

# Wärtsilä

Shaping the decarbonisation of marine and energy  
Roadshow presentation

February 2025





# Wärtsilä – Shaping the decarbonisation of marine and energy

Wärtsilä simplified the Group structure from 1st January 2024 onwards with two main businesses:

## Marine

Our offering of engines, propulsion systems, hybrid technologies and integrated power transmission systems and related services support our customers in moving towards carbon neutrality.

## Energy

We support the change towards a future where electricity is produced with 100% renewable energy by offering grid-balancing power plants, hybrid solutions, energy storage and optimisation technology.

## Committed to financial targets

### Net sales

5% annual organic growth

### Profitability

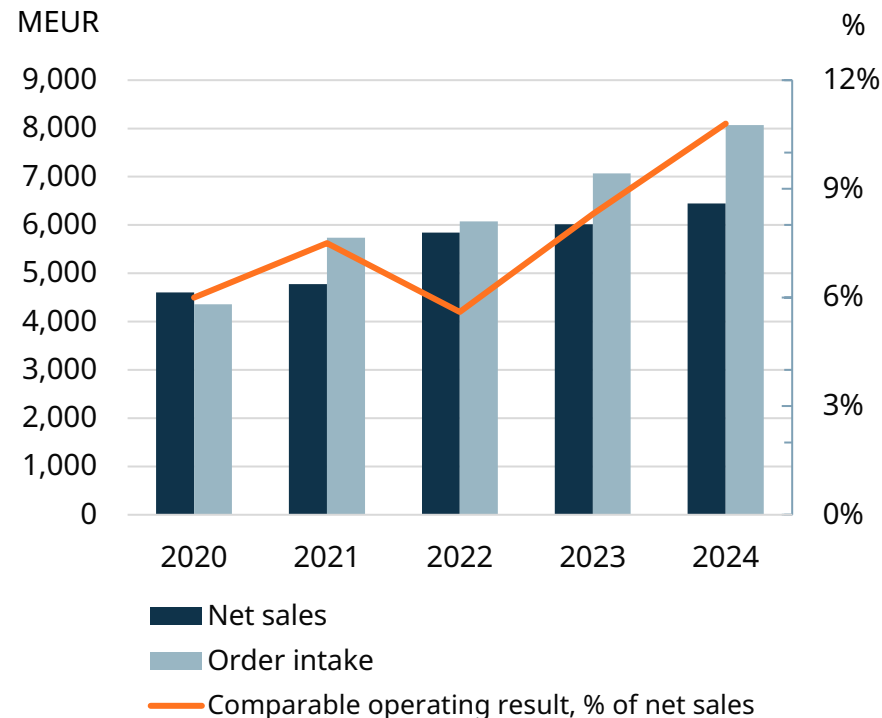
12% operating margin

### Capital structure

Gearing below 0.50

### Dividend

Distribute a dividend of at least 50% of earnings



## Key growth opportunities

- ⊕ ⊕ ⊕ **Energy Storage & Optimisation:** Fast growing demand for power system optimisation solutions
- ⊕ ⊕ **Marine newbuild driven by decarbonisation:** Uptake of solutions ready for sustainable fuels and recovery in passenger and offshore segments
- ⊕ **Moving up the service value ladder in Marine and Energy:** Continuous growth in agreement coverage, decarbonisation-driven retrofits
- ⊕ **Energy Engine Power Plants new build driven by balancing and baseload:** Gradual shift to renewables
- ⊖ ⊖ **Portfolio Business divestments**

## Strong track record in innovations

**Investing ~4% of net sales on R&D yearly**

**Today:** engines run on biofuels, methanol, pure hydrogen fuel engine concept, pure ammonia fuel engine concept



# Market fundamentals



## Accelerated decarbonisation targets are shaping the marine industry

### POLICIES AND REGULATIONS

- IMO<sup>1</sup> target: to reach net zero greenhouse gas emissions from international shipping by or around 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: a growing market driven by corporate carbon reduction pledges

### TECHNOLOGY

- Focus on carbon-neutral and zero-carbon fuels. The switch to these fuels will be progressive
- Next steps in abatement technologies, e.g. maritime carbon capture
- Increase in battery systems, hybrid solutions, and energy-saving technologies
- Focus on fuel flexibility and upgradeability to increase overall efficiency

### CONNECTIVITY AND DATA

- Optimisation solutions based on a holistic view of the entire transport system
- Performance-based service agreements with a focus on uptime, reliability, and fuel efficiency
- Vessels are data pools, and are becoming increasingly complex
- Cyber security growing in importance

1) International Maritime Organization



## Accelerated decarbonisation targets are shaping the marine industry

### POLICIES AND REGULATIONS

- EU: Climate-neutral by 2050
- USA: Carbon-free electricity production by 2035, net zero emissions by 2050
- China: Carbon neutral by 2060
- Countries with net zero targets cover 88% of global emissions

### TECHNOLOGY

- Renewables becoming the main source of energy
- Intermittent energy sources requiring balancing solutions
- Sustainable fuels for balancing power
- Digitalisation creates opportunities for optimising energy use and costs
- Cyber security growing in importance

### CONNECTIVITY AND DATA

- Electricity generation would need to grow by almost 3x, and renewables by 8x to reach Net Zero targets by 2050 (Source: IEA World Energy Outlook 2024)
- Renewables-based electricity generation is expected to overtake coal-fired production in 2025 (Source: IEA Renewables 2024 report)
- Power systems becoming increasingly complex with different types of generation assets



# Our value creation potential is based on two strategic themes

**Transform** – attractive growth opportunities at the center of the decarbonisation transformation

**Perform** – clear path for operational improvements and increased profitability

# Significant milestones reached in strategy execution

Good performance since 2021

## Transform

- **Market leader in:**
  - 4-stroke medium speed main engines
  - Engine power plants
  - Marine hybrid solutions
- **Technology leader** in green fuels
- **Pioneer** in marine carbon capture & storage
- **Significant growth** since 2021:
  - +39%<sup>1)</sup> in service net sales
  - +33%<sup>1)</sup> in equipment net sales

## Perform

- **Good growth in service agreements** by leveraging digital solutions
- **Improved quality of new build order book margins**
- **Turned Energy Storage & Optimisation to profit**
- **Divested businesses and optimised footprint**
- **Revitalised team and organisation**

**Clear path to 12% operating margin**

1) Compared to 2024



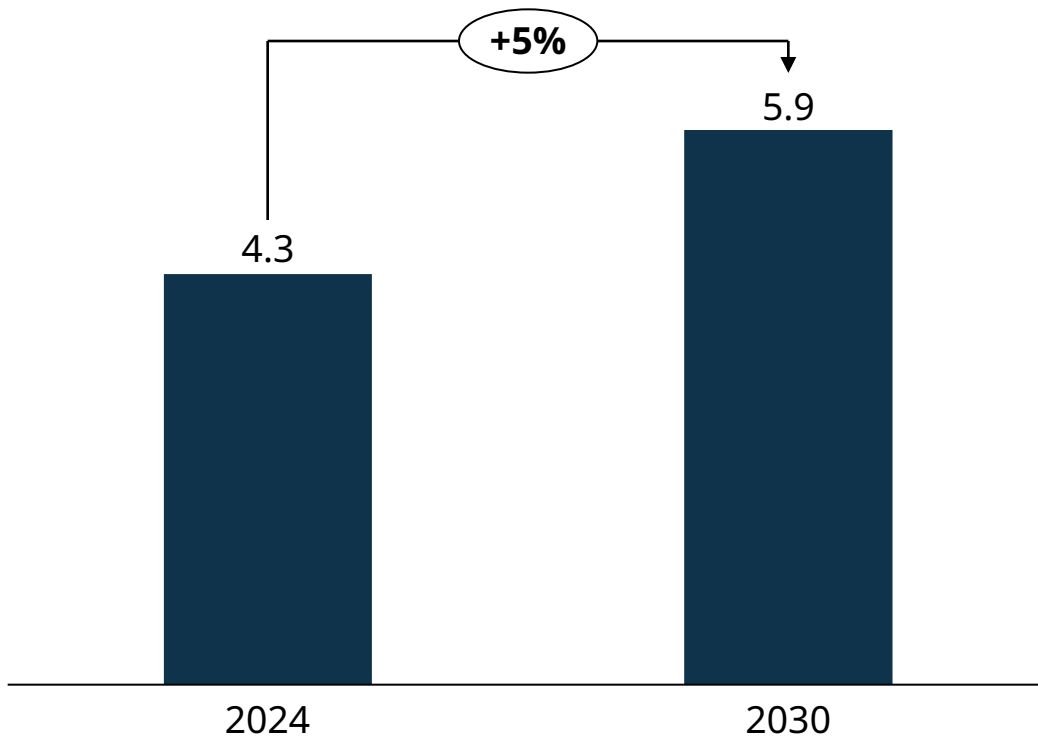


**Transform –  
attractive growth opportunities at the center of the decarbonisation transformation**

# Strong market fundamentals and the decarbonisation transformation will support profitable growth in Marine business

## Key target segments

Annual newbuild contracting of 4-stroke medium speed main engine-powered units (GW)<sup>1</sup>; CAGR



