WÄRTSILÄ CORPORATION

EUROPEAN ENERGY FORUM 2013

28th May 2013

Our business areas

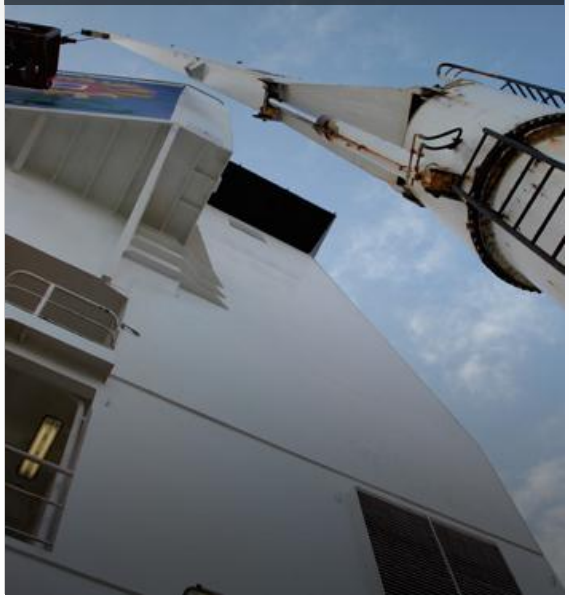
This is what we bring to the market

Profitable growth by focusing on three areas

Smart Power Generation

The transition to sustainable and modern energy systems drives the demand for smart power generation.

Gas as a fuel

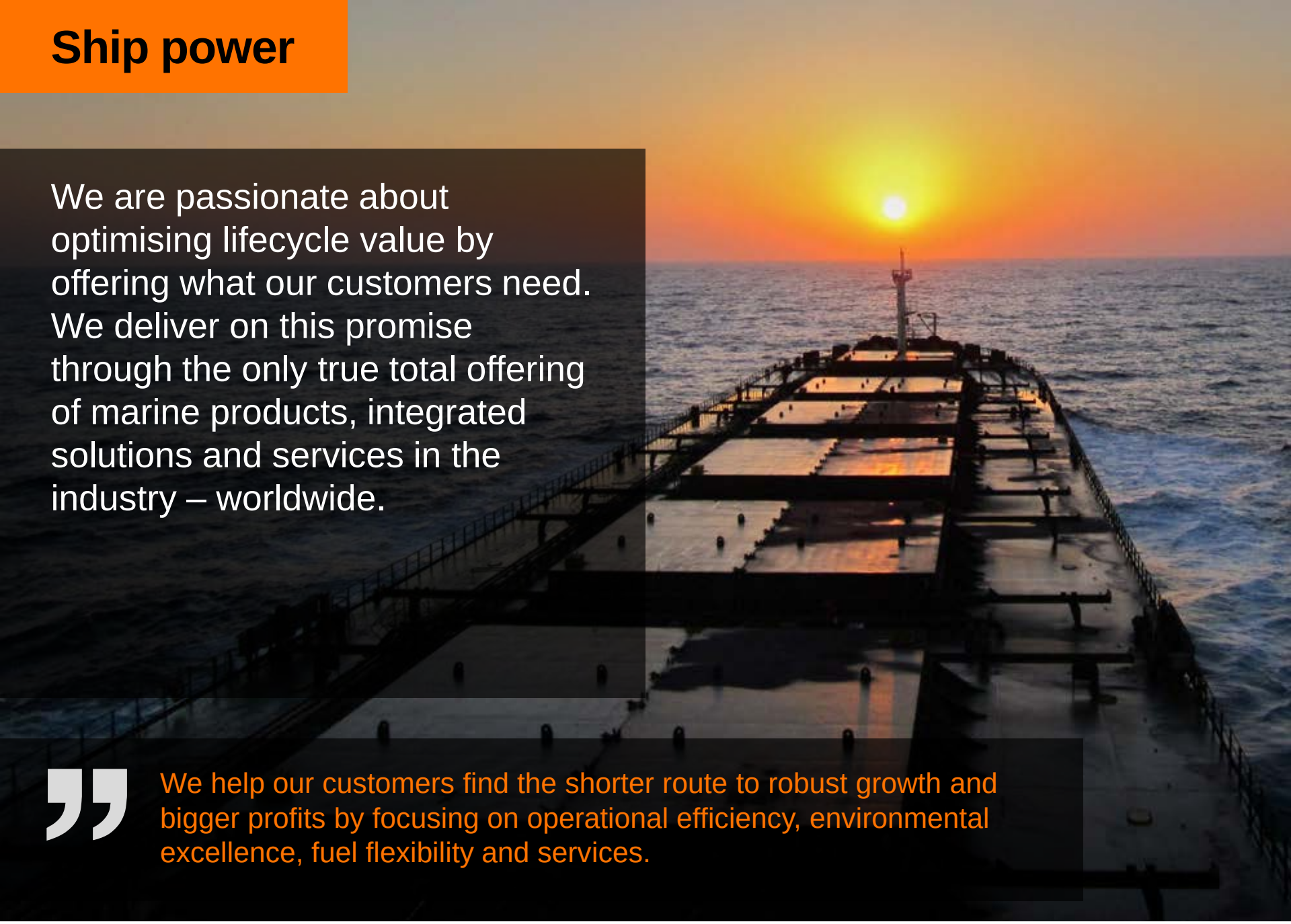


Economic and environmental reasons increase the growth of gas solutions in marine and power plant markets.

