

# Wärtsilä 2022

Shaping the decarbonisation of marine and energy

## The decarbonisation transformation is accelerating

The world is changing.

We will see an unprecedented rate of change in maritime in the coming decades. Driven by regulatory frameworks and the demand for greener transport, the move towards decarbonisation will only accelerate.

The energy sector is undergoing a massive transformation: decarbonisation and renewables are fundamentally going to change the way energy is generated.

Wärtsilä is in key position in shaping the decarbonisation of marine and energy.

## This is Wärtsilä

- Wärtsilä is a global leader in innovative technologies and lifecycle solutions for the marine and energy markets.
- We emphasise innovation in sustainable technology and services to help our customers continuously improve environmental and economic performance.
- Our dedicated and passionate team of 17,000 professionals in more than 200 locations in 68 countries shape the decarbonisation transformation of our industries across the globe.

# Marine will move with unprecedented speed towards decarbonisation

## POLICIES & REGULATIONS

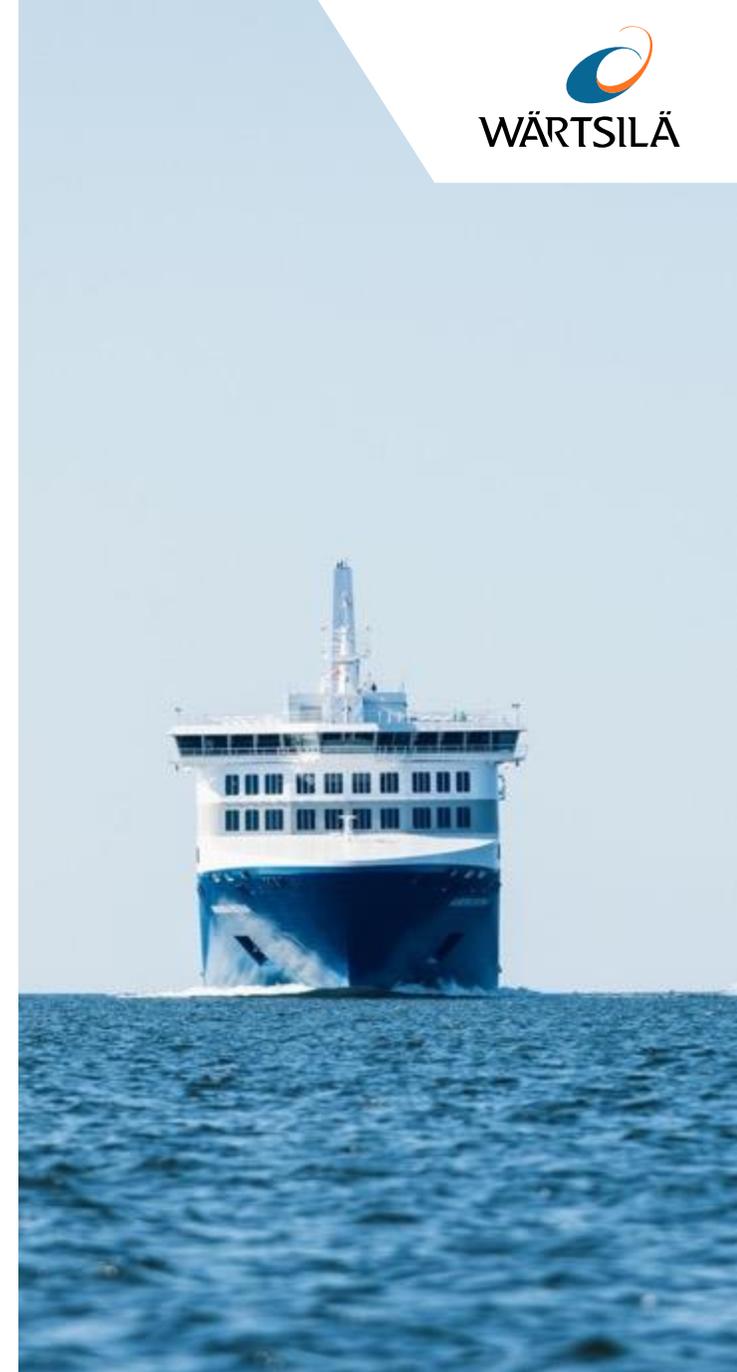
- IMO target: 50% less GHG emissions from shipping by 2050
- Access to capital: EU taxonomy, Poseidon principles and ESG
- Cost of carbon: carbon certificates e.g. EU Fit for 55, IMO carbon levy and local green policies
- Demand for green sea transport, driven by companies' environmental commitments to their customers and investors' push for sustainability targets

## TECHNOLOGY

- Focus on carbon neutral and zero carbon fuels. Continued use of carbon fuels for many years, still
- Next steps in abatement technologies e.g. carbon capture
- Increase in battery systems, hybrids, and energy saving devices
- Focus on fuel efficiency and flexibility

## CONNECTIVITY & DATA

- Vessels as data pools - system complexity increasing
- Optimisation solutions based on a holistic view of the entire transport system
- Performance-based agreements with a focus on uptime, reliability, and fuel efficiency
- Cyber security growing in importance
- Various degrees of autonomous operations



# Energy is moving towards a 100% renewables future

## POLICIES & REGULATIONS

- EU: Carbon neutral by 2050
- USA: carbon free electricity production by 2035, net zero emissions by 2050
- China: Carbon neutral by 2060
- Country climate pledges likely to become more progressive

## TECHNOLOGY

- Wind and solar growing rapidly as the dominant source of energy
- Intermittent sources requiring balancing power
- Sustainable fuels for thermal balancing
- Digitalisation will create opportunities for optimising power systems
- Cyber security growing in importance

## GROWING ENERGY DEMAND

- Electricity generation is expected to grow by 3X, renewables by 8X <sup>1)</sup>
- Gradual replacement of coal and other fossil fuelled energy generation
- Power systems becoming increasingly complex with different types of generation assets

1) by 2050. Source: IEA World Energy Outlook 2021 (Net Zero Emissions Scenario).





**"Our strategy will enable us to accelerate the development towards marine decarbonisation and the shift to a 100% renewable energy future."**

**Håkan Agnevall**  
President & CEO

# THE WÄRTSILÄ WAY



## Purpose

Enabling sustainable societies through innovation in technology and services



## Target position

Shaping the decarbonisation of Marine and Energy

- Financial targets
- “Set for 30” – decarbonisation targets



## Strategic priorities

Roadmap to improve performance and reach Target position



## Values

Customer Success, Passion, Performance

## OUR PURPOSE

Enabling sustainable societies through  
innovation in technology and services

# Our values

## CUSTOMER SUCCESS

- We are successful by making our customers successful
- We truly understand our customers' business
- We listen to and talk with our customers
- We provide reliability and efficiency

## PASSION

- We are proud of our work and celebrate success
- We innovate and find new ways to create value
- We value teamwork and inclusiveness
- We foster candour, respect and trust
- We engage with energy and drive
- We drive sustainability

## PERFORMANCE

- We are committed to safety and zero injuries
- We take ownership and go the extra mile to deliver on our commitments
- We continuously improve and learn something new every day
- We look after Wärtsilä's best interests
- We take pride in quality
- We act with integrity

# Embarking on a new phase in Wärtsilä's development – Shaping the decarbonisation of Marine and Energy

**2002-2010**

## LIFECYCLE POWER SOLUTIONS

Expansion into propulsion, services acquisitions



**2011-2015**

## BECOMING A TOTAL SOLUTIONS PROVIDER

Expansion into environmental solutions, acquisitions in Electrical & Automation



**2016-2020**

## SMART MARINE AND 100% RENEWABLE ENERGY

Digital solutions, end-to-end value chains, divestments



**2021-**

## SHAPING THE DECARBONISATION OF MARINE AND ENERGY

Customer & services focus, technology leadership, organic growth, continuous improvement



Our value creation potential is based on two strategic themes

**1** **TRANSFORM**  
Decarbonisation creates  
new business opportunities

**2** **PERFORM**  
Leverage market recovery  
and growth

## Transform - decarbonisation creates new business opportunities

- The decarbonisation transformation is accelerating, and it will create new business opportunities both in marine and energy.
- This transformation will be made possible by numerous new technologies and alternative fuels.
- We are set for performance and have significant value creation potential to drive this transformation as a technology leader.