- **IMO MEPC 80** has adopted a **revised strategy** to reduce GHG emissions by 20% by 2030, 70% by 2040 and to net-zero by 2050
- **In the EU**, regulatory landscape will **double fuel costs** up to 2030<sup>2)</sup>
- **Small but growing market for green transport** driven by corporate carbon reduction pledges
- Switch to **carbon neutral and zero carbon** fuels will be **progressive**
- **Drop-in fuels, hybrid solutions and abatement technologies** will be **key** to reach short-term reduction targets
- Long-term reduction targets will require a **fundamental shift towards sustainable fuels and abatement solutions**

1) Source: Clarksons September 2024 forecasts; 2) Fishing, dredgers, support units, yachts, tugs, etc.; 2) assuming 5,000 tons/year VLSFO consumption subject to Fit for 55, VLSFO at 550 EUR/ton; EU allowances from 100 EUR/ton today to 230 EUR/ton in 2050

# Wärtsilä is a global technology and service leader in shaping the decarbonisation of marine

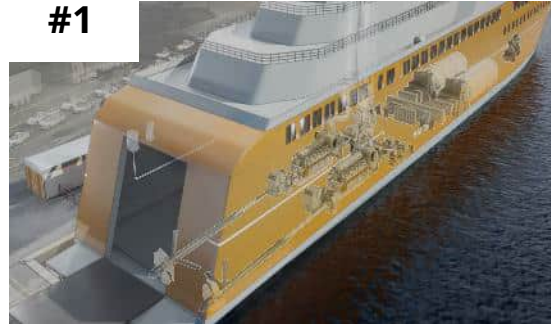
#1



## Industry leading medium speed engine offering

- Biofuels and methanol available already today
- Product industrialisation for ammonia ongoing
- Fuel conversion packages for both 4-stroke and 2-stroke engines available already today

#1



## Industry leading hybrid solutions

- Hybrid-electric to challenge 2-stroke engines as prime-mover for LNG carriers
- 6% more cargo space, 10% lower fuel consumption<sup>1)</sup>
- Lower maintenance costs compared to 2-stroke

Pioneer



## Pioneer in carbon capture & storage

- Complementary technology to engines
- EUR ~10bn market opportunity in the next 10 years<sup>2)</sup>
- Commercial release in 2025, CCS-ready scrubbers available already today

+60%  
of net sales<sup>3)</sup>



## Global services network to ensure maximum uptime & fuel efficiency

- Transactional: spare parts & field services
- Enhanced support & technical management agreements
- Optimised maintenance & guaranteed asset performance leveraging digital solutions

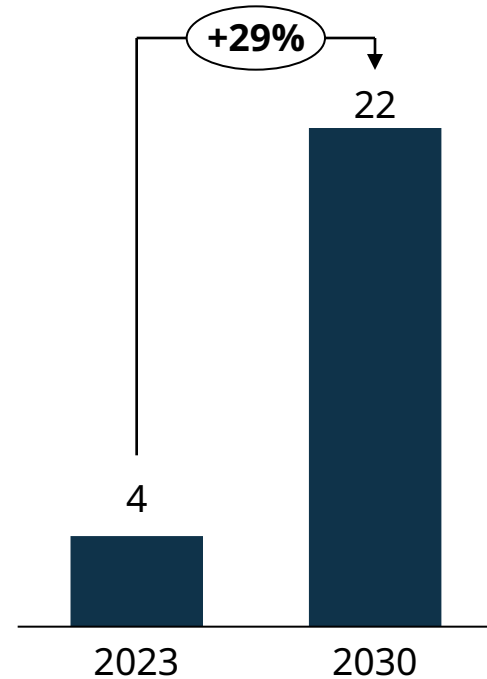
Source: CMD 2023, 1) example on 174,000 cbm LNG carrier 2) estimated market size for newbuild and retrofit 3) 2024 (Marine)



# The increasing share of renewables and need for balancing power will support profitable growth in Energy business

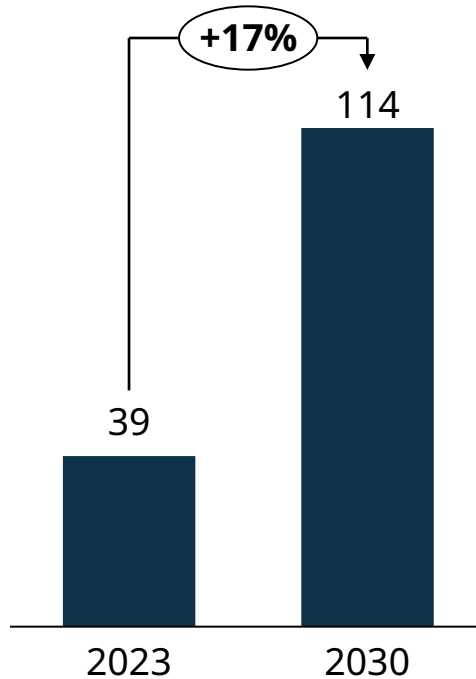
## Thermal balancing

Addressable market<sup>1)</sup>  
GW; CAGR



## Energy storage

Addressable market  
GWh; CAGR



- **Thermal balancing** market is **expected to grow +4X by 2030** driven by accelerating intermittent baseload. US is an important market for thermal balancing
- Power generation related **regulatory changes support uptake of thermal balancing** (US Federal and State bills, EU electricity market reform and China market reform)
- **Sustainable fuels together with flexible engine power plants balance grids in an affordable and sustainable way**, also for longer shortages in intermittent renewable generation
- **Energy storage incentives in the US** (IRA investment and production tax credits) **support** the energy storage market **growth**. Local regulatory changes in general support the uptake of energy storage

1) Wärtsilä Engine Power Plants theme call for investors 12/2024. Sources: BNEF, Wärtsilä estimates

# Wärtsilä is a global leader in engine power plants. Good track record of growth and profitability improvement in Energy Storage & Optimisation



## Industry leading engine power plants<sup>1)</sup>

- Superior operational flexibility through fast ramp-up/ramp-down compared to gas turbines
- Fuel conversion packages available already today
- Hydrogen 25 vol% blend available already, 100% hydrogen-ready engine power plant launched in 2024



## Among top players in energy storage

- Focus on profitable growth
- Reliable partner with high bankability
- Highest safety standards (recent milestone in passing UL 9540A requirements)
- Leading software (GEMS) for power system optimisation



## Global services network to ensure maximum uptime & fuel efficiency

- Transactional: spare parts & field services
- Maintenance & operational support
- Guaranteed performance services
- Outcome-based agreements, including decarbonisation services, leveraging digital solutions

1) units >5MW 2) 2024



# To support accelerated profitable growth of Energy Storage & Optimisation, we have launched a strategic review of the business