Environmental solutions

Environmental regulation and increased focus on improved efficiency create demand in the marine industry.

Ship power



We are passionate about optimising lifecycle value by offering what our customers need. We deliver on this promise through the only true total offering of marine products, integrated solutions and services in the industry – worldwide.

We help our customers find the shorter route to robust growth and bigger profits by focusing on operational efficiency, environmental excellence, fuel flexibility and services.

Market trends and drivers

- Development of the global economy drives marine trade and transportation growth
- Development of oil & gas prices stimulates investments in exploration and production of offshore oil & gas
- Environmental regulations drive demand for environmental solutions and gas as a marine fuel
- Increasing focus on energy efficiency and environmental performance

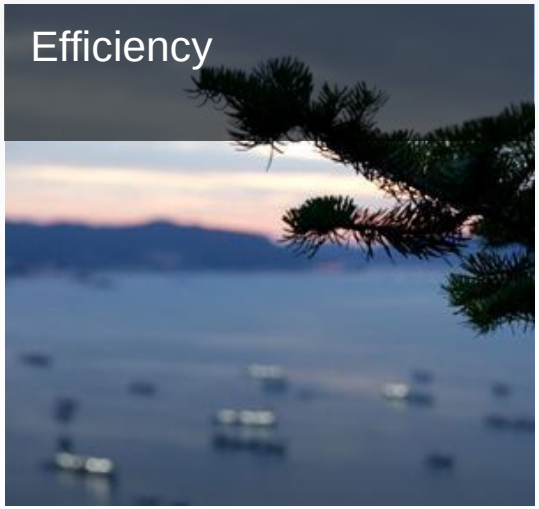
> The development of efficient vessels, environmental solutions and gas technology will be our priority in meeting the evolving needs of our customers.

Ship Power's focus on growth

Our strategic goal

To be recognised as the leading provider of products and integrated solutions in the marine and offshore oil & gas industry.

LEADER IN



THROUGH OFFERING

- Lifecycle solutions for ship owners and operators
- Integrated solutions for the shipbuilding industry, owners and operators
- The most competitive products and delivery process for the marine industry

Increasing environmental regulation and alternatives for decreasing emissions

No_x	SO_x	PARTICULATE MATTER	GREENHOUSE GAS	BALLAST WATER
Acid rains Ozone depletion	Acid rains	Impact on air quality	Global warming	Damage to local eco-systems
Tier II (2011) Tier III in ECA (2016)	3.5% (2012) ECA 0.1% (2015) Global 0.5% (2020)	Along with SO_x reduction	Under evaluation by IMO	Global ballast water convention

Wärtsilä is developing a multi-solution approach to meet requirements for different owner needs, ship types and operational profiles

LNG

- Simultaneous reduction of GHG / SO_x / NO_x / PM
- Market: mainly ships with regular routes and limited autonomy requirements operating in ECAs
- Infrastructure development is needed for larger uptake
- Conversion solution available

HFO

NO_x: SCR or wet methods
SO_x: scrubbers
Market: mostly merchant ships operating a significant time in ECAs

MGO

- NO_x: SCR or primary methods
- Market: ships operating a limited time in ECAs, small ships