↑  
**HYDROGEN**  
 $H_2, NH_3$   
WÄRTSILÄ

↑  
**METHANOL**  
 $CH_3OH$   
WÄRTSILÄ

## 2021:

- Major test programme launched, 100% ammonia concept in 2023, 100% hydrogen in 2025
- Wärtsilä 34SG Balancer launched for balancing renewable generation
- First Wärtsilä GridSolv Quantum delivered in the USA
- First real-life digital port call with Wärtsilä Navi-Port

## Perform - we are ready to leverage market recovery and growth

### #1-3 in global markets

#### Financial targets:

- 5% annual organic growth
- 12% operating margin

#### "Set for 30" decarbonisation targets:

- carbon neutral in our own operations by 2030
- a product portfolio ready for zero carbon fuels by 2030

#### Focus on:

- High performing teams
- Performance excellence and robust execution
- Continuous improvement
- Cost structure – actions taken whenever and wherever necessary

## GROWTH THROUGH:

- Extensive service network, positioned for growth both in transactional services and performance-based agreements
- Notable opportunity in retrofits and conversions
- Clear financial targets and strong commitment to realise them
- Robust capital allocation principles and active portfolio management

## Our strategic priorities

- 1 EXCEL IN CREATING CUSTOMER VALUE**
- 2 DEVELOP HIGH PERFORMING TEAMS THAT MAKE A DIFFERENCE**
- 3 DRIVE DECARBONISATION IN MARINE AND ENERGY**
- 4 CAPTURE GROWTH IN SERVICES**
- 5 CONTINUOUSLY IMPROVE OUR END-TO-END VALUE CHAIN**

## Our financial and decarbonisation targets

“Wärtsilä drives growth by acting as a pioneer and a leading partner for decarbonisation.

We can make a difference in our industries and in the world, while securing financial performance and delivering attractive long-term shareholder value.”

### NET SALES

**Target**  
5% annual organic growth

### PROFITABILITY

**Target**  
12% operating margin

### “SET FOR 30” DECARBONISATION TARGETS

- A product portfolio ready for zero carbon fuels by 2030
- Carbon neutral in our own operations by 2030

### CAPITAL STRUCTURE

**Target**  
Gearing below 0.50



## Significant value creation potential

### PURPOSE

ENABLING SUSTAINABLE SOCIETIES THROUGH INNOVATION IN TECHNOLOGY AND SERVICES



## COMMITTED TO TARGETS

### FINANCIAL TARGETS

- 5% annual organic growth
- 12% operating margin

### "SET FOR 30" – DECARBONISATION

- A product portfolio ready for zero carbon fuels
- Carbon neutral in own operations

## ENERGY

Intermittent sources of energy require balancing solutions. By 2030, the balancing power market is expected to grow >10X.

## MARINE

An unprecedented rate of change driven by regulations and demand for green transport. 50% GHG reduction in shipping by 2050



## TARGET POSITION

SHAPING THE DECARBONISATION OF MARINE & ENERGY



## LEADING OFFERING TO SUPPORT OUR CUSTOMERS IN DECARBONISATION

FUEL FLEXIBLE ENGINES ENABLING DECARBONISATION

BATTERY, ENERGY SAVING, AND EMISSION ABATEMENT TECHNOLOGIES

THERMAL BALANCING AND ENERGY STORAGE

ENERGY EFFICIENCY & POWER SYSTEM OPTIMISATION

THE WIDEST SERVICE NETWORK IN THE INDUSTRY

DIGITAL SOLUTIONS ENABLING OPTIMISED OPERATIONS AND SERVICE

## Delivering customer value in marine

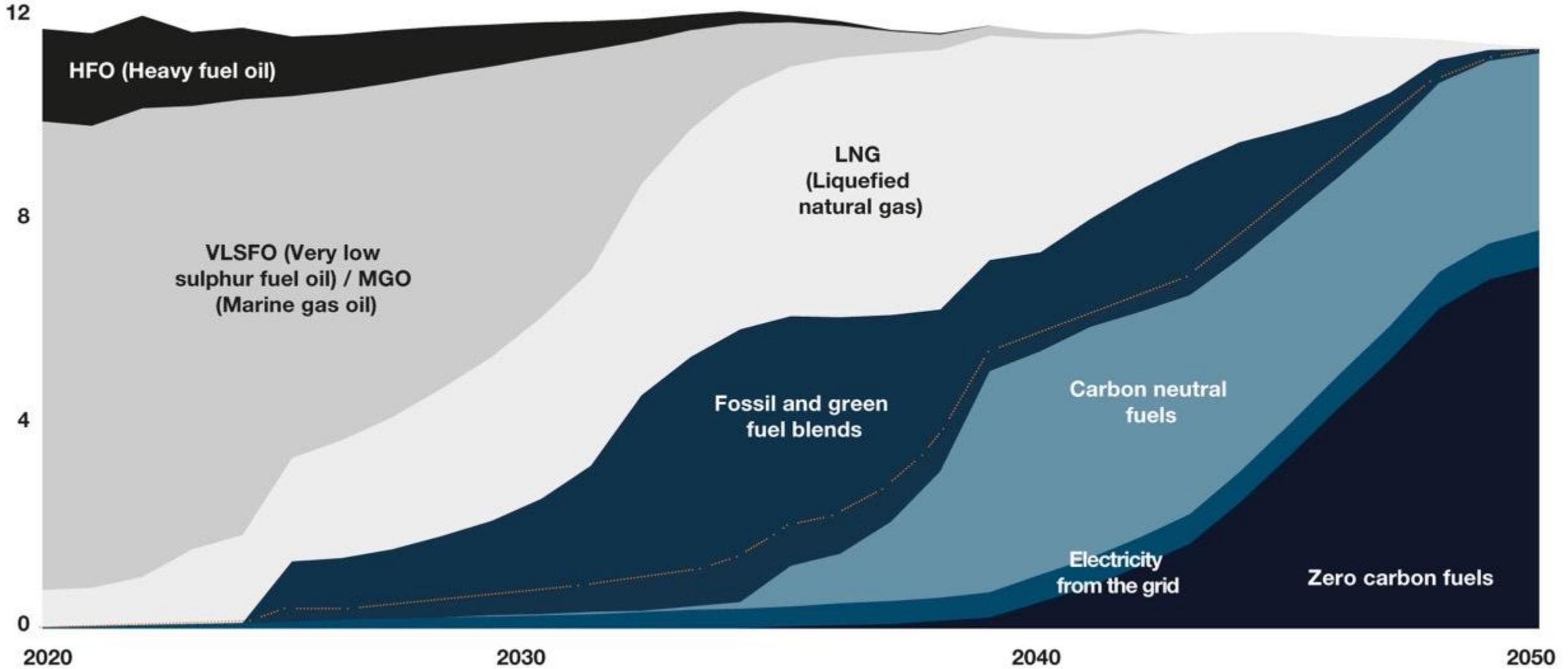
- We are well-positioned to support our customers in the decarbonisation transformation with fuel flexibility, efficiency optimisation, emission abatement technologies, and digital services.
- With our multifuel technology, ranging from transition fuels to 100% green fuels, our customers have a viable upgrade path for the future.
- Our fleet optimisation and safety solutions helps achieving optimised routing and port operations with tangible fuel savings.

