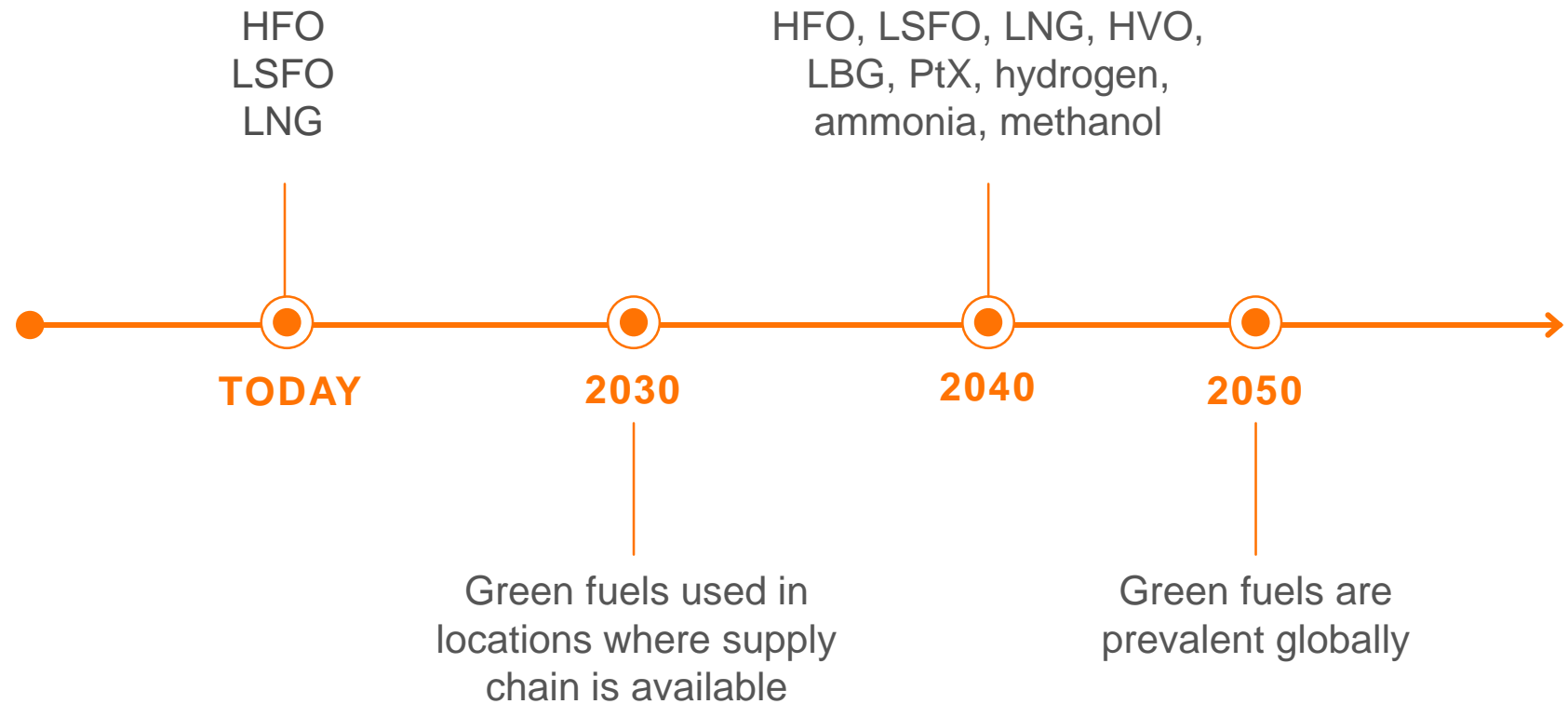
”We suggest that owners investing in the next five to 10 years should consider dual-fuel combustion engines”

DNV GL Maritime
forecast to 2050

INTERNAL COMBUSTION ENGINES ARE HERE TO STAY

The choice of fuel will change during the lifetime of a vessel

Fuel flexibility is key to the adoption of new fuels as they become viable and available