- Energy storage market is expected to grow rapidly, **addressable market to grow ~3X from 2023 to 2030**
- Wärtsilä Energy Storage & Optimisation has **grown +30X<sup>1)</sup> since the acquisition of the business and is now profitable**
- Strategic review has been launched to **accelerate profitable growth of the business in a way that benefits customers and creates value for Wärtsilä shareholders**
- **All potential alternatives will be considered.** Such alternatives could include different ownership options of the business from continued full ownership to potential full or partial divestment of the business or other possible strategic alternatives
- **No commitment to a particular timeline** is given. Wärtsilä will disclose the progress and conclusions of the review according to applicable disclosure laws and regulations
- **Wärtsilä continues to develop and invest** in Energy Storage & Optimisation and **remains fully committed to its customers** throughout the strategic review

1) 2024 vs. 2016 net sales



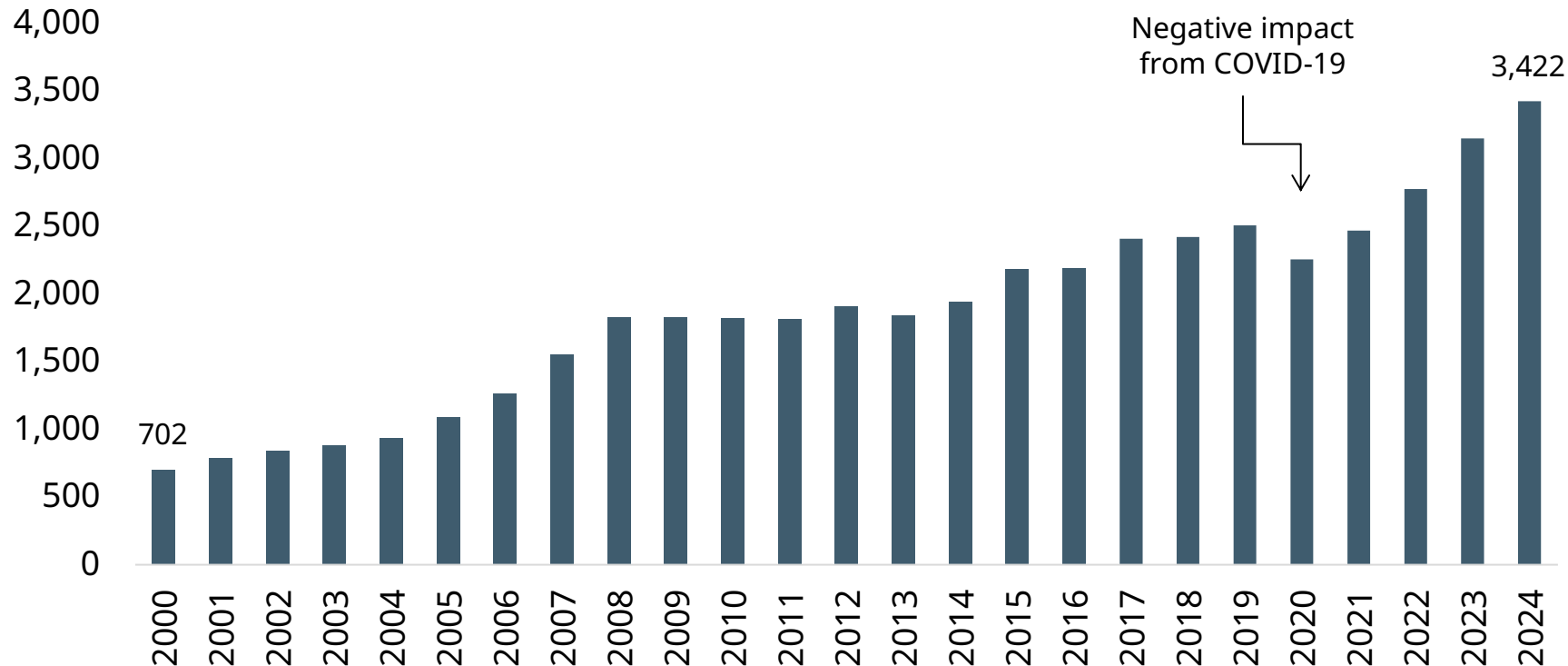


**Perform –**  
clear path for operational improvements and increased profitability



# Service has provided resilient sales and profits for Wärtsilä over decades

## Service Net Sales, EURm<sup>1)</sup>



**>€3.4bn**

service net sales in 2024 with good future growth potential

**~30%**

of installed base covered by service agreement at the end of 2024

**>90%**

LTM renewal rate of existing service contracts in 2024

1) Service net sales as reported in Annual Reports 2000-2024. 2000-2018 service was reported as its own division and from 2019 onwards as a part of the other reporting segments. Figures reflect the data as per the organisation structure at each point in time and is not adjusted for changes such as acquisitions

# We continue to execute our services strategy on all steps of the service value ladder



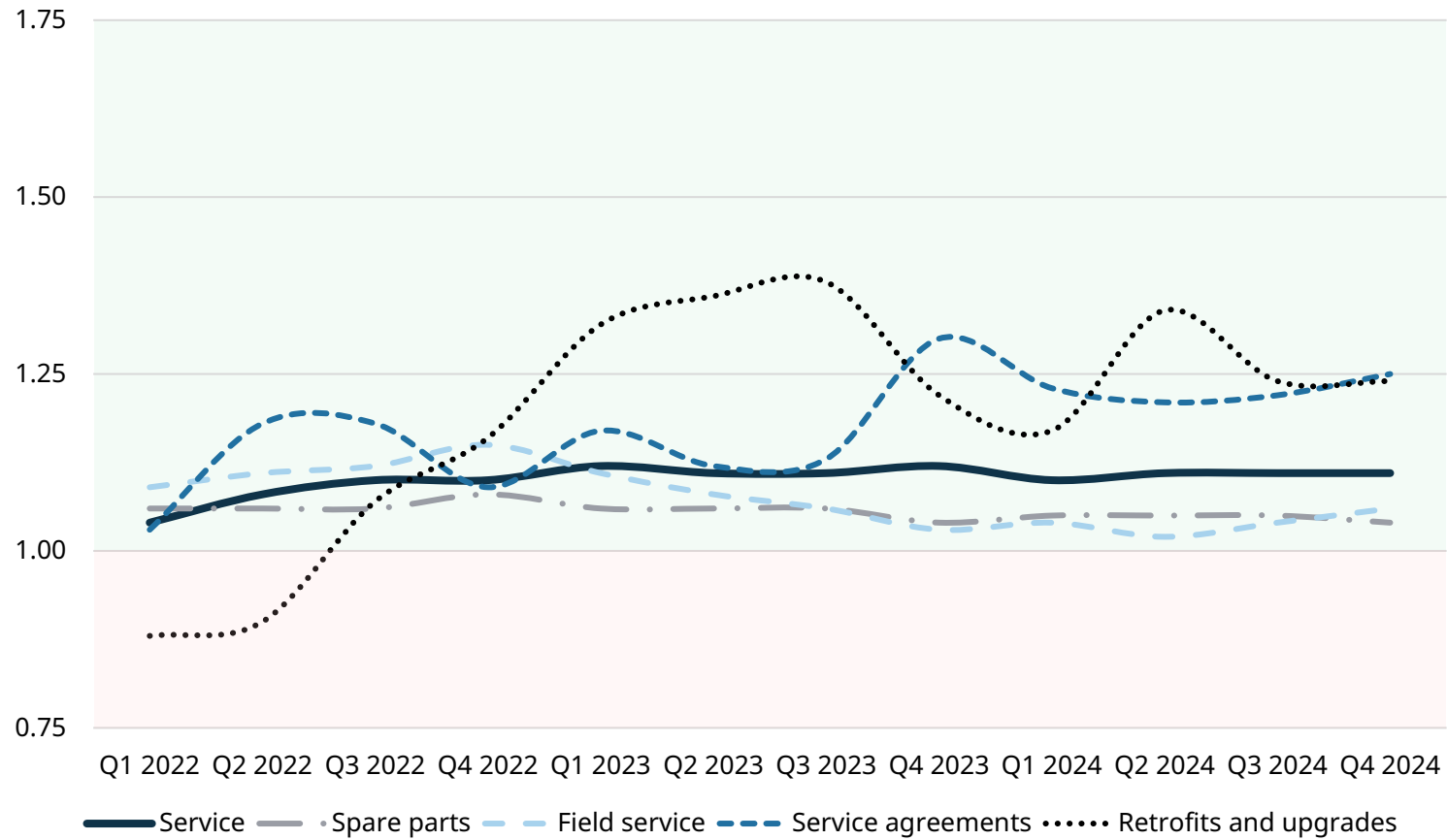
- Our installed base of medium speed engines is increasing
- ~30% of installed base<sup>2)</sup> is under service agreements with further growth potential
- Moving up the service value ladder – agreements and performance-based agreements have 2–5X spend ratio (EUR/kW) relative to transactional services
- Total investments in Marine retrofits, including Carbon Capture and Storage solutions (CCS), are estimated to be EUR 15–20bn over the next decade<sup>3)</sup>