# 2021:

- World's first digitally controlled port arrival
- Testing carbon free engine fuels
- Carbon capture

# Marine is moving from a single-fuel industry to a multi-fuel one

Distribution of fuel types for Decarbonisation 2050 (1.5°C scenario), EJ



----- Carbon neutral and zero carbon fuels in maritime

Source: DNV Maritime Forecast 2050 model, Wärtsilä internal estimates

## Delivering customer value in energy

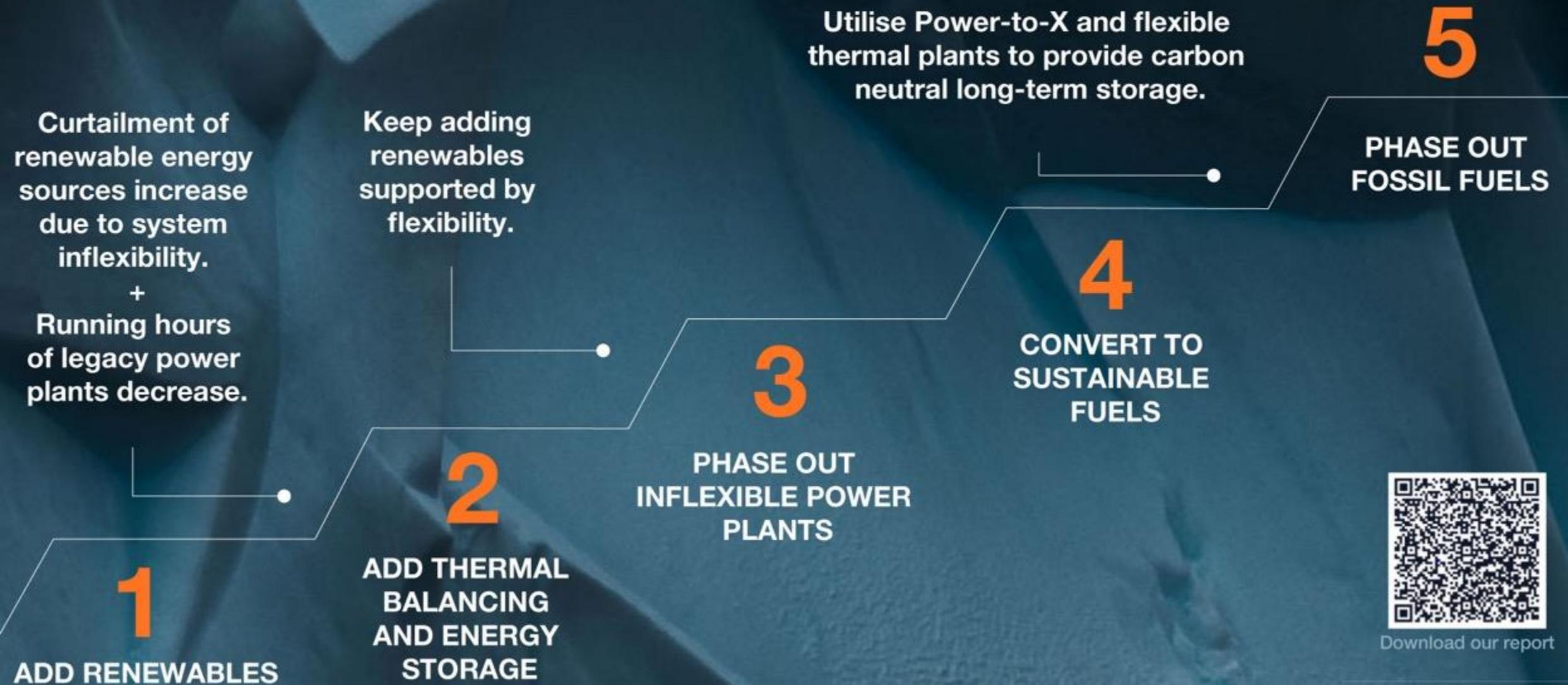
- Wärtsilä is a global top 3 leader of flexible power plants and energy storage solutions, including our GEMS digital energy platform. We provide balancing power and lifecycle services to support an optimised and reliable transition to renewable energy.
- Our market-leading technologies allow our customers to increasingly add renewables to their power system safely, to futureproof their assets, and to reduce emissions.
- Through world-class power system modelling we can help customers finding the fastest and most cost optimal path to 100% renewable energy systems.
- With our deep understanding of power systems and future generation technologies, we support our customers on their path towards decarbonised operations.

## 2021:

- Modular energy storage platforms
- Thermal balancing power enables a rapid increase in renewables



# THE KEY STEPS TO FRONT-LOAD NET ZERO



Download our report

## Delivering customer value in service

- Our portfolio of services ranges from spare parts and technical expertise to performance-based agreements.
- Our industry leading service network is a key enabler for superior uptime, reliability and total lifecycle solutions, all of which ensure customer success.

# 2021:

- Gas conversion project in Senegal
- Minimal carbon footprint

2-5X <sup>1)</sup>

AGREEMENTS &  
PERFORMANCE-BASED  
AGREEMENTS

RETROFITS &  
UPGRADES

OPTIMISED  
MAINTENANCE

1X <sup>1)</sup>

TRANSACTIONAL

- Spare parts
- Field services

MOVING UP THE SERVICE VALUE LADDER

<sup>1)</sup> Customer spending ratio EUR/kW

## Delivering customer value through leading R&D and partnerships

- We believe that the shift to new technologies will be gradual, and there will be a need for a broad array of solutions to decarbonise marine and energy.
- Our focus will remain in developing our core technologies and through partnering we can ensure a broad solution offering for our customers.
- Wärtsilä will continue to invest a stable ~3% of net sales in R&D.

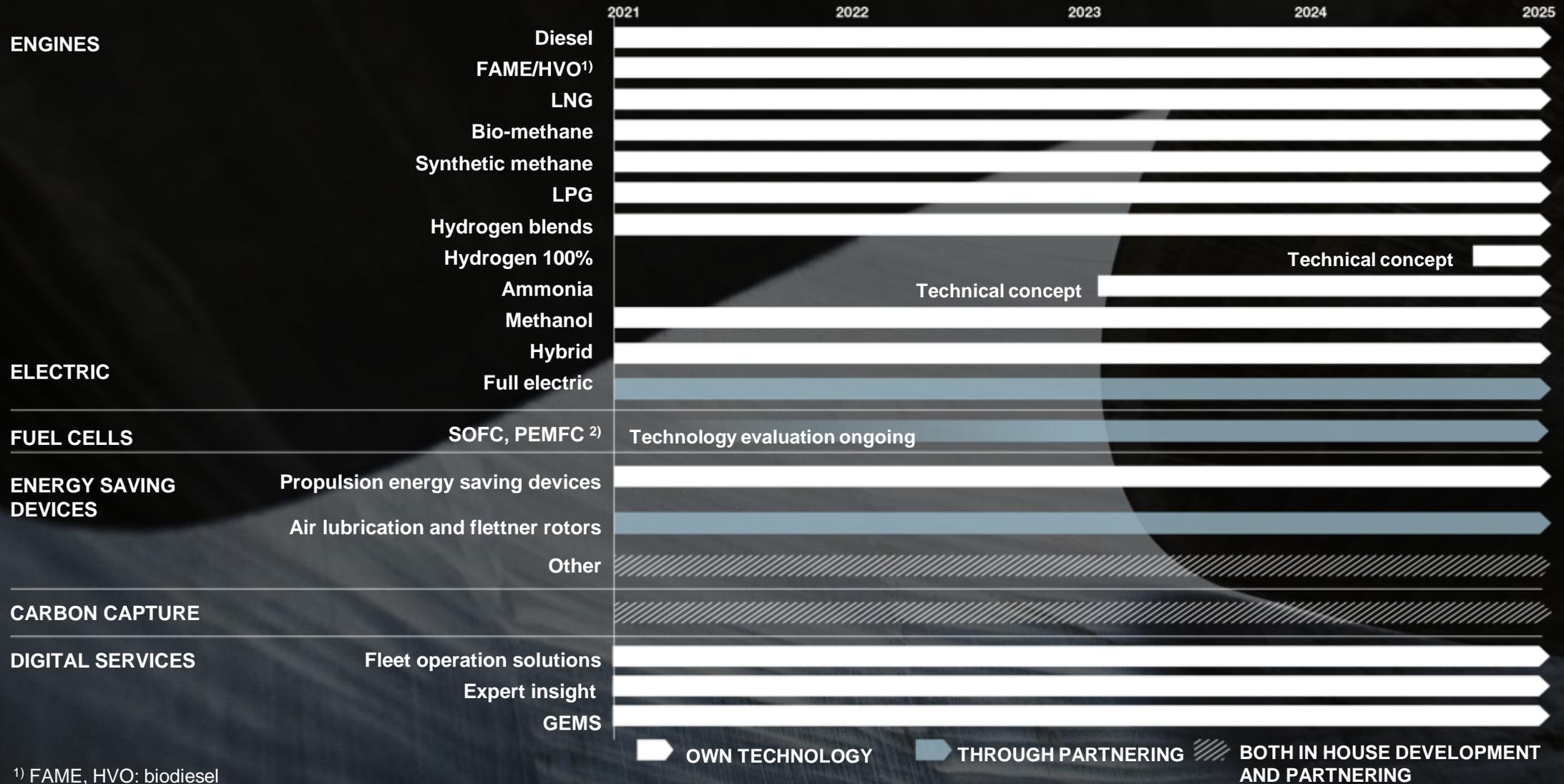
### 175 MEUR

In 2021, R&D investments amounted to 175 MEUR, representing 3.7% of net sales.