Note: HFO - heavy fuel oil, LSFO - low sulphur fuel oil, LNG - liquified natural gas, HVO - hydrotreated vegetable oil, LBG - liquified biogas, PtX – power-to-X

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OUR MARINE BUSINESS IS TRANSFORMING

**SHORT- TO MEDIUM-
TERM OUTLOOK**

**DECARBONISATION
AS AN OPPORTUNITY**

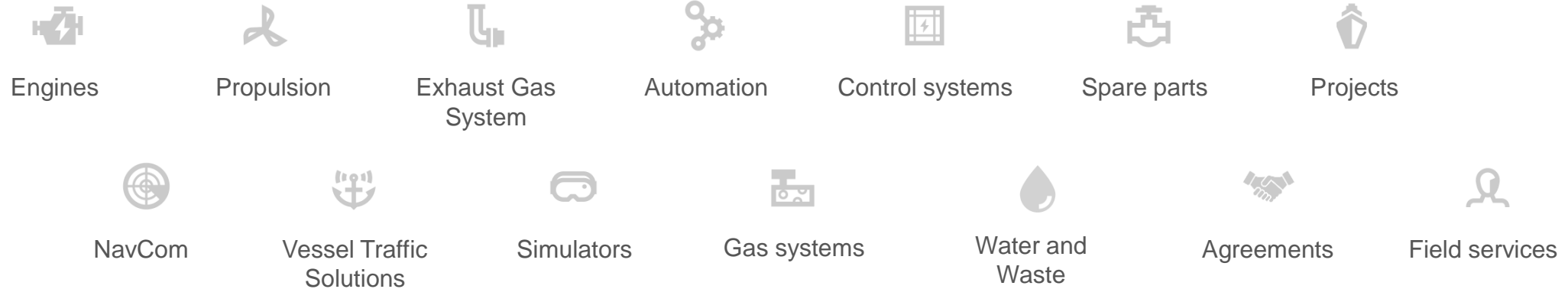
**OUR MARINE BUSINESS
IS TRANSFORMING**

**SMART MARINE
ECOSYSTEM IN ACTION**

OUR STRATEGY: UNMATCHED VALUE THROUGH INTEGRATED LIFECYCLE OFFERING



Products & Solutions



VOYAGE SOLUTIONS: CAPTURING THE VALUE OF SOFTWARE AND DATA

250-300 MEUR

**business
focused on capturing
growth opportunities**

Top 5

**across several
business lines**

Large installed base provides
a solid base for future
optimisation software solutions

New integrated optimisation
software (Fleet Operations
Solution, FOS) offering rolled
out with positive results

3.4 BEUR

addressable market*

Growth in line with global
fleet growth

**700 MEUR for optimisation
software**

Additional upside beyond 2023
through roll-out of autonomy
use cases

Bridges

Integrated navigation system

Market leader in cruise

Automation

Ship monitoring and controls systems

Top 3

Services

Spare parts and maintenance

Ship handling systems

ECDIS /ECS navigation hardware and charts

Top 3

Optimisation Software

Fleet optimisation solution (FOS)

Early leader

Dynamic positioning

Dynamic positioning and vessel control

Sensors

Sensors for dynamic positioning

Top 2

Ship traffic control

Vessel traffic services and coastal surveillance

Top 3

Maritime simulators

Maritime simulators

Market leader

- Fleet performance management: 5-10% fuel savings by delivering optimal speed/rpm/power profiles for the upcoming voyage
- The only tool that does automatic routing on the basis of nautical chart information and historical traffic information
- Route planning, weather optimisation, and data management in one process, bringing down planning time from 3-4 hours to 30 minutes



Fleet Operations Solution (FOS)

- Software providing integrated solutions for ship and shore
- Sold as-a-service directly to ship management companies, ship operators, and charterers
- Modular product design with frequent releases of additional optimisation applications
- Sold to 600+ vessels in 2019

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SMART MARINE ECOSYSTEM IN ACTION