1) customer spend ratio EUR/kW 2) 4-stroke engine MW 3) Source: Clarksons, incl. ESTs, CCSs, and engines, excl. hybrids and offshore



# Book-to-bill shows growth for service

12m rolling book-to-bill<sup>1)</sup>

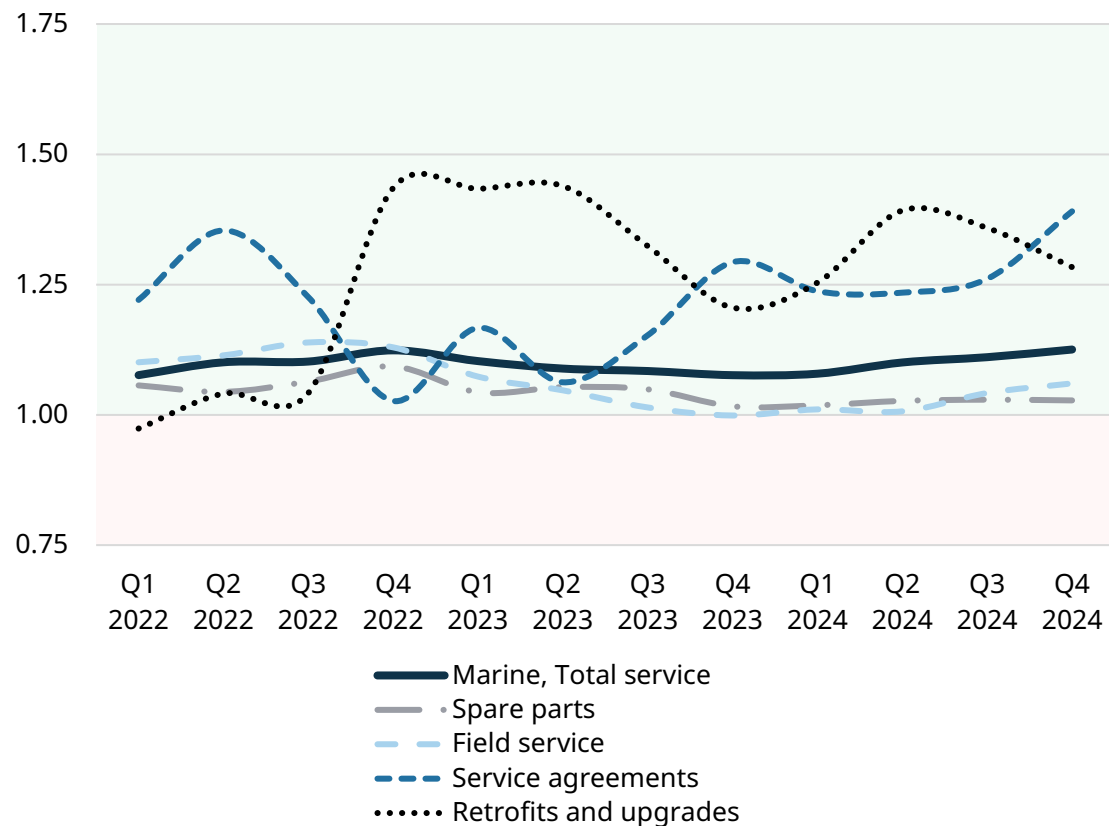


1) 2023 data restated to reflect the redefined organisational structure as of 1 Jan 2024. Figures prior to 2023 reflect the data as per the organisation structure at each point in time and is not adjusted for changes such as acquisitions.

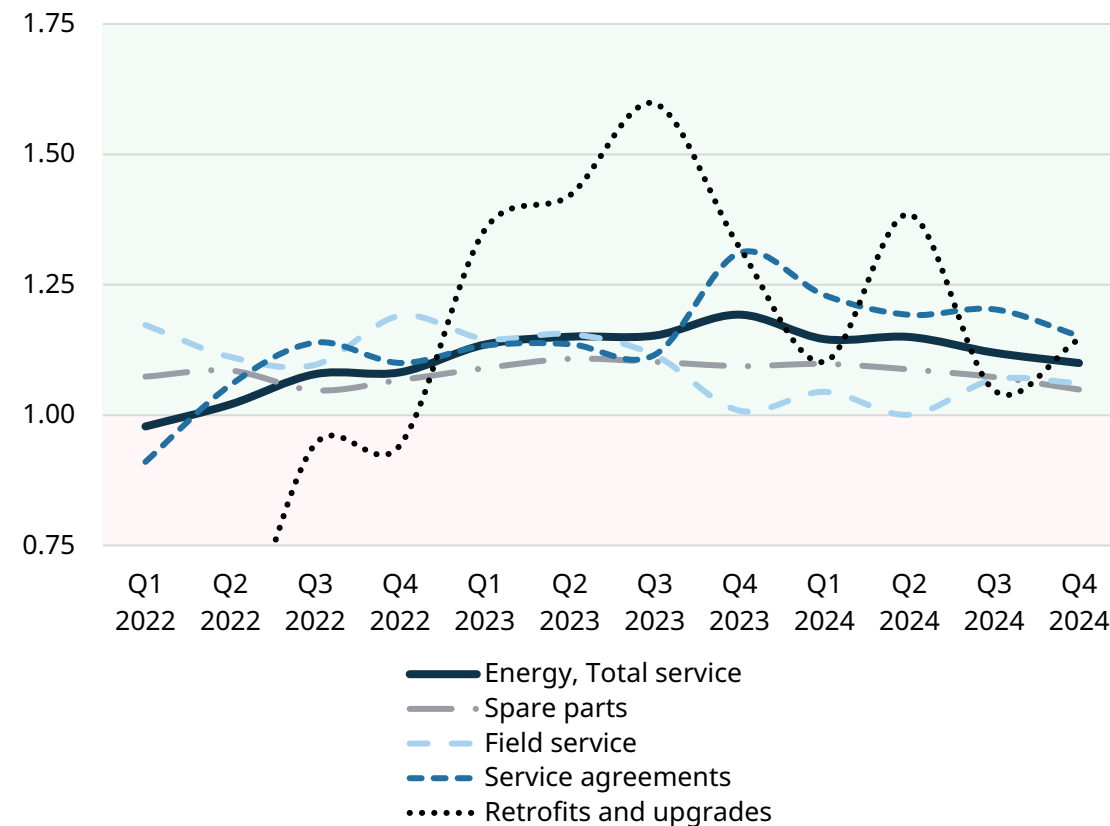


# Rolling 12-month book-to-bill's above 1 for all service categories in both Marine and Energy

**Marine, 12m rolling book-to-bill<sup>1)</sup>**



**Energy, 12m rolling book-to-bill**



1) 2023 data restated to reflect the redefined organisational structure as of 1 Jan 2024. Figures prior to 2023 reflect the data as per the organisation structure at each point in time.