### 2,800

Patents and applications.  
Current patent portfolio in 2022: approx. 2,500 patents and 300 patent applications in 50 countries.

# Our broad solution offering supports decarbonisation



<sup>1)</sup> FAME, HVO: biodiesel

<sup>2)</sup> SOFC: solid oxide fuel cell, PEMFC: proton exchange membrane fuel cell

## Diverse teams working towards our targets

**~17,000**  
professionals

**~130**  
nationalities

**>200**  
locations world-wide

**68**  
countries

# Wärtsilä's position as a global company is reflected in the geographical breakdown of our net sales

## Net sales, geographical

**33%**  
Europe

**31%**  
Asia

**27%**  
Americas

**9%**  
Other



## Financial highlights 2021

Order intake

**5,735** MEUR

Net sales

**4,778** MEUR

Operating result

**314** MEUR

% of net sales

**6.6**

Order book at the end of the period

**5,859** MEUR

Basic earnings/share, EUR

**0.33**

## Global leader

in decarbonisation of Marine and Energy markets

FOUNDED IN

**1834**

REVENUE (EUR)

**~5BN**

ACTIVE IN

**68 countries**

OUR PERSONNEL APPROX.

**17,000**

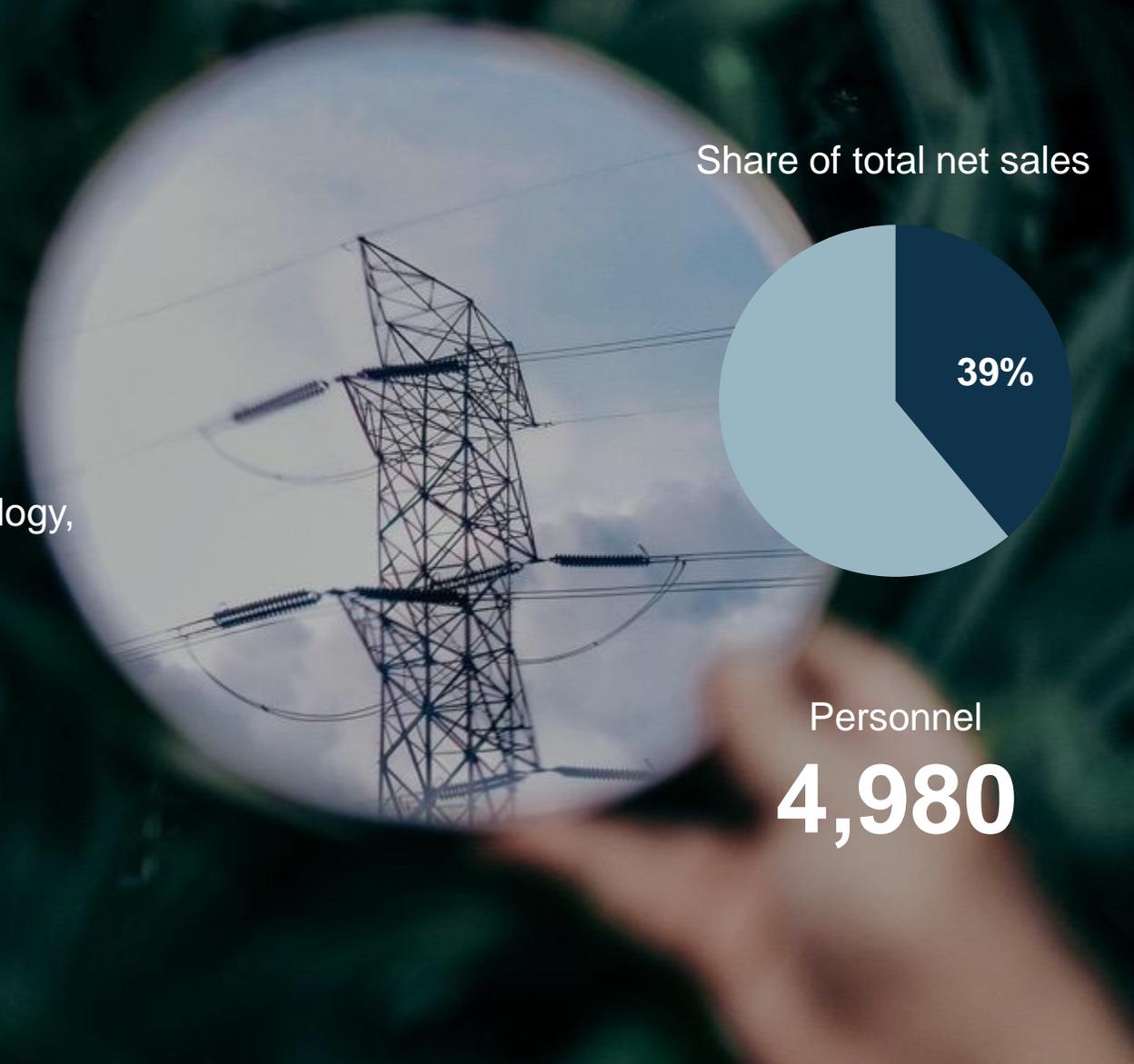


# Wärtsilä Energy

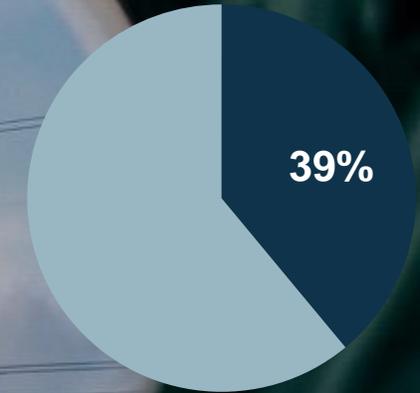


## Wärtsilä Energy

- Wärtsilä Energy leads the transition towards a 100% renewable energy future.
- We help our customers in decarbonisation by developing market-leading technologies.
- These cover future-fuel enabled balancing power plants, hybrid solutions, energy storage and optimisation technology, including the GEMS energy management platform.
- Wärtsilä Energy's lifecycle services are designed to increase efficiency, promote reliability and guarantee operational performance.