ENGINES AND GENERATING SETS HYBRID SOLUTIONS BALLAST WATER MANAGEMENT
WET & DRY WASTE SHIP DESIGN EXHAUST GAS CLEANING LIFECYCLE SOLUTIONS
PARTS SOLUTIONS FRESH WATER GENERATION PROPULSORS GEARS VALVES
SIMULATION & TRAINING
FLEET OPERATIONS SOLUTIONS
NAVIGATION & COMMUNICATION
SHIP TRAFFIC CONTROL SOLUTIONS
ENERGY EFFICIENCY MANAGEMENT ENTERTAINMENT SYSTEMS
MAINTENANCE AND REPAIR SERVICES SEALS, BEARINGS AND STERN TUBES
GAS SOLUTIONS

**SHORT- TO MEDIUM-
TERM OUTLOOK**

**DECARBONISATION
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**OUR MARINE BUSINESS
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**SMART MARINE
ECOSYSTEM IN ACTION**

ENERGY MANAGEMENT

ASSET MANAGEMENT

VOYAGE MANAGEMENT

INTELLITUG

IN PARTNERSHIP WITH
MPA, PSA MARINE, LLOYD'S
REGISTER, & TCOMS



JUST-IN-TIME ARRIVAL

Simulation of potential
in a major port



1,600,000 T
CO₂ emissions cut



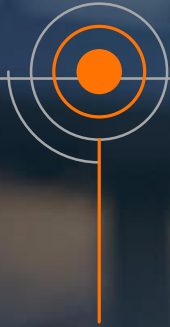
540,000 T
fuel reduction



160,000,000 €
fuel bill savings

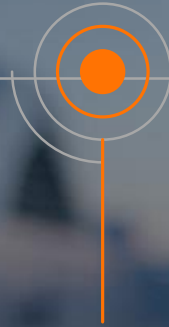


SAFETY
thanks to reduced
congestion



Today

- Headwinds from **challenging market** conditions
- An **unrivalled portfolio** of products and solutions for the maritime industry
- An **extensive installed base**
- **Global presence**
- A business that has **grown throughout the years**



Tomorrow

We **focus** our offering and **raise the performance** of our business to finance the needed **investments** that will take us to our **vision**



202X

We **bring value** to our customers through:

- Energy management
- Asset management
- Voyage management



Smart Marine Ecosystem

A connected **Smart Marine Ecosystem** makes us live true to our purpose: enabling sustainable societies with smart technology