The only complete marine offering

Automation

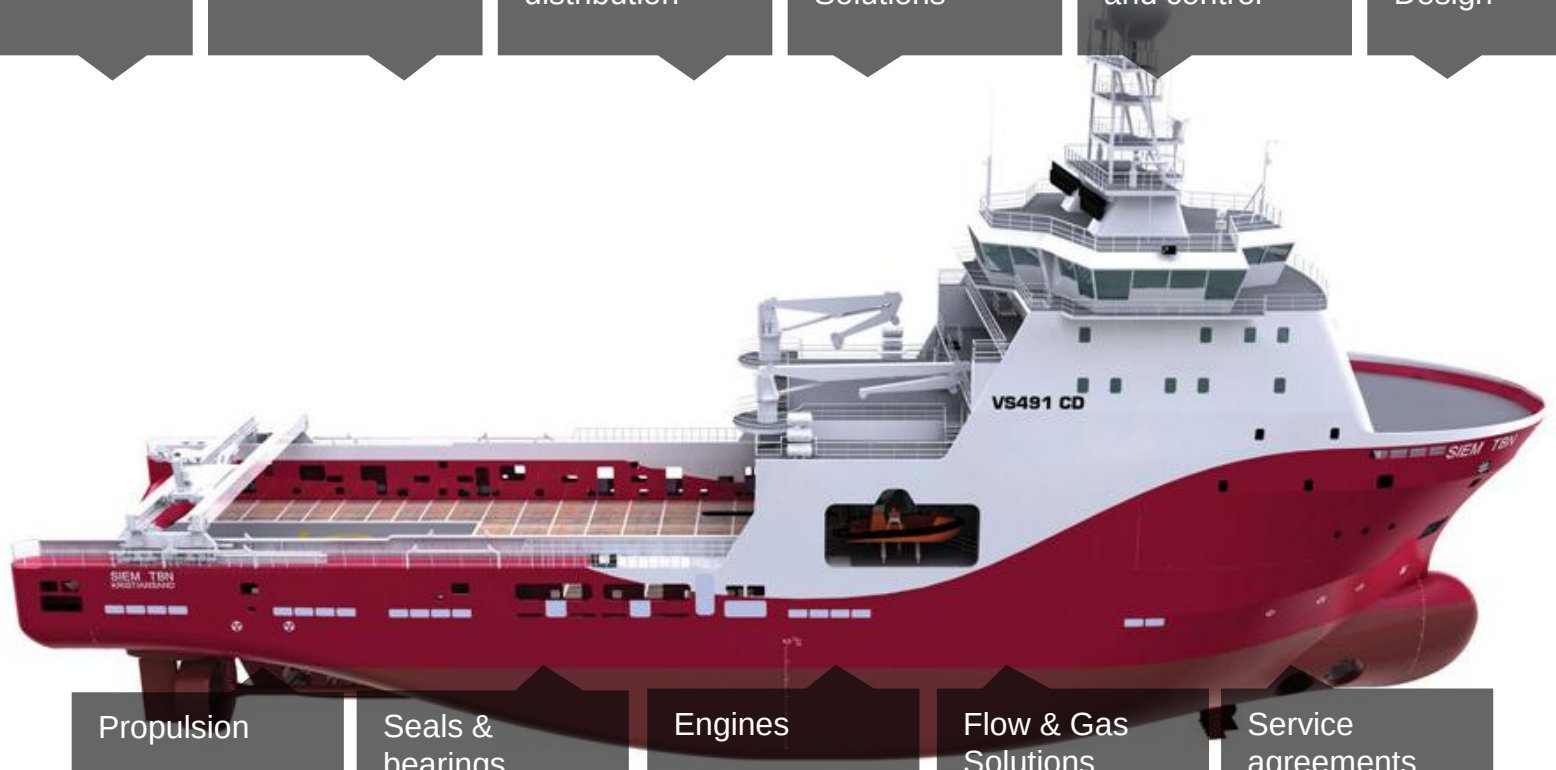
Power drives

Power distribution

Environmental Solutions

Communication and control

Ship Design



Propulsion

Seals & bearings

Engines

Flow & Gas Solutions

Service agreements

WÄRTSILÄ VISION ON SUSTAINABLE SHIPPING

EXECUTIVE SUMMARY

Sustainable Shipping - Vision

Optimizing total value chain and developing safe mode of transportation.

Adding value to society through efficient performance and ecological operations.

Sustainable Shipping

1. FLEET OPTIMIZATION REWARDS THE TOTAL VALUE CHAIN.

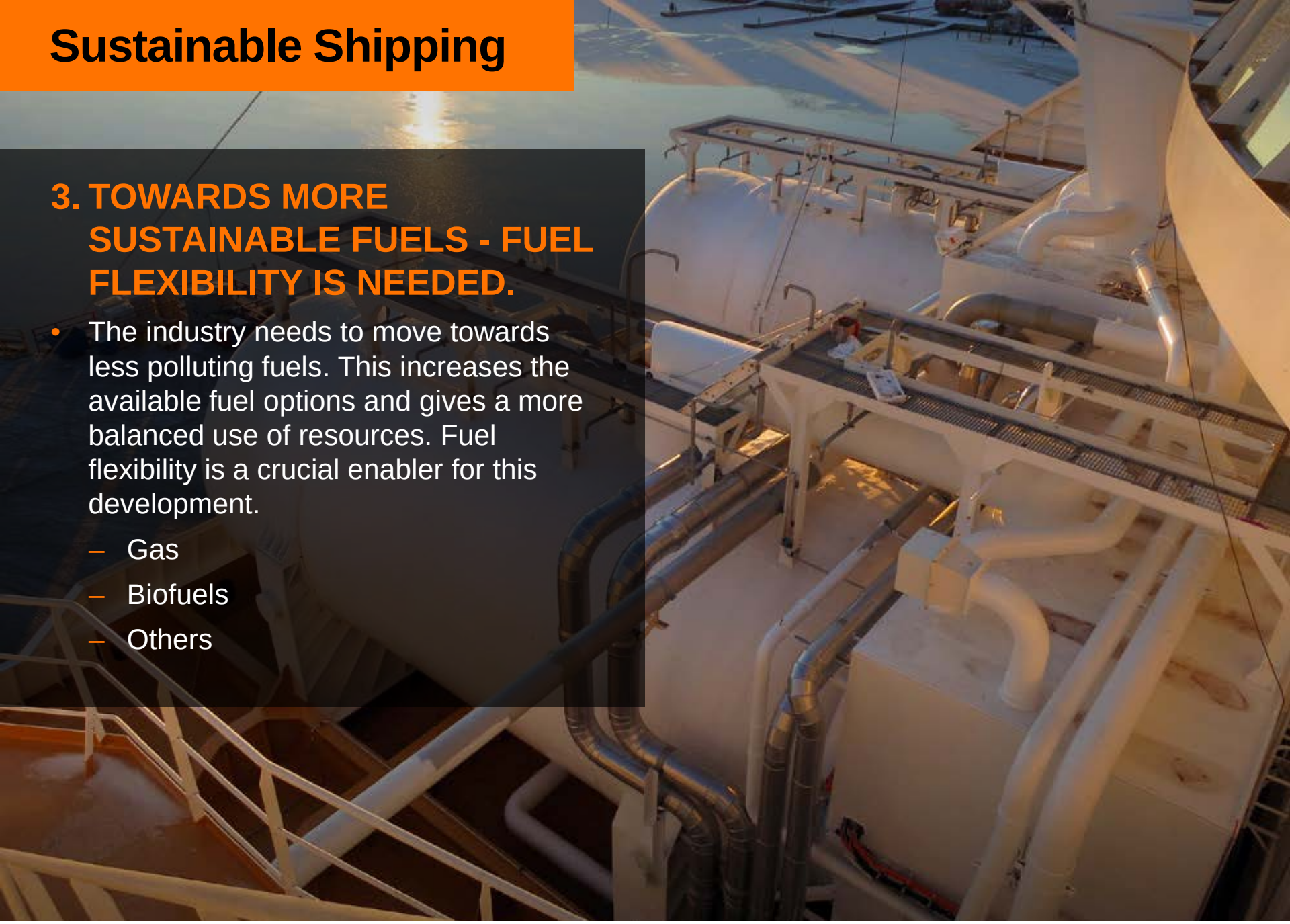
- Fleet optimization guides the vessel design and the effective use of the operators' fleet. This ensures competitiveness, efficient operations, and excellent environmental performance.
  - Optimized trade points, location and infrastructure of the harbours
  - Optimal combination of fleet size, vessel size and speed