Share of total net sales



Personnel  
**4,980**

# Market trends in the energy sector

## Growing electricity demand



**Electrification** of transport, buildings and industrial sectors



Gradual **replacement** of coal and other fossil fuels



Power systems becoming increasingly more **complex**

## Technology disruption



**Renewables** growing rapidly



Increased need for **balancing** solutions



**Energy storage** growing rapidly



**Engines as balancing capacity** are competitive using sustainable fuels in the future



**Digitalisation** to optimise energy costs



**Cyber security** growing in importance

# Towards a 100% renewable energy future

The energy landscape is in transition towards more flexible and decarbonised energy systems. **We envision a 100% renewable energy future.**



# We optimise your power system for a renewable energy future



Engine power plants



Energy storage



Software and digitalisation



Lifecycle services



## Strengths & key facts

**TOP 3**

Provider globally for  
engine power plant &  
energy storage installations

**180**

Countries  
delivered to

**4 900+**

Employees

**74GW**

Power plant  
capacity delivered

**110+**

Energy storage  
installations

**14GW**

Under Service  
agreements

# Our power system modelling demonstrates a cost-optimal, reliable and rapid energy transition

**We model the cost-optimal path towards 100% renewable energy systems for customers, cities and entire countries.**

**Wärtsilä has already modelled over 150 countries and regions.**



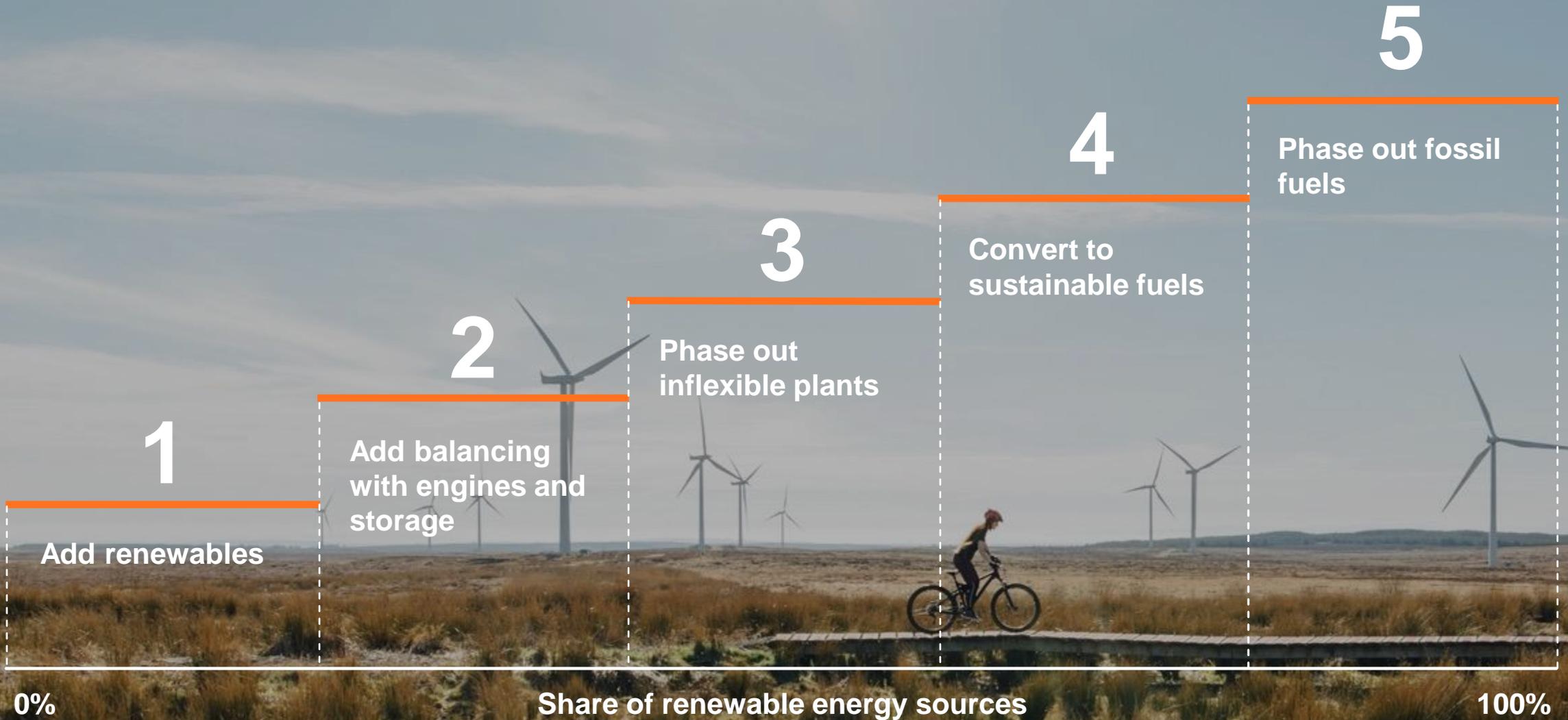
Understand operations and fundamentals of power systems

Quantify system level benefits of different generation and storage technologies

Understand and promote high quality modelling

# What are the steps for regions worldwide to reach net zero?

The path is similar everywhere.



**Decarbonisation is feasible  
with current technologies  
– and does not cost more**

**Technologies needed for a net zero  
power system**

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**Wind and solar**

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**Energy storage**

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**Engine power plants**

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**Sustainable fuels**

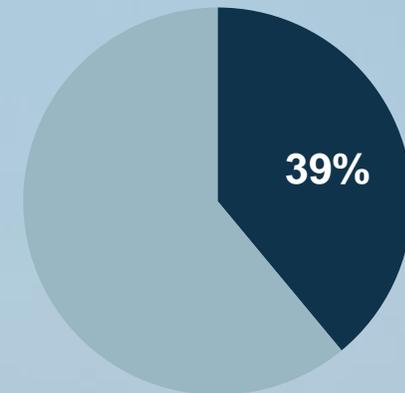
# Wärtsilä Marine Power



## Marine Power

- Wärtsilä Marine Power leads the industry in its journey towards a decarbonised and sustainable future.
- Our broad portfolio of engines, propulsion systems, hybrid technology, and integrated powertrain systems deliver the efficiency, reliability, safety, and environmental performance needed to support our customers.
- Our offering includes performance-based agreements, lifecycle solutions, and an unrivalled global network of maritime expertise.

Share of total net sales



Personnel

**8,224**



# The right solution For each vessel



Engine optimisation  
& fuel flexibility



Electrification



Energy saving  
devices



Lifecycle  
solutions

In Marine Power, we are well-positioned to

# Lead the decarbonisation transformation



Decarbonisation will transform the marine industry during a single vessel's lifespan at unprecedented pace

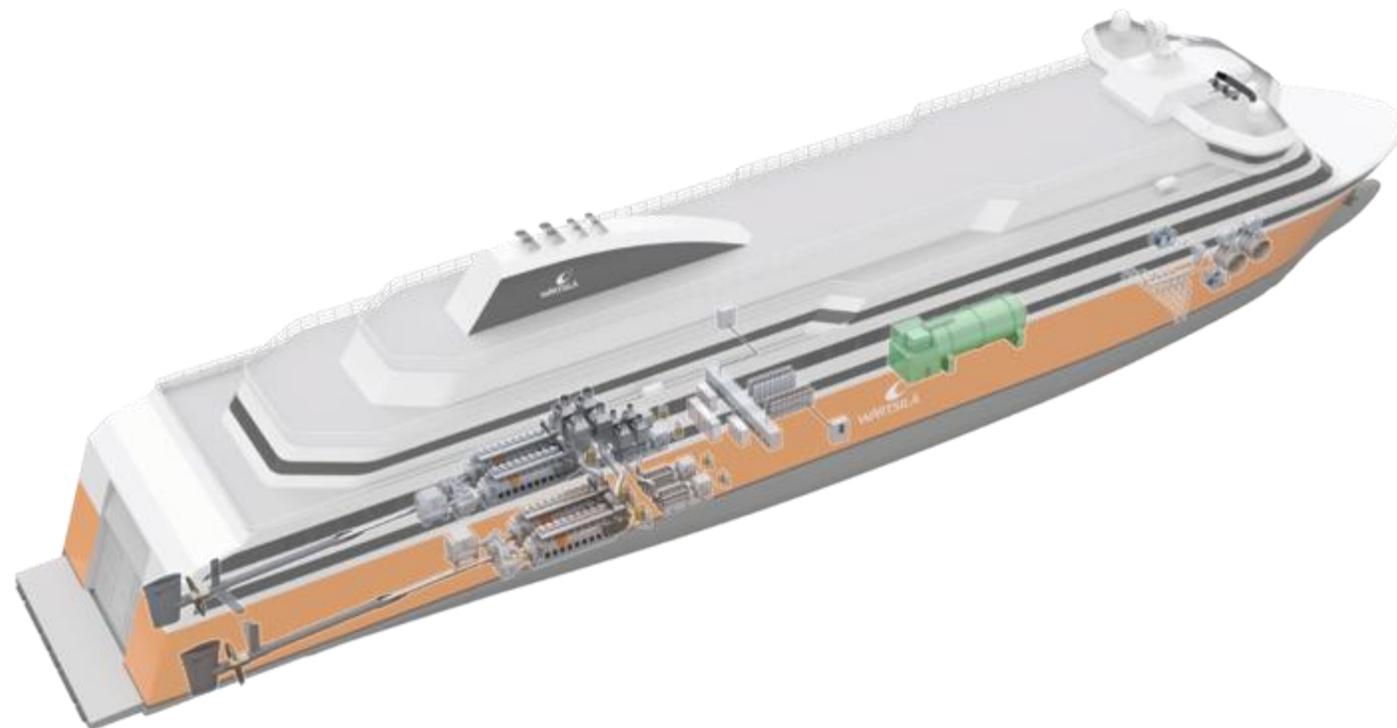


Fuel flexible engine technology takes the industry on the only upgrade path that balances decarbonisation targets with financial viability