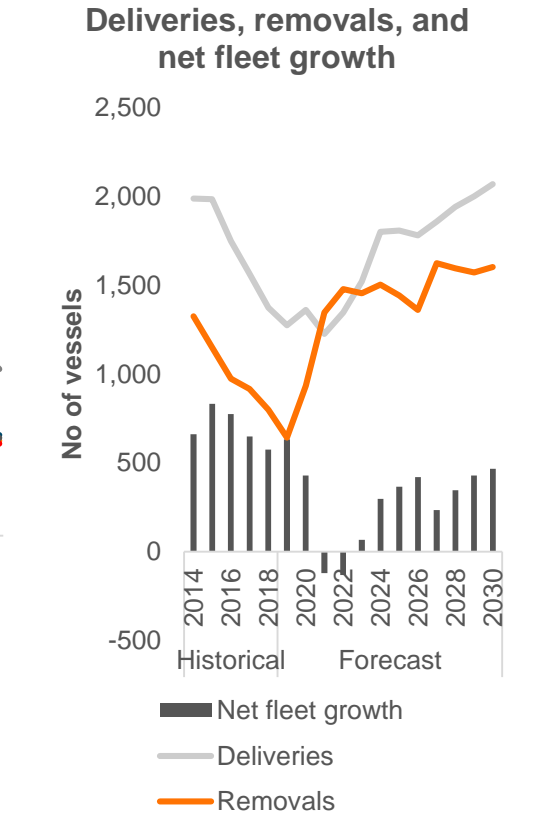
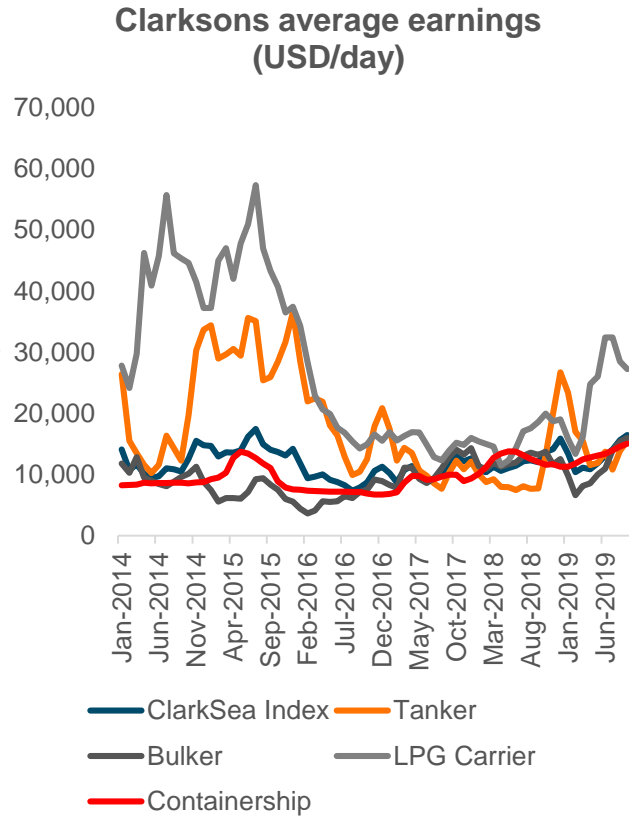