Sustainable Shipping

2. TOTAL EFFICIENCY OF THE VESSEL IS KEY.

- Maximizing the total efficiency of the vessel will reduce the consumption of fuel and other resources, as well as emissions. The design and operation of the vessel should be aimed at minimizing the energy required to accomplish the desired mission. The energy on board the vessel will be generated in an efficient manner, and optimized for the prevailing conditions and the vessel's task. Energy losses will be effectively avoided or recovered.
  - Optimized vessel design
  - Operation
  - Machinery
  - Utilisation of energy losses

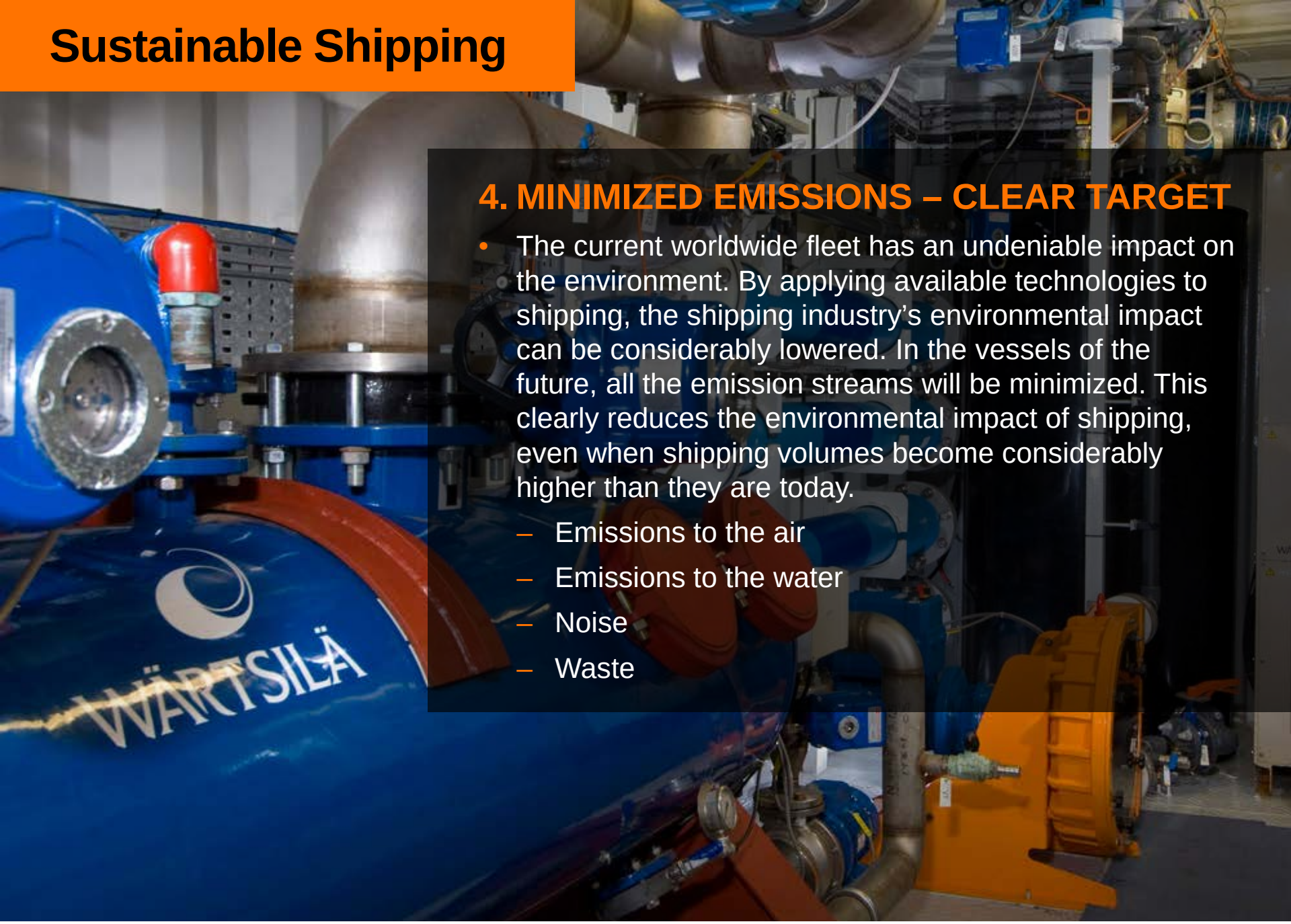
Sustainable Shipping



3. TOWARDS MORE SUSTAINABLE FUELS - FUEL FLEXIBILITY IS NEEDED.

- The industry needs to move towards less polluting fuels. This increases the available fuel options and gives a more balanced use of resources. Fuel flexibility is a crucial enabler for this development.
  - Gas
  - Biofuels
  - Others