Our services business drives stability, profitability and growth. Increased opportunities thanks to decarbonisation of the existing fleet

# Marine Power product portfolio provides upgradable solutions for a net-zero future



**Propulsion equipment**



**Multi-fuel engines**



**NOx reducers (SCR)**



**Energy & power management systems**



**Hybrid systems (including batteries)**



**Fuel gas supply systems (storage)**



**Transactional services**



**Agreements**



**Performance-based agreements**



**Project services**

**Our retrofit business has the potential to grow by 3X by 2030 <sup>1)</sup>**



**CII\* requires continuous improvement of vessel GHG performance**



**Vessels built 2010-2030 will need to evaluate options for use of alternative fuels**

## **Our offering**

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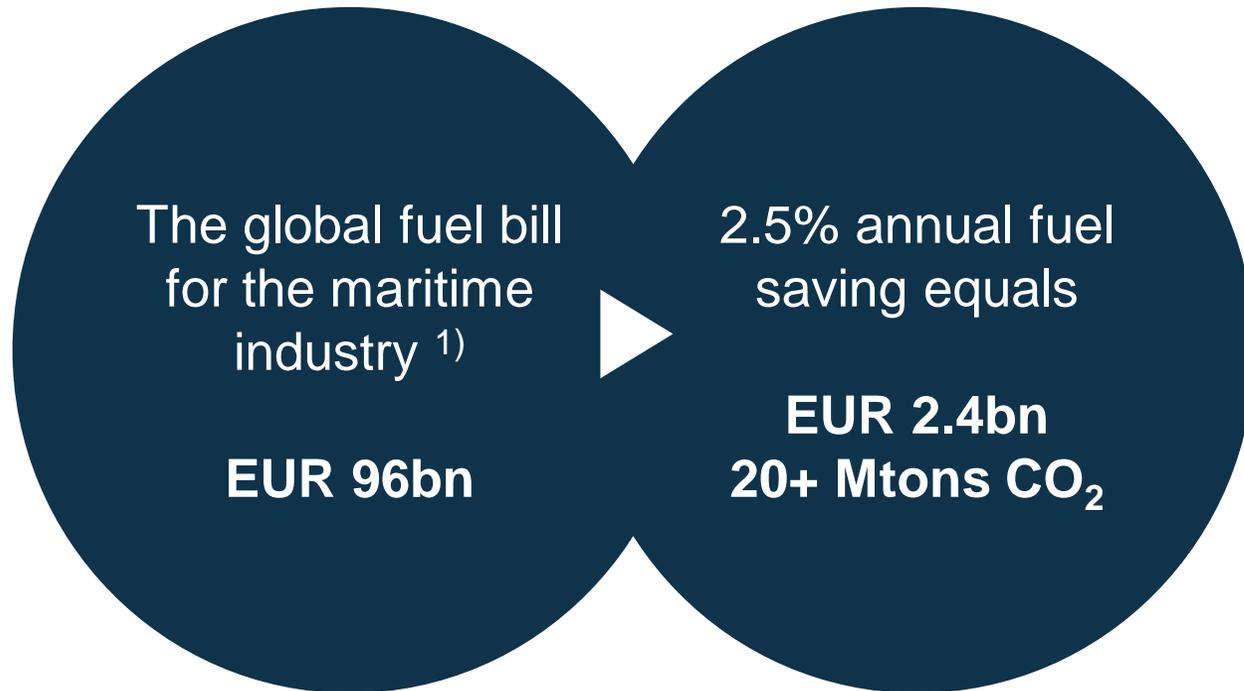
- 4-stroke**
  - Methane slip reduction
  - Fuel blending and full fuel conversion packages
- 2-stroke**
  - Technology for conversion to gas operations and methane slip reduction

**\*= Carbon Intensity Indicator**

1) subject to green fuels availability



## We have proved to our agreement customers that 2.5% fuel consumption savings are achievable



**Fuels will be more expensive in the future: maximising fuel efficiency will be of paramount importance**

**Delivering guaranteed performance is a journey with our customers**

1) estimation based on current fuel prices, not considering carbon taxation or ETS

## Key facts



The world's most extensive network of maritime expertise. In **193** locations, **53** countries



Wärtsilä's biggest business **2 Bn EUR** Net Sales, over **57,000** equipment installed in **19,000** vessels



**70,000** transactions for Parts and **3.8 Million** man hours billed for Field Services each year



Market leader in medium speed main engines  
**67 GW** of engines installed base, **17.5 GW** under agreement



Leading the path towards **decarbonisation** by developing state of the art technology and enabling adoption of clean fuels



**Top player** within controllable pitch propellers (CPP), large waterjets and steerable thrusters

## Strengths

Delivering the world's most efficient integrated powertrain system

Pioneering research & development of new technologies

Unrivalled know-how in alternative fuels & fuel flexibility

Increasing customer value through lifecycle solutions

Subject matter experts with a passion to make a difference

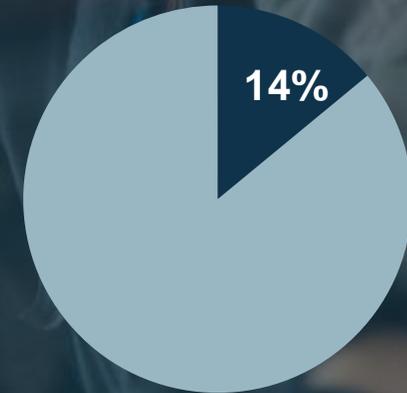
# Wärtsilä Marine Systems



## Marine Systems

- We at Wärtsilä Marine Systems support our customers with high quality products and lifecycle services related to the gas value chain, exhaust treatment, shaft line, underwater repair and electrical integrations.
- We are committed to providing the latest and most efficient solutions, in line with Wärtsilä's vision for a safe and sustainable future for our customers, our communities and our planet.

Share of total net sales



Personnel

**1,894**

# Solutions for our customers decarbonisation and optimisation journey

## Shaft line solutions

(Formerly Seals & Bearings) comprises all capabilities required to provide complete integrated shaft line solutions from its global factories and service locations to customers in its core market segments, namely navy, merchant and cruise.

-  Zero leakage
-  Lifecycle services and support
-  Remote monitoring
-  Reliability optimisation

## Gas solutions

Service provider for the gas value chain, covering cargo handling systems for gas carriers, liquefaction and gasification systems, fuel systems and alternative engine configuration fuels. Renewable gas systems with solutions for biogas upgrading and liquefaction.

-  Decarbonisation
-  Lifecycle services and support
-  Remote monitoring
-  Operational efficiency

## Exhaust treatment

Exhaust gas cleaning technology is an economical and environmentally friendly solution for addressing all existing and anticipated rules and regulations. Our scrubber systems are designed to provide flexibility and reliable operations wherever customers operate.

-  Decarbonisation
-  Lifecycle services and support
-  Digital solutions
-  Reliability optimisation

## Marine electrical systems

Offers comprehensive electrical turnkey solutions to selected niche segments, such as navy and super yachts, assuming responsibility for the entire project from basic design to commissioning.