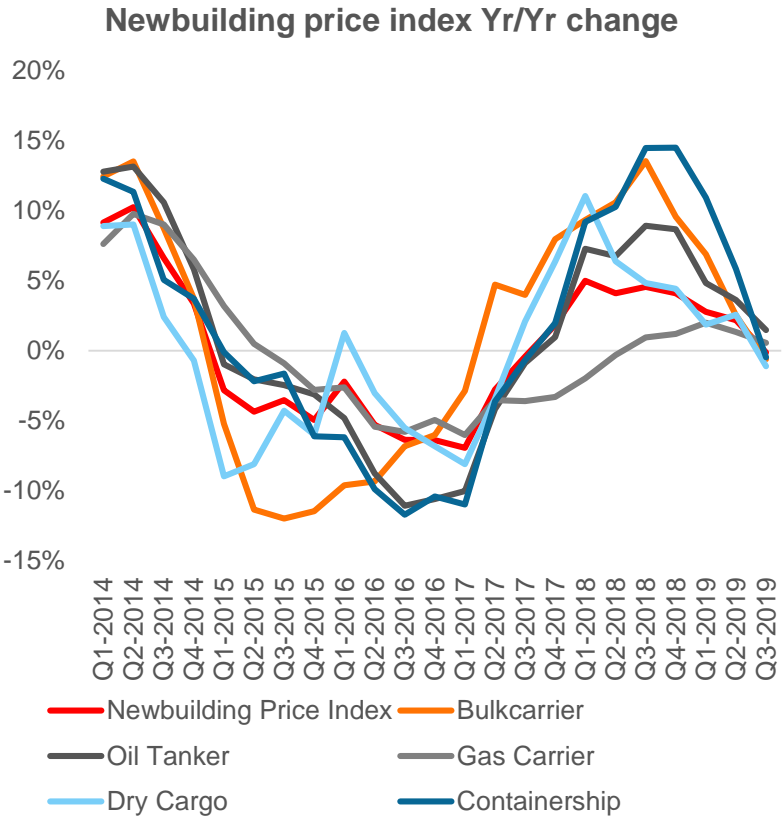
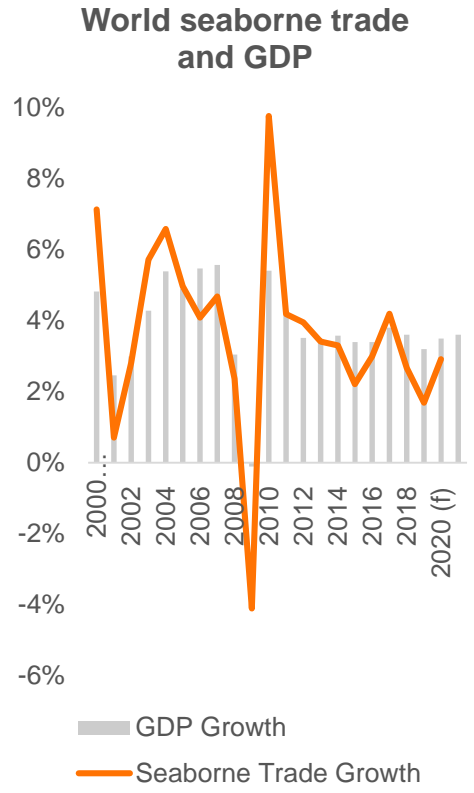