Sustainable Shipping



4. MINIMIZED EMISSIONS – CLEAR TARGET

- The current worldwide fleet has an undeniable impact on the environment. By applying available technologies to shipping, the shipping industry's environmental impact can be considerably lowered. In the vessels of the future, all the emission streams will be minimized. This clearly reduces the environmental impact of shipping, even when shipping volumes become considerably higher than they are today.
  - Emissions to the air
  - Emissions to the water
  - Noise
  - Waste

Sustainable Shipping

5. VESSEL SAFETY REDUCES HEALTH AND ENVIRONMENTAL RISKS

Zero casualty policies will be widely used and applied throughout the lifecycle of the vessel.

- Remote monitoring and interactive systems
- State of the art systems for
  - Navigation
  - Route optimisation
  - Traffic monitoring and control
- Improved operations, maintenance and service
- Shorter operational lifetimes of vessels
- Recycling and sustainable scrapping

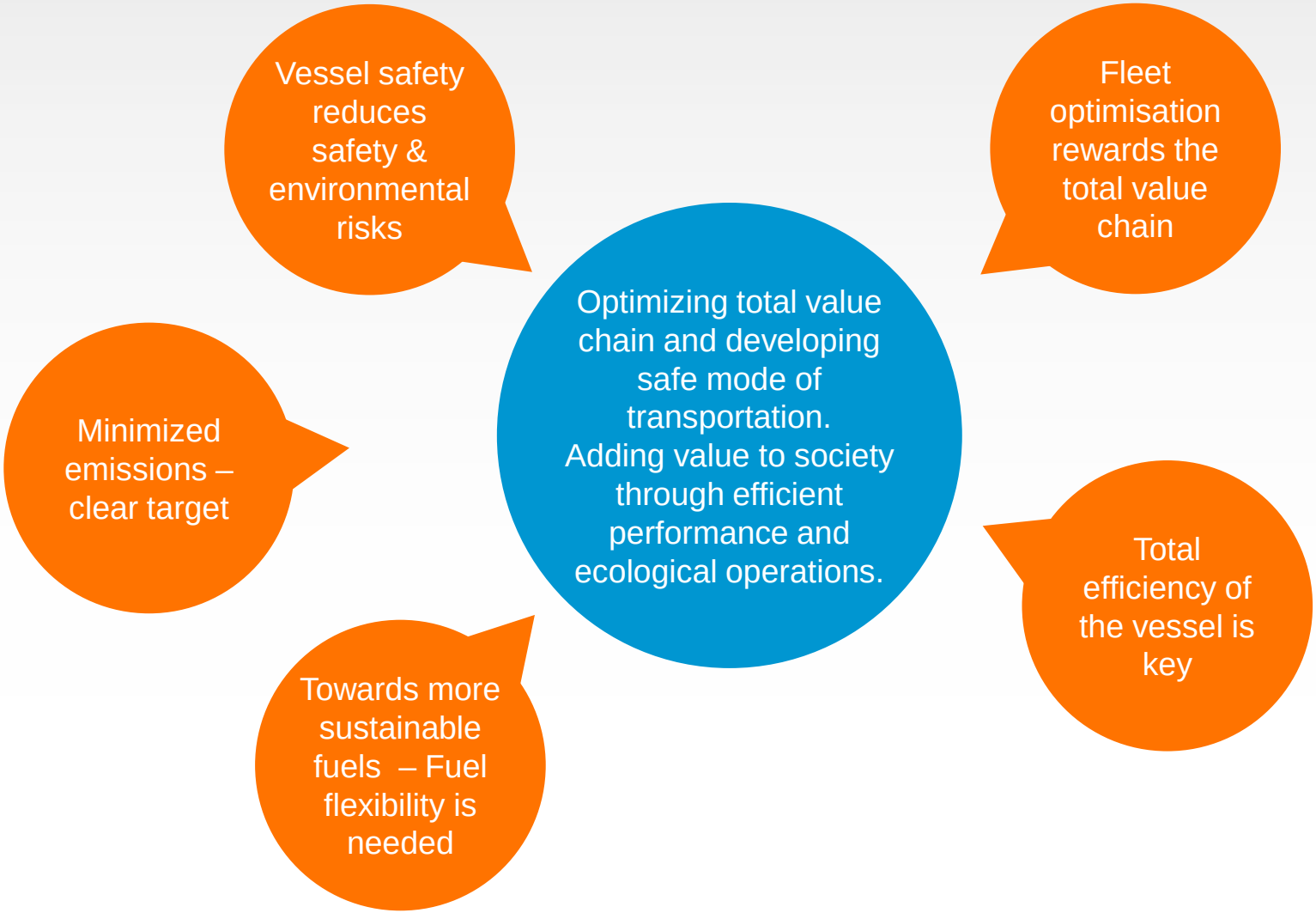
Sustainable Shipping

KEY ELEMENTS IN DECISION MAKING TO ACCELERATE THIS DEVELOPMENT ARE AS FOLLOWS:

A. Developing a LNG fuel based maritime industry
B. Global harmonisation of the regulatory framework and its implementation
C. Incentives for improving vessel performance
D. R&D development programmes to include demonstrators of novel vessels and technologies
E. Expertise of the crew needs to be secured
F. The role of scrapping in sustainable shipping

> Globally harmonized regulatory frameworks and investments in development of maritime industry capability are required for the shipping industry in order to ensure a sustainable future for shipping.