-  Complex Project Execution
-  Lifecycle services and support
-  Flexibility



## CCS

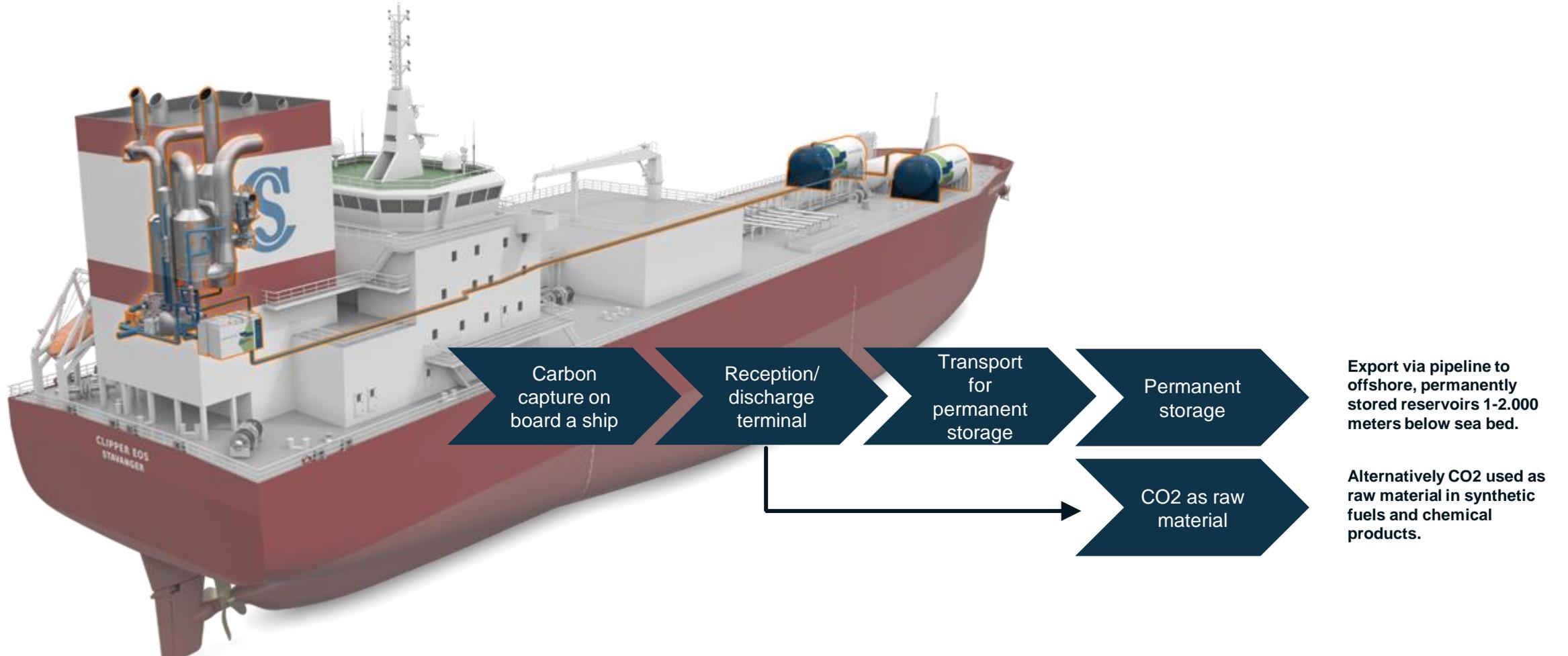
### Carbon Capture Storage

Wärtsilä sees the potential for exhaust gas abatement systems to directly tackle maritime carbon dioxide (CO<sub>2</sub>) emissions soon.

As technology advances it enables manufacturers to design and upgrade scrubbers to capture carbon at the point of exhaust.

We have installed a 1MW pilot plant at our test facility in Moss, Norway to test our CCS technologies in a range of scenarios and conditions.

# The Carbon Capture ecosystem



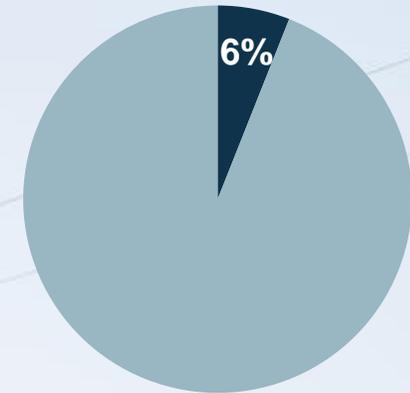
# Wärtsilä Voyage



## Wärtsilä Voyage

- Wärtsilä Voyage is radically transforming how vessels perform their journeys and ports manage their operations by leveraging the latest digital technologies.
- Using data and AI-driven software, we help instantly optimise shipping operations, enhance safety and reduce CO2 emissions.
- Our solutions combine bridge infrastructure, cloud data services, decision support systems, and smart port solutions to enable shore-to-shore connectivity and continuous flow of cargo, across the whole marine and ports ecosystems.
- We are committed to building an end-to-end digital infrastructure for shipping where all vessels and ports are integrated, and all operations are safe and sustainable.

Share of total net sales



Personnel

**1,725**

## The maritime industry taking massive strides towards **decarbonisation**.

We deliver real-time insights into vessel efficiency, voyage and port operation optimisation, to help **reduce fuel consumption and the impact on the environment**.



Our solutions are key contributors to operational efficiency and emissions reduction that can be put to use **already today.**

**REDUCED FUEL CONSUMPTION**  
= Reduced emissions

**10 tonnes**<sup>1)</sup>

of fuel consumption savings were made by our customer in a single voyage with our **fleet optimisation and voyage planning solution** that helped identify identifying inefficient behaviour and provided actionable insights.

**REDUCED PORT CONGESTION**  
= Reduced emissions

**15%**<sup>2)</sup>

of the entire shipping's fuel consumption and 160 million tonnes of CO2 are expelled due to long anchorage time —**port call optimisation** and Just-in-Time arrivals can hugely help reduce this unnecessary loss.

**SMARTER INLAND CONNECTIONS**  
= Reduced emissions

**25%**<sup>3)</sup> increase

in short sea cargo shipping is targeted by the EU by 2030, and by 50% before 2050, as waterways are the greenest among all transportation modes. **Autonomous technology** will lead this transition.

**READINESS FOR GREEN TECHNOLOGY**  
= Reduced emissions

**Over 1.65 mn**<sup>4)</sup>

seafarers serving on merchant ships alone who would need to be prepared for new greener technologies. **Simulation and cloud training** can help make this shift smoother, faster and more cost-effective.