WÄRTSILÄ

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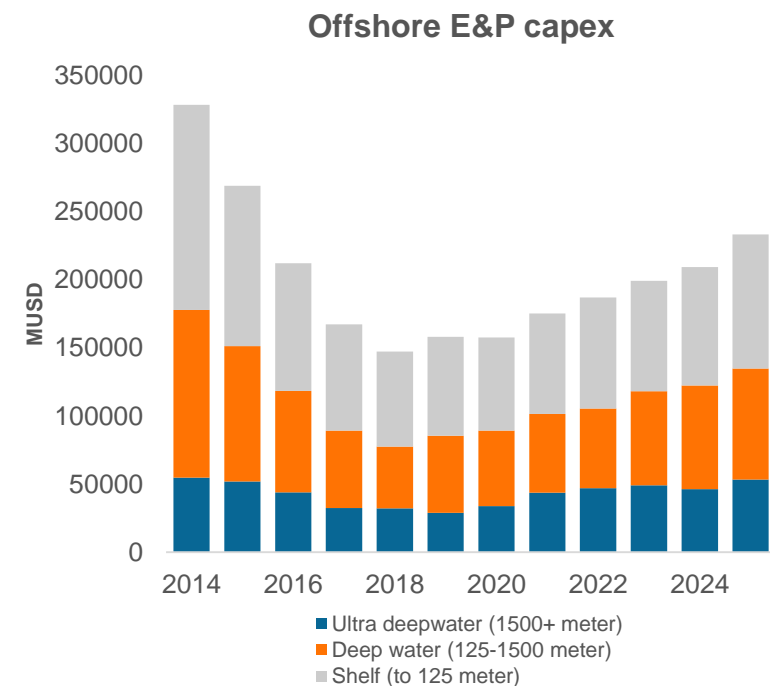
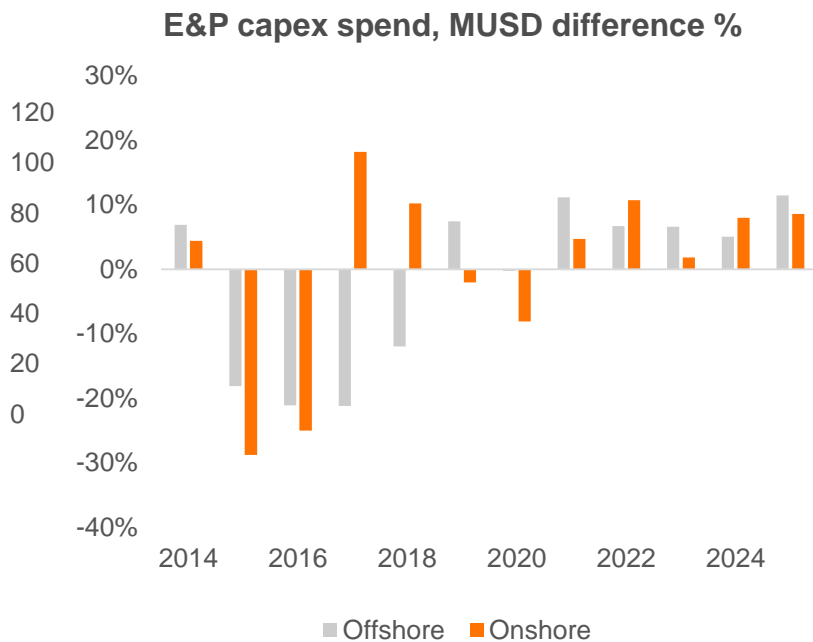
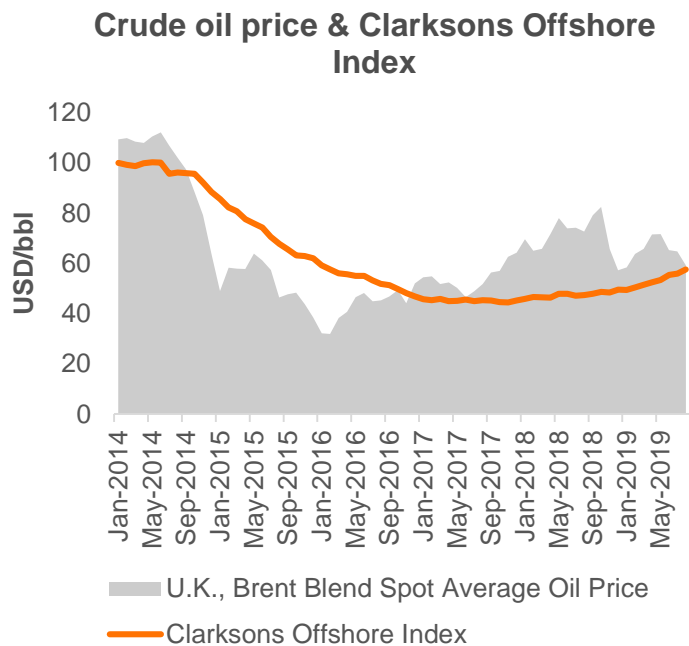
APPENDIX