# Strong commitment and a clear path to reach our financial targets

**12%**

Operating margin

**5%**

Annual organic growth

**<0.5**

Gearing

**≥50%**

Dividend of earnings



# Energy transition and decarbonisation driving our >5% organic growth target

LTM Q3/2023 net sales EUR 6.1bn

## Drivers of net sales growth<sup>1)</sup>

Share of  
absolute growth

- **Energy Storage & Optimisation**

⊕ ⊕ ⊕

- Fast growing demand for energy storage and power system optimisation solutions

- **Marine newbuild driven by decarbonisation**

⊕ ⊕

- Uptake of solutions ready for sustainable fuels, and recovery in passenger and offshore segments

- **Moving up the service value ladder in Marine and Energy**

⊕

- Continuous growth in agreement coverage
- Decarbonisation-driven retrofits

- **Energy Engine Power Plants new build driven by balancing and baseload**

⊕

- Gradual shift to renewables
- The focus on offering equipment rather than EPC decreases revenue expectations but improves our risk profile

- **Portfolio Business divestments**

⊖ ⊖

- Gas Solutions, ANCS, Water & Waste, and Marine Electrical Systems

1) drivers' consideration includes the transfer of Shaft Line Solutions and Exhaust Treatment to Marine and Gas Solutions to Portfolio Business

# Services and decarbonisation key drivers towards 12% operating margin

LTM Q3/2023 operating margin 6.0%<sup>1)</sup>

## Drivers of improved profitability<sup>2)</sup>

## Share of absolute improvements

- |  |       |
|--|-------|
| ▪ <b>Moving up the service value ladder in Marine and Energy</b>               | ⊕ ⊕ ⊕ |
| ▪ <b>Marine new build driven by decarbonisation</b>                            | ⊕ ⊕   |
| ▪ <b>Energy Engine Power Plants new build driven by balancing and baseload</b> | ⊕ ⊕   |
| ▪ <b>Energy Storage &amp; Optimisation</b>                                     | ⊕     |
| ▪ <b>Portfolio Business divestments</b>  | ⊕     |
| ▪ <b>Continuous improvement</b>  | } >0  |
| ▪ <b>Cost inflation &amp; related price adjustments</b>                        |       |

1) excluding EUR 40m provision related to Olkiluoto 1 and 2 nuclear projects taken in Q4/2022 (discontinued nuclear business) as well as EUR 19m provision taken for a single sizeable turnkey project in Gas Solutions in Q2/2023 (discontinued turnkey business) 2) drivers' consideration includes the transfer of Shaft Line Solutions and Exhaust Treatment to Marine and Gas Solutions to Portfolio Business

# We continue to actively manage our business portfolio

## Automation, Navigation & Control Systems to be divested

- Wärtsilä has agreed to divest its Automation, Navigation and Control System (ANCS) business to the Swedish investment company Solix Group AB.
- ANCS is a global leader in innovative hardware and software technologies for marine navigation and automation.
- Wärtsilä acquired ANCS in 2015 as part of Marine Systems International. In 2024, the annual revenue of ANCS was close to EUR 230 million.
- Subject to approvals, the transaction is expected to be completed in the second quarter of 2025.

## Portfolio Business

Plan to divest. Timeline subject to internal separation & turnaround

- Water & Waste
- Marine Electrical Systems
- Automation, Navigation & Control Systems
- Gas Solutions

<b>2024</b>	<b>Group total</b>	<b>Group total excl. Portfolio Business</b>
Net sales, EURm	6,449	5,743
Comparable operating margin	10.8%	11.5%
Operating margin	11.1%	11.6%



# Profitability drivers

## + Supporting drivers

- Continued decarbonisation in both the energy and marine markets
- Good service performance
- Strong order book both in new equipment and services
- Profitability improvements in Energy Storage and former Voyage Business
- Improved capacity utilisation
- Continuous improvement

## + / - Uncertainties

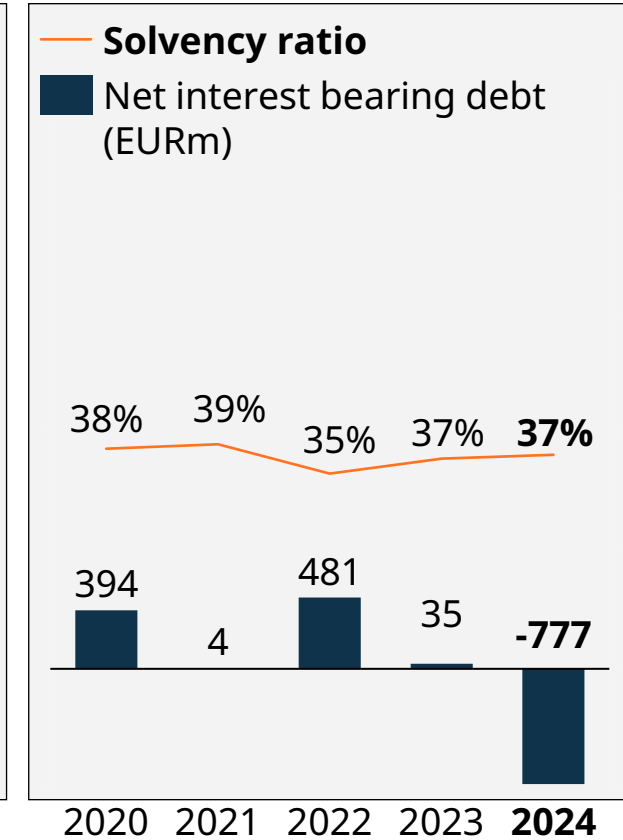
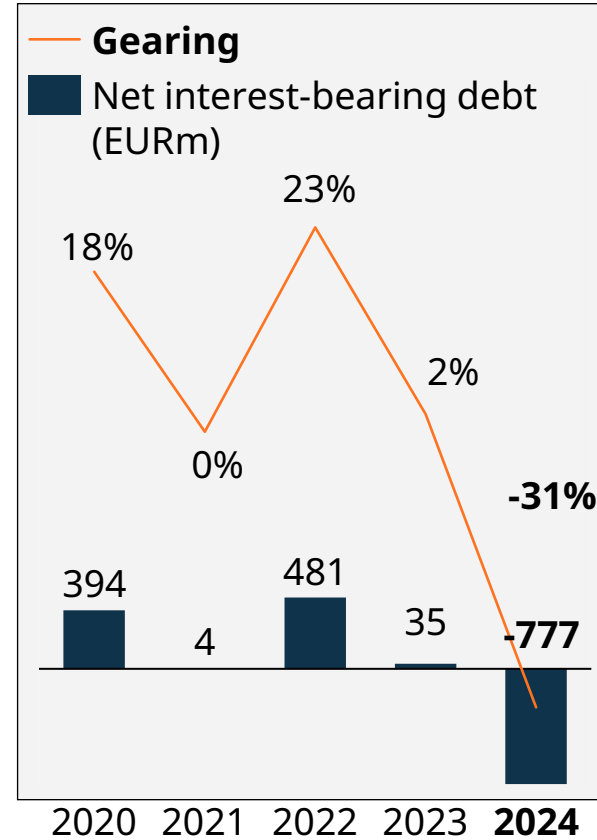
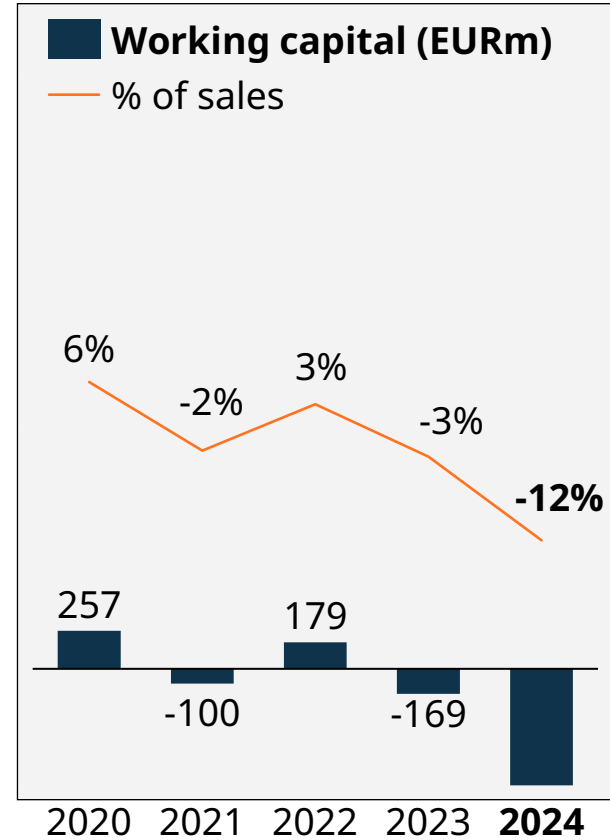
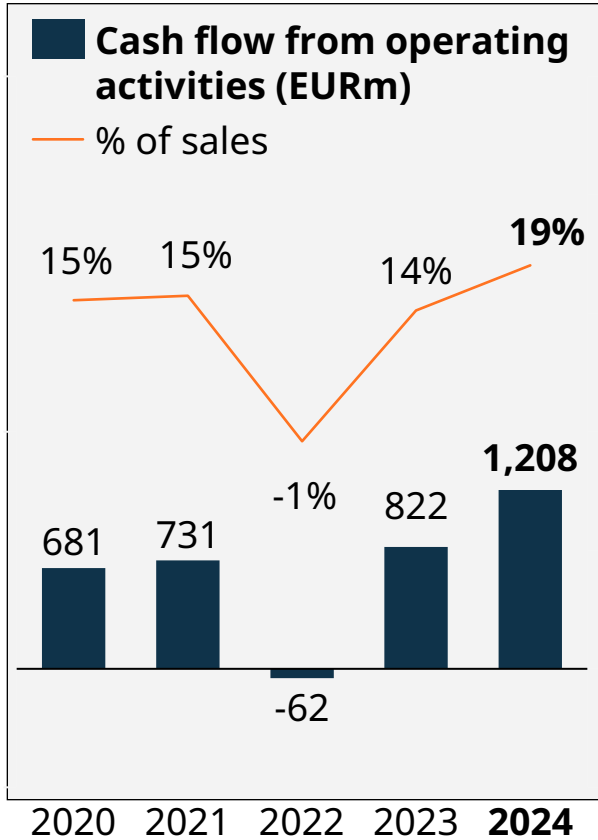
- Geopolitical tensions
- Potential trade restrictions / trade wars
- Recession risk