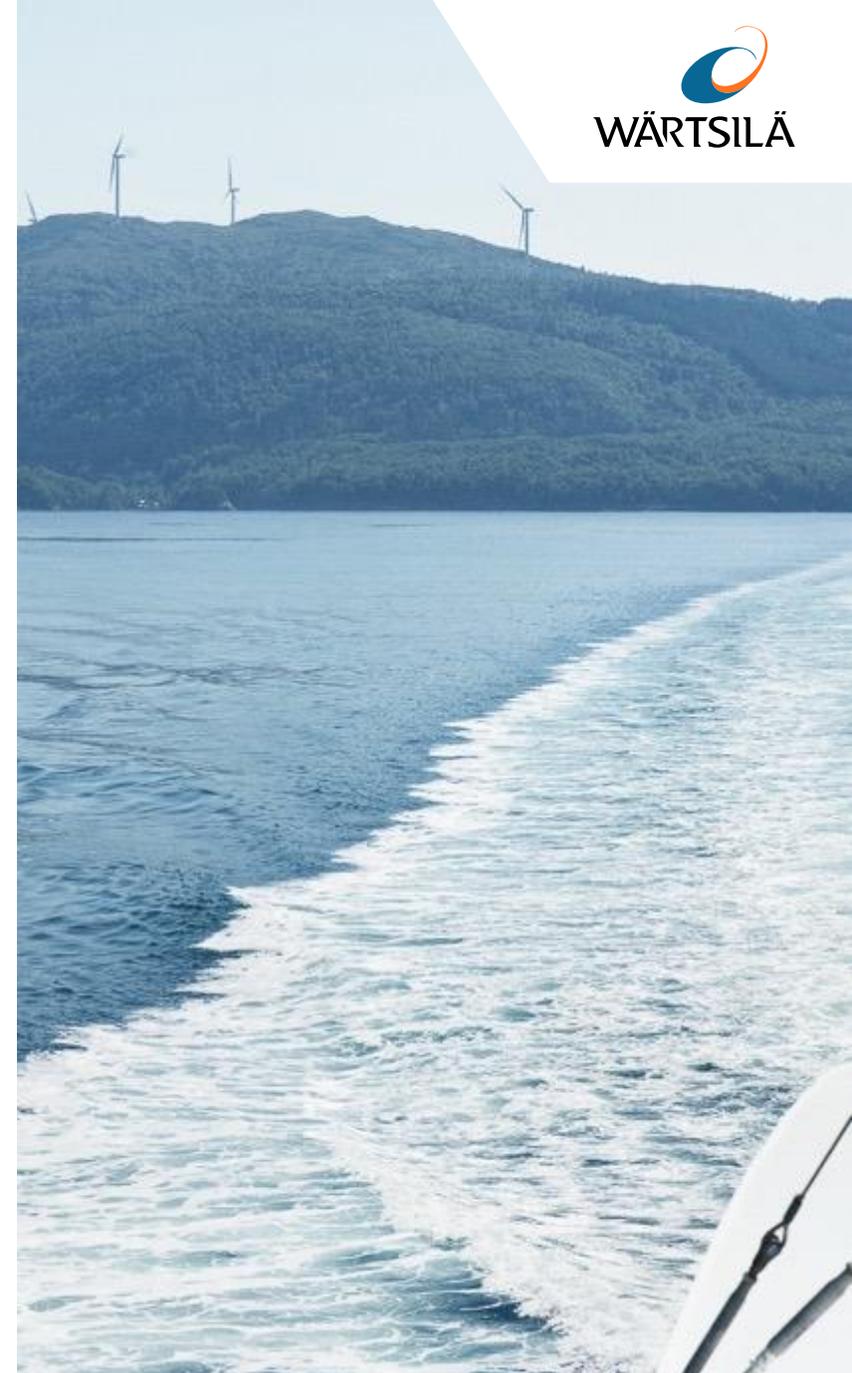
Footnote (links to data source):

1) [Wärtsilä Insights](#) 2) [MaritimeTraffic](#) 3) [European IWT](#) 4) [International Chamber of Shipping](#)

## A smooth transition to carbon neutrality demands across industry collaborations.

We are working together with industry partners to unlock shipping's future.

1. Developing an **autonomous barge for Project MAGPIE** (sMArt Green Ports as Integrated Efficient), an EU funded International Alliance, headed by the Port of Rotterdam.
2. Industrialising **marine IoT and Edge technology with Microsoft**.
3. Co-developing next-generation smart port solutions with **Singapore MPA** (Maritime and Port Authority).
4. Enhancing **smart weather routeing with Weathernews Inc** (WNI), the world's largest private weather routeing provider.
5. Supporting China's intelligent vessel standards and **smart tug technology with Tianjin Port Group and China Class Society**.
6. Delivering **next-gen Cloud Simulation Training with Ocean Technologies Group**.



# Solutions for a shore-to-shore connected shipping and logistics ecosystem



## HELPING MANAGE:

- **The Vessel:** automation, navigation and training
- **The Voyage:** optimisation and fleet management
- **The Port:** vessel traffic and port call optimisation

## Strengths & key facts

**11 000+**

vessels find the best routes  
with our **ECDIS**

**350+**

ports ensure traffic safety  
and operational efficiency  
with our **port solutions**

**12 000+**

vessels left inefficiencies behind  
with our **automation systems**

**45%**

of market share in simulation  
and training solutions, making  
us **the market leader**

**24/7**

global service and remote  
maintenance, **minimise  
downtime and costs**

**Lifecycle solution  
& management**

to ensure **reliability for spare  
parts, auto software updates, easy  
upgrades, and future scalability**

## Pick & Choose section

- Please use this section freely to pick and choose whatever slides you feel ties your presentation well together.
- The slides are divided into sections depending on what topic they cover
- Consider showing a video in the beginning of your presentation: This is Wärtsilä (video link)
  - Note that a stable internet connection is required

This is Wärtsilä



Founded in

**1834**

Active in

**68** countries

Revenue (EUR)

**~5BN**

Our personnel approx.

**17,000**

## Portfolio simplification - Value unlock through divestment

### Businesses for divestment

- American Hydro
- Water & Waste

### Businesses divested in 2020 and 2021

- Valves
- Jovyatlas
- ELAC Nautic Business
- Euroatlas
- Entertainment Business
- Tank Control Systems

## Ambitious decarbonisation targets for 2030

To provide a product portfolio which will be ready for zero carbon fuels

To become carbon neutral in our own operations

# We act responsibly towards our stakeholders and the environment

## SUSTAINABILITY STRATEGY AND TARGETS

Strong focus on  
decarbonisation

## HIGH ETHICAL STANDARDS

Values and Code of  
Conduct program

## DEFINED PROCESSES

Certified QEHS  
management systems

## TRANSPARENCY

Sustainability reporting  
according to GRI standards

## RECOGNISED SUSTAINABILITY WORK

I.a. DJSI and  
FTSE4Good indices

# Wärtsilä's climate and environmental actions



## COLLABORATION

Joining forces with stakeholders in climate and environmental action



## SYSTEM LEVEL SOLUTIONS

Improving and optimising overall efficiency and lowering emissions at system level



## PRODUCTS AND SERVICES

Offering innovative technologies and lifecycle solutions with high efficiency and low emissions



## OPERATIONAL MEASURES

Carbon neutrality goal and continual environmental improvements



## R&D

Developing sustainable and future proof technologies

## Shaft line solutions

Leading experts in Shaft Line Solutions, offering a comprehensive portfolio of products, integrated Shaft Line Solutions, underwater services and complete aftermarket services

### KEY FACT

**30,000** vessels worldwide have Shaft Line Solution installations



Reliability



Lifecycle support



Remote monitoring



Zero leak

## Gas solutions

Wärtsilä's gas solutions bring carbon neutral or transition fuels to the market and minimise emissions from the gas value chain. By doing so, Wärtsilä helps customers on the journey towards a sustainable future through a focus on lifecycle support innovation, and digitalisation.

### KEY FACT

**500** gas solution projects, almost **3,000** inert gas systems and **45** biogas solutions delivered by Gas Solutions



Decarbonisation



Lifecycle solutions



Remote monitoring



Operational efficiency

## Exhaust treatment

Wärtsilä Exhaust Treatment provides abatement technologies for the marine industry and is the market leader. We develop solutions that go beyond the current marine sector regulatory framework addressing current and future environmental challenges.

### KEY FACT

**650 exhaust gas cleaning** projects delivered by Exhaust treatment



**Decarbonisation and  
towards zero emission**



**Optimisation for  
reliability**



**Lifecycle services**



**Digital solutions**

## Marine electrical systems

Wärtsilä Marine Electrical Systems is an integrator of all electrical systems onboard vessels. MES forms an integral part of customers' design and building processes from early planning until the delivery of the vessel.



Flexibility



Complex Project  
Execution



Lifecycle service

# Marine power offers customers a solution to present challenges and an upgrade path to the future

## CORE STANDALONE PRODUCTS



Engines



Propulsion

+

## KEY COMPLEMENTARY TECHNOLOGIES



Catalysts  
(NOx reduction)



Fuel Gas  
Supply Systems



Electrical & Power  
Management Systems

+

## LIFECYCLE SOLUTIONS



Part services

Field & workshop  
services

Retrofit & upgrade  
services

Maintenance  
agreements

Performance based  
agreements

## AN UPGRADE PATH TOWARDS DECARBONISATION



Fuel flexibility



Hybrid power



IMO target compliance