ECONOMIC AND GEOPOLITICAL UNCERTAINTIES CONTINUE TO LIMIT THE MARKET RECOVERY, WHILE GROWTH IN SEABORNE TRADE AND GDP EXPECTED TO PROVIDE A BASIS FOR MARKET BALANCING



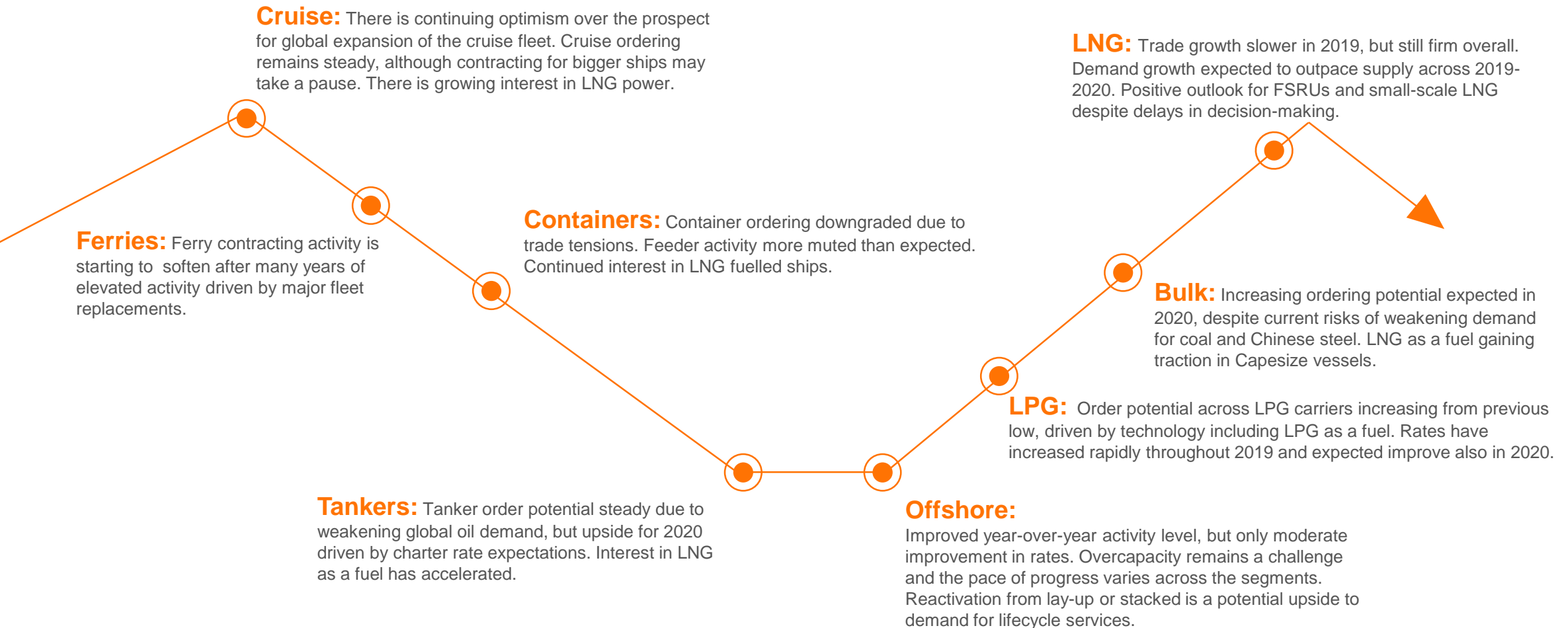
Source: Clarksons Platou

GROWTH IN OFFSHORE E&P CAPEX SET TO START FROM 2021 SUPPORTED BY NEW DEVELOPMENTS, EXPANSION PROJECTS, AND REDEVELOPMENTS