## - Negative factors

- Wage inflation
- Negative mix impact from increasing equipment deliveries



# Strong balance sheet and financial position to support strategy execution



Strong cash flow development from 2022 level



Continued good working capital development



Strength to make strategic investments

Source: CMD 2023, updated with 2024 data.

The Wärtsilä Way sets the scene for profitable growth. We reconfirm our financial targets

# THE WÄRTSILÄ WAY

## ◎ Purpose

Enabling sustainable societies through innovation in technology and services

## ◎ Target position

Shaping the decarbonisation of marine and energy

- 5% annual growth
- 12% operating margin
- To become carbon neutral in own operations and to provide a product portfolio which will be ready for zero carbon fuels by 2030

## ◎ Strategic priorities

Roadmap to improve performance and reach Target position

## ◎ Execution plan

What to do – tactics & operations, updates yearly

## ◎ Values, leadership and continuous improvement

Customer success, Passion, Performance



# The strategic priorities are the key levers to improve our performance and reach our target position

1

## **Excel in creating customer value**

We continuously evolve our understanding of, and responsiveness to, our customers to make them successful

2

## **Develop high performing teams that make a difference**

We attract high performing people and excite diverse teams that excel in continuous learning and collaboration. Our leaders provide direction and support, empowering people to act

3

## **Drive decarbonisation in marine and energy**

We accelerate decarbonisation in marine and energy through innovation, focused investments and selective partnerships, while also decarbonising our own operations. We provide optimisation solutions and are a thought leader in our industries

4

## **Capture growth in services**

We excel in transactional and retrofit business. We move up the service value ladder by growing in performance-based agreements

5

## **Continuously improve our end-to-end value chain**

We continuously improve our end-to-end business to meet customer expectations on quality, lead time and delivery accuracy, while reducing complexity and improving competitiveness. We leverage digitalisation throughout our value chain

# Marine highlights

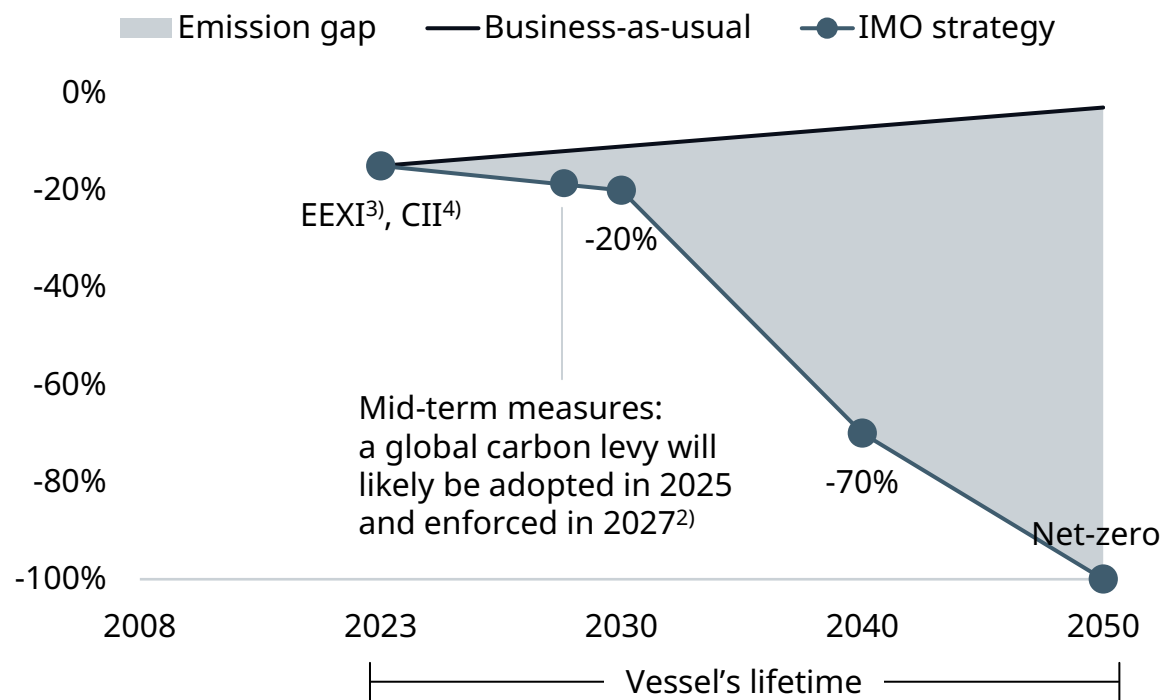


# After IMO net-zero commitment in 2023, the regulatory focus has moved to “mid-term measures”

For vessels operating in EU waters, fuel cost may double due to emission fees up to 2030, compared to 2023