Wärtsilä Sustainable Shipping Vision

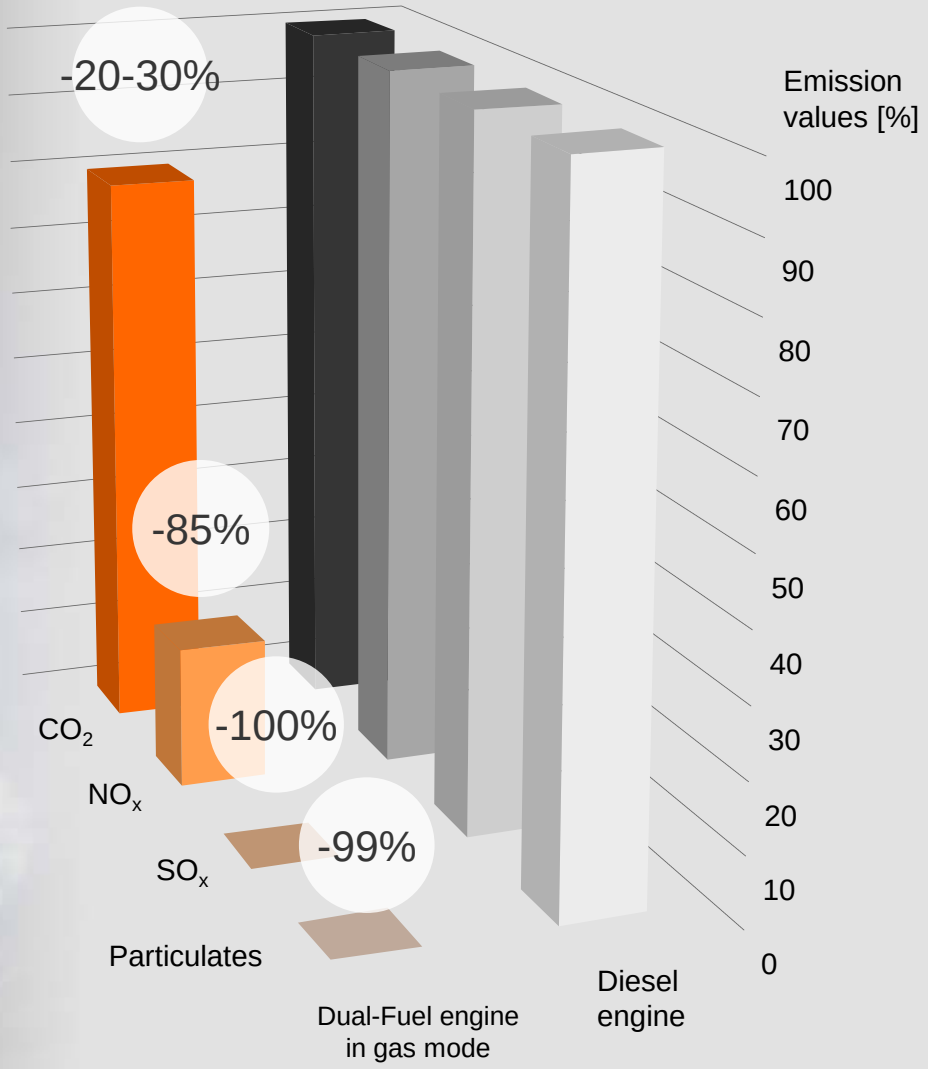


THE ROLE OF LNG

KEY DISCUSSION TOPICS

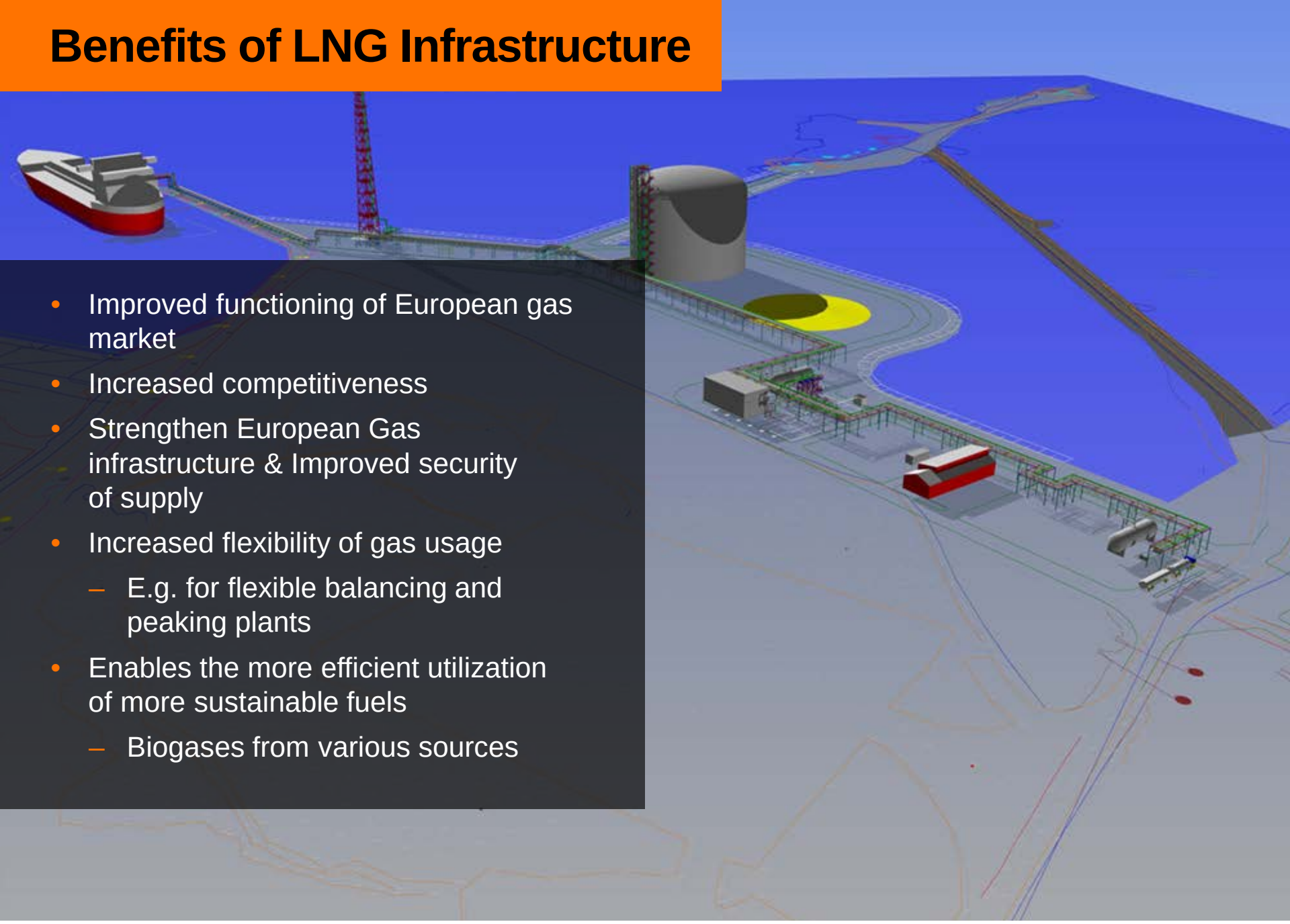
The Benefits of Natural Gas as a Marine Fuel

- Reduced emissions
- Simpler machinery
- Fuel flexibility
- IMO TIER III Compliant
- Cost-efficient



WÄRTSILÄ

Benefits of LNG Infrastructure



- Improved functioning of European gas market
- Increased competitiveness
- Strengthen European Gas infrastructure & Improved security of supply
- Increased flexibility of gas usage
  - E.g. for flexible balancing and peaking plants
- Enables the more efficient utilization of more sustainable fuels
  - Biogases from various sources

Dual-Fuel applications - References

Power Plants

DF Power Plant
- 57 installations
- 225 engines
- Online since1997

Merchant

LNGC
- 121 vessels
- 481 engines

Conversion
- 1 Chem. Tanker
- 2 engines conv.
- Complete gas train