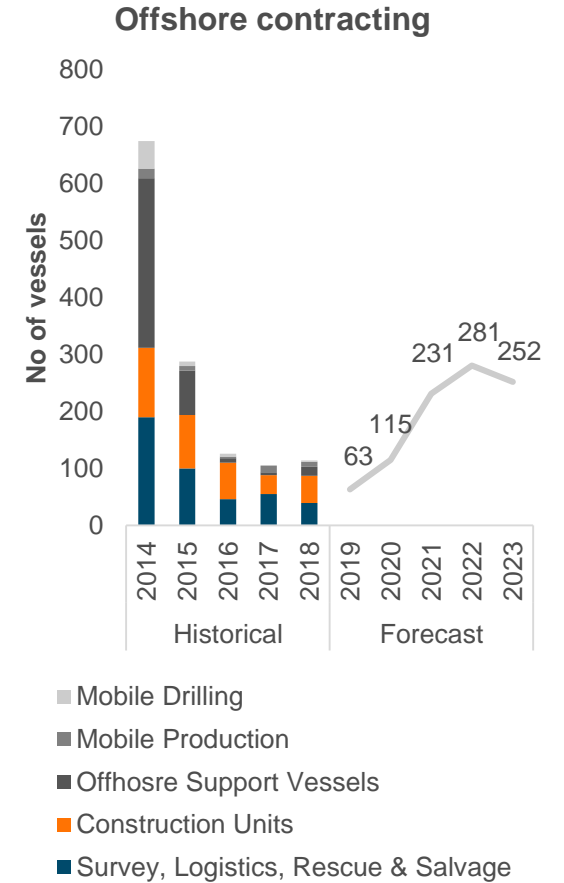
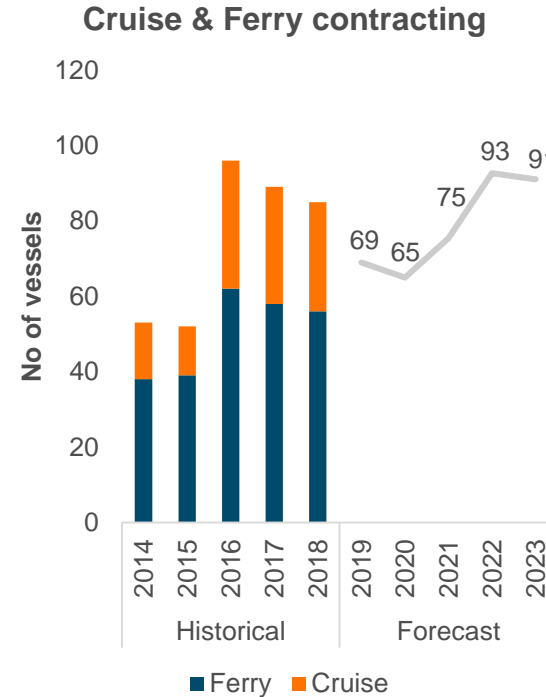
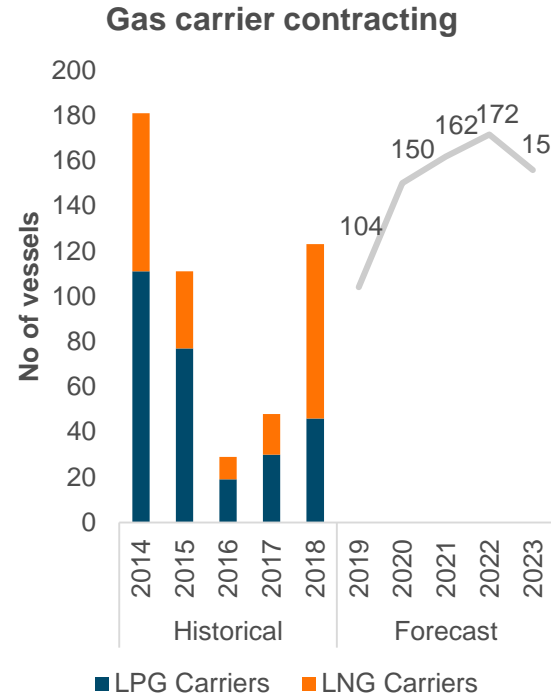
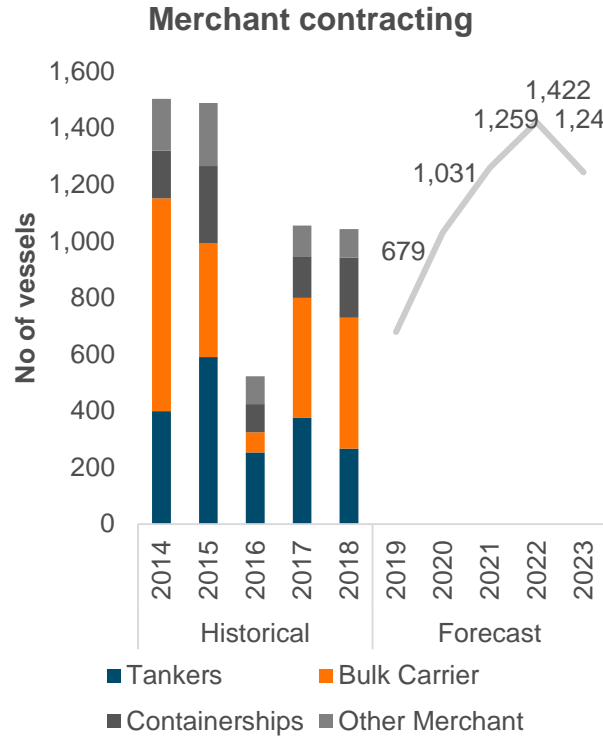


Source: Clarksons Platou, Rystad Energy

NEWBUILD - DRIVERS AND SENTIMENT VARY IN DIFFERENT VESSEL SEGMENTS



GRADUAL IMPROVEMENTS EXPECTED BUT MACRO-ECONOMIC RISKS IMPACTING MARKETS AND SENTIMENT



Source: Clarksons Platou, Wärtsilä Internal Analysis

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