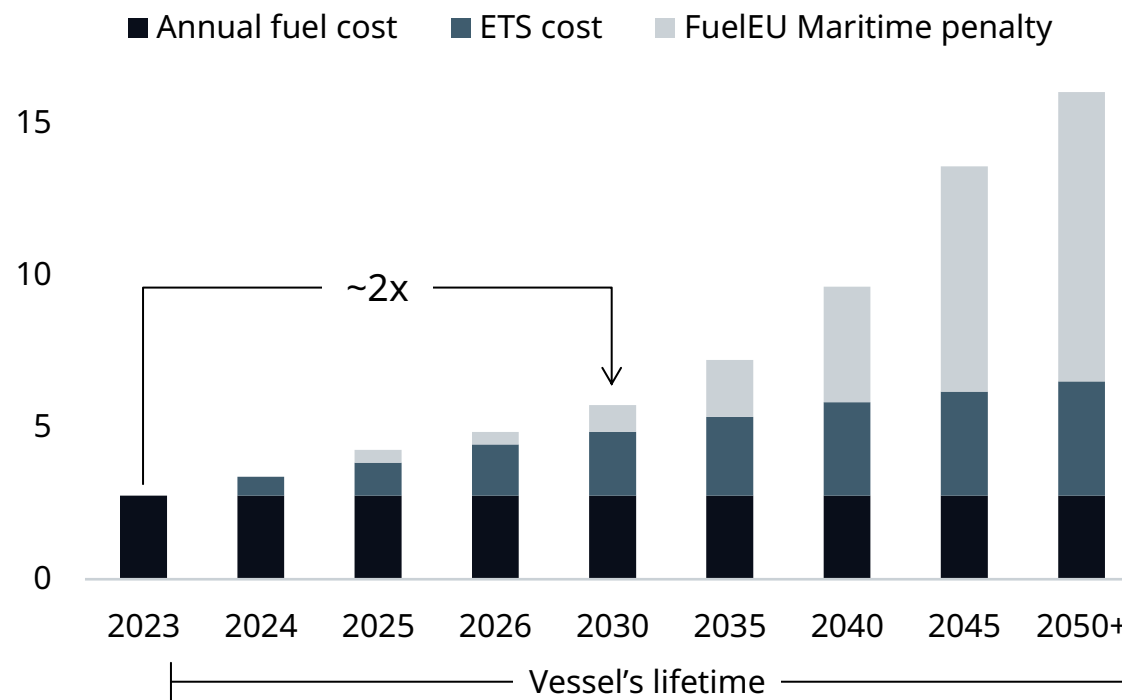
## IMO GHG Strategy<sup>1)</sup>

GHG emission reduction % vs 2008



## EU Fit-for-55

Fuel-related costs for Handymax bulker operating in EU, EURm<sup>3)</sup>



1) Source: IMO; data refers to well-to-wake Green House Gases (GHG) emissions; 2) E.g., goal-based marine fuel standard, GHG emissions pricing mechanism; 3) Assuming 5 000 tons/year VLSFO (Very Low Sulphur Fuel Oil) consumption subject to EU Fit-for-55, VLSFO at EUR 550/ton; EU ETS allowances from EUR 100/ton today to EUR 230/ton in 2050 (source: Transport & Environment NGO)



# Decarbonisation can be reached through different pathways; net-zero targets will require a fundamental shift towards sustainable fuels

## Decarbonisation pathways

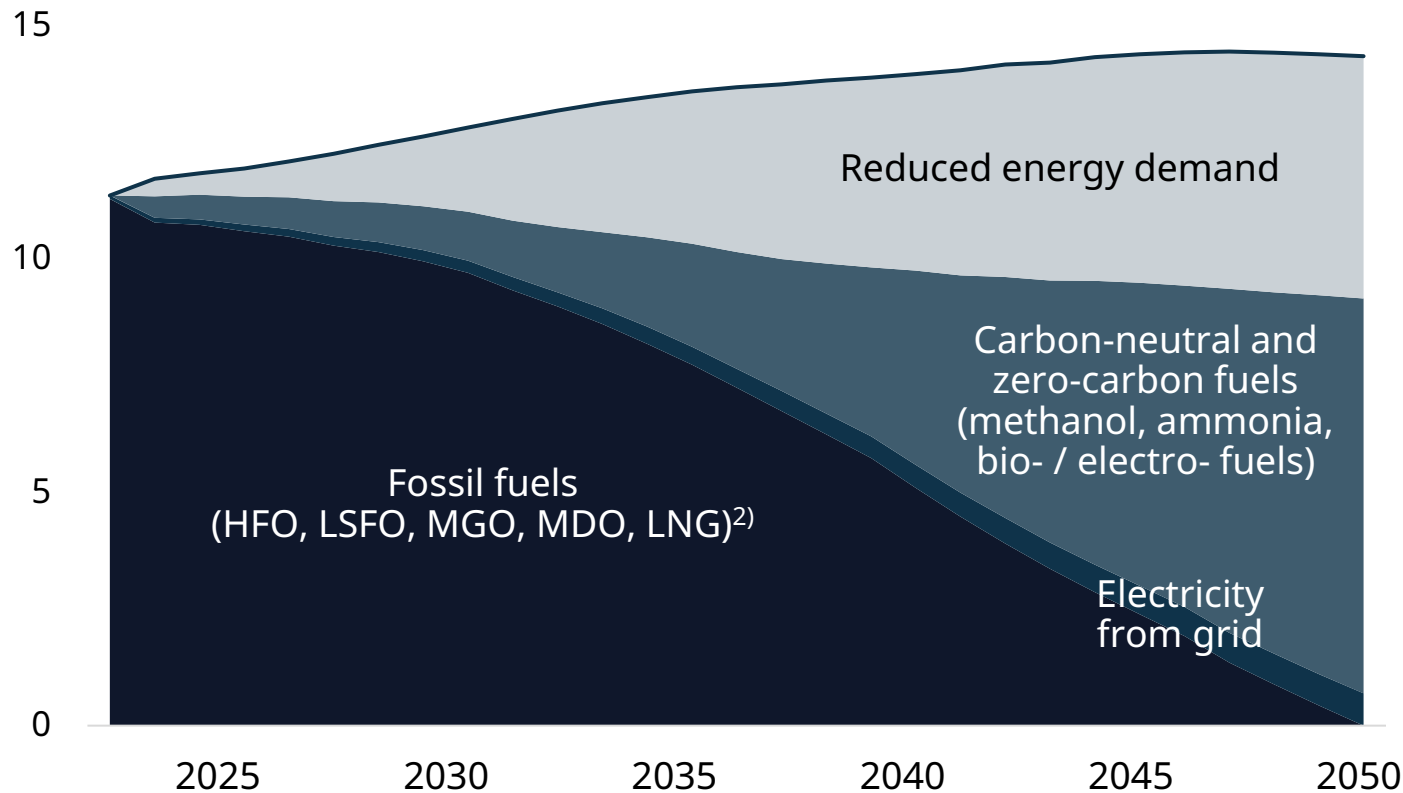
Burn less fuel <sup>1)</sup>		Clean up emissions <sup>1)</sup>	Use alternative energy sources	
Vessel efficiency	Operational efficiency	Emission abatement	Sustainable fuels	Electrification
<ul style="list-style-type: none"> <li>Reduction of GHG emissions and fuel cost</li> <li>E.g., energy efficiency improvement of engine, propulsion, hull, other systems</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of GHG emissions and fuel cost</li> <li>E.g., speed reduction, route optimisation, onboard energy management</li> </ul>	<ul style="list-style-type: none"> <li>Significant reduction of GHG emissions through onboard carbon capture, regardless of the fuel</li> <li>CO2 offloading infrastructure, onboard storage and value chain needed</li> </ul>	<ul style="list-style-type: none"> <li>Significant / total reduction of GHG emissions</li> <li>Technology available; infrastructure and supply under development</li> </ul>	<ul style="list-style-type: none"> <li>Zero GHG emissions through battery-electric propulsion</li> <li>Viable on short ranges due to low energy density</li> </ul>
<b>Approximate greenhouse gas (GHG) emission reduction potential</b>				
<b>25%</b>	<b>25%</b>	<b>70%</b>	<b>100%</b>	<b>100%</b>

1) These pathways shall be combined with the utilisation of alternative fuels to support long term IMO targets

# A progressive switch to sustainable fuels is already under way

## Sustainable fuel uptake scenario for net-zero in 2050<sup>1)</sup>

Total energy consumption, EJ



- ✓ **Fuel transition is under way:** ~50% of tonnage on orderbook is set to use alternative fuels; long-term fuel mix is dependent on supply of different fuels
- ✓ **LNG is still #1 alternative fuel.** Methanol and ammonia will pick up in the longer run
- ✓ **Hybrids, batteries, ESTs<sup>3)</sup> are growing:**
  - ~200 hybrid / full-electric 2 000+ GT vessels were ordered in 2024 (compared to 99 in 2022 and 55 in 2019)