- Complete design

Offshore

PSVs/FPSOs
- 20 vessels
- 93 engines
- Online from 1994

New orders:
- Harvey Gulf; the first 5 LNG-PSV to be operated in the Gulf of Mexico

Cruise & Ferry

LNG ferries
- 1 vessels
- 4 engines per vessel
- Complete gas train
- 2800 passengers
- In service early 2013

Navy

Coastal Patrol
- DF-propulsion
- DF main and auxiliary engines

Others

TUG
- 2 vessel
- 2 engines each
- Mechanical drive

FPSO
- 1 vessel
- 6*18V50DF

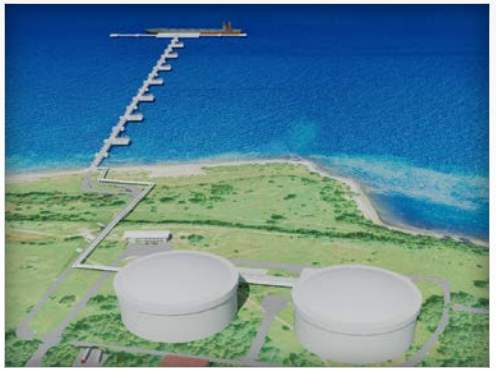
→ 6 segments → 210 installations → > 7’000’000 running hours

Gas handling equipments

- LNG Liquefaction
  - Small Scale 30-500 ton/da
  - Mini Scale 5-50 ton/day
- LNG Reliquefaction
- LNG Regasification
- Gas onboard handling
- GasReformer
- VOC recovery

Bringing natural gas from field to market

Exploration & Drilling | Upstream process & liquefaction | Shipping & trading | Receiving terminals & regasification | Gas to the users



Value chain - Small Scale LNG production

Feed gas | LNG production | Storage | Transportation & Distribution

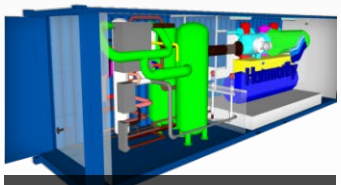

Biogas


CBM


Flare gas


Pipeline
or well head gas


SSL


MiniLNG

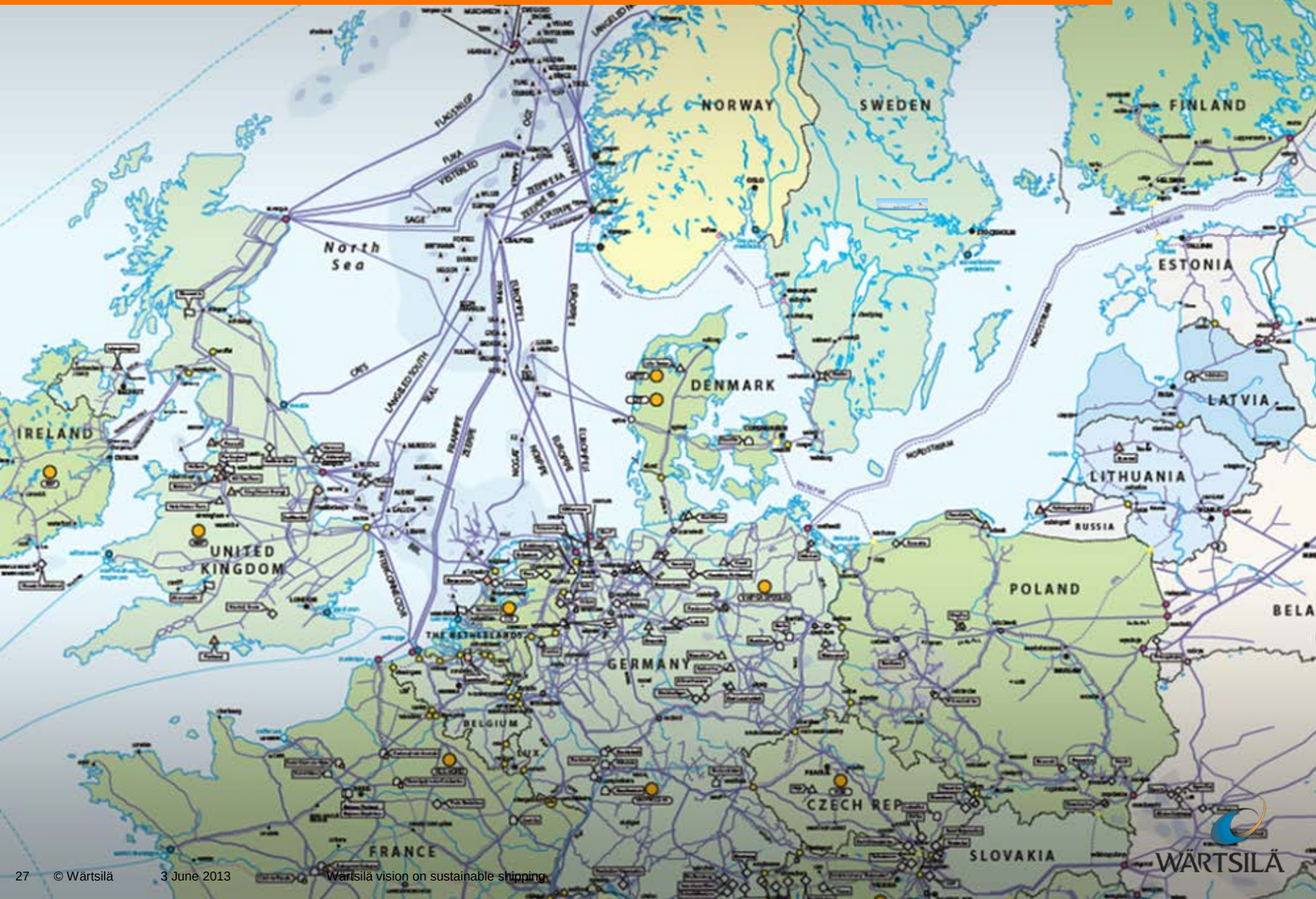
End User

Energy consumption in Shipping

Bunker consumption	MDO Million ton per year (as per today)	LNG Million cubic meters per year (all energy converted to LNG)	Number of ~155´000 m³ LNG shipments per year
Traffic to Finland	2,2	4,5	29
Baltic Sea	4-5	8-10	52-66
European ECA area (Baltic Sea, North Sea, English Channel)	10-15	20-30	130-200

Energy consumption of vessels sailing in the North European ECA area equal the capacity of one large LNG terminal

Natural gas infrastructure in Northern Europe



The key topics of upcoming EU LNG Deployment strategy

Financial instruments to secure future economical operations

- Financing schemes for terminals, feeder & bunker vessels and proactive ship owners
- Taxation

Ensure competent crew in LNG fuelled vessels

- To ensure safe operations sufficient training should be secured for the crew

Harmonized safety regulation

- Different safety approaches require unification at least in European and also at Global level

Pilot port projects to demonstrate feasibility and advantages

- To prove the business case and involve relevant stakeholders in the early stage of development

Long term decisions in emission regulation

- Clear and long-term targets in making emission regulations

Streamlined permit processes

- Common guidelines for permit processes to speed up decision making and projects

Development of European LNG market

- Establishment of open, public and transparent LNG pricing information