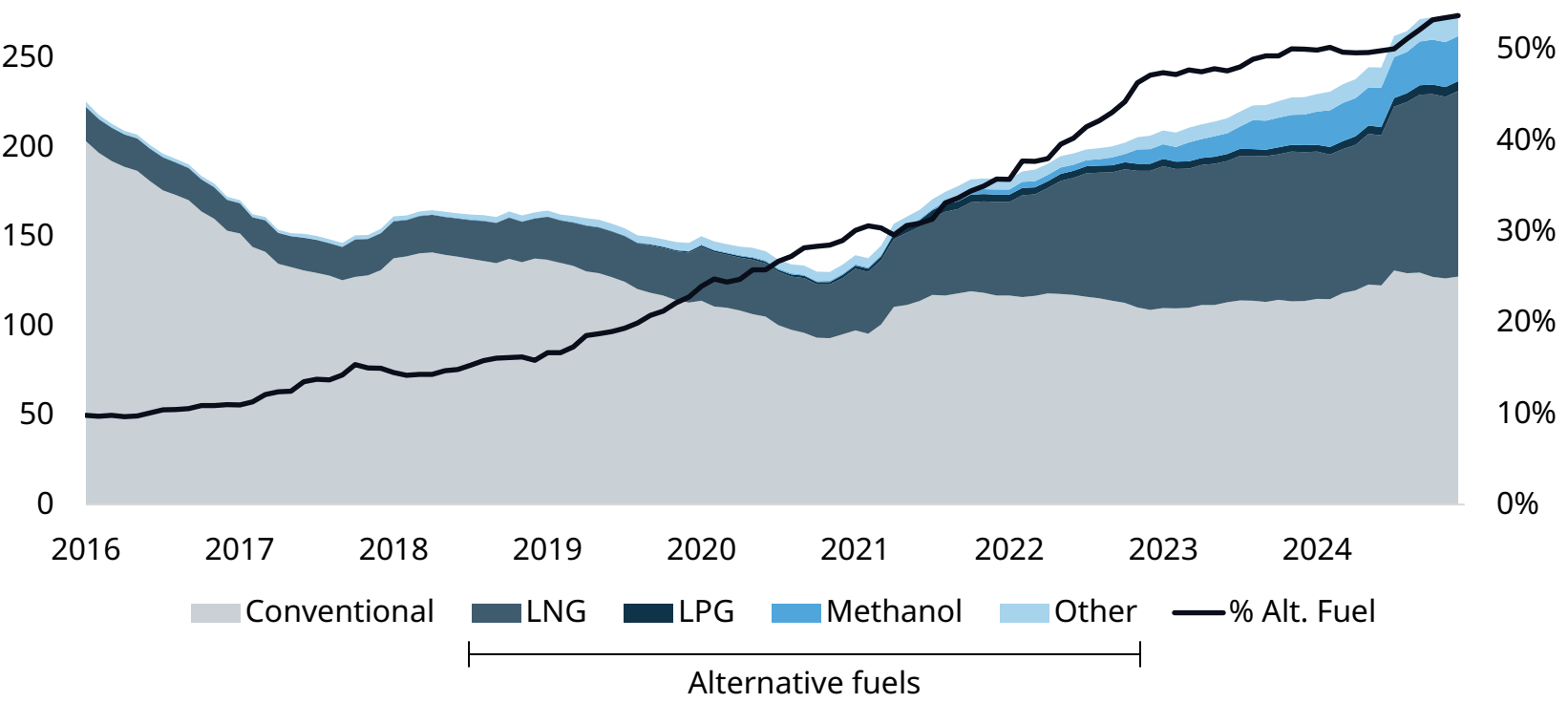
1) Source: DNV Maritime Forecast 2050; 2) HFO – Heavy Fuel Oil; LSFO – Low Sulphur Fuel Oil; MGO – Marine Gas Oil; MDO – Marine Diesel Oil; 3) Energy Saving Technology

# The regulatory changes impact maritime now: half of the total shipbuilding orderbook is set to run on alternative fuels

2024 saw the highest-ever alternative fuel capable vessel ordering, excluding gas carriers

## Alternative fuels uptake

Orderbook by fuel type, mGT<sup>1)</sup>



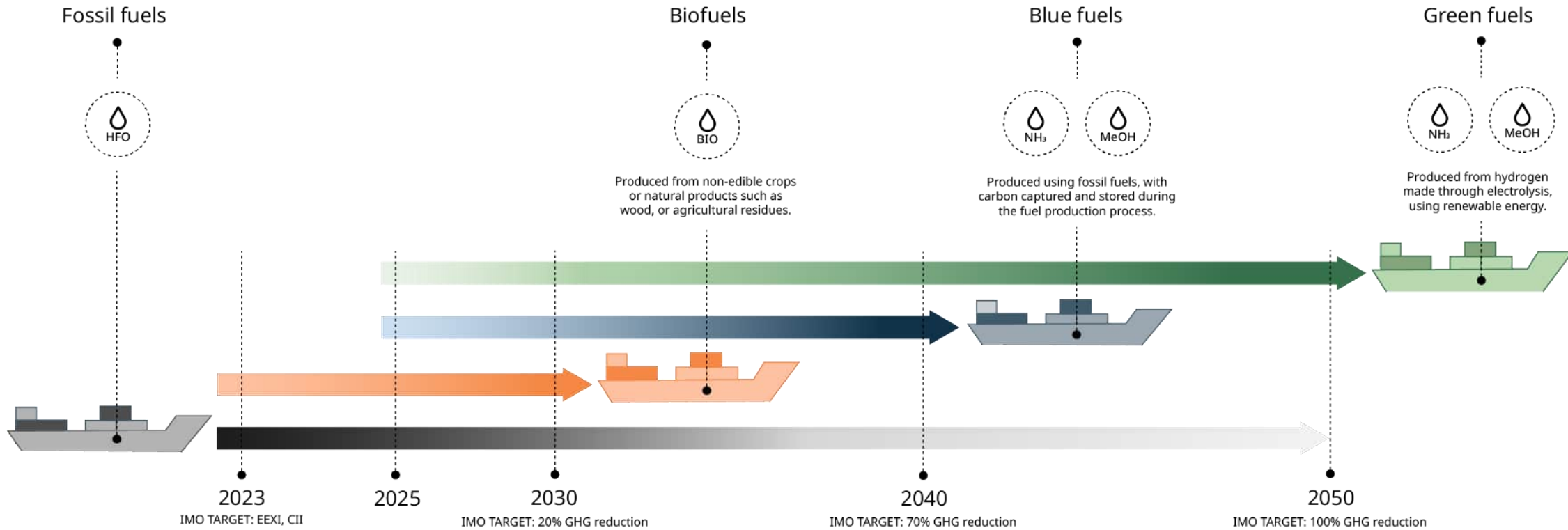
**~50%**  
vessel GT ordered since 2022 is set to run on alternative fuels

1) Source: Clarksons Research, September 2024; other includes ammonia, nuclear, ethane, hydrogen, biofuels, and battery/hybrid



# Sustainable fuels roadmap to 2050

In Wärtsilä, alternative fuel-capable engines account for 70% MW delivered in 2024

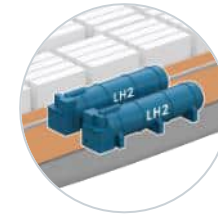
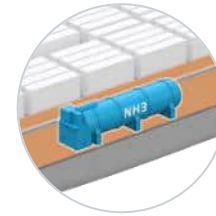
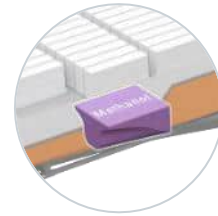
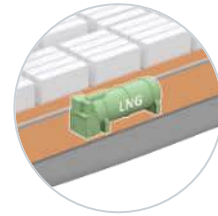
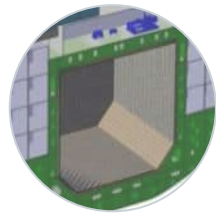


Average vessel lifetime 25-30 years

Targets based on latest MEPC80 regulation (referring to Well-to-Wake emissions)

HFO: Heavy fuel oil. NH<sub>3</sub>: Ammonia. MeOH: Methanol

# Cost of emissions will close the price gap between fossil and sustainable fuels; fuel selection impacts the vessel structure



Fuel type	Low Sulphur Fuel Oil @ 20°C	Liquefied Natural Gas @ -162°C	Methanol @ 20°C	Ammonia @ -33°C	Liquid Hydrogen @ -253°C	Compressed Hydrogen @ 350bar	Marine Battery Rack
Fuel price factor (per GJ) <sup>1)</sup>	1x	1.1x – 4.6x <sup>2)</sup>	2.6x – 5.5x <sup>3)</sup>	2.4x – 4.3x <sup>4)</sup>	3.6x – 4.6x <sup>4)</sup>	2.1x – 3.1x <sup>4)</sup>	2.0x – 5.3x <sup>8)</sup>
Fuel price factor in 2035, incl. carbon tax <sup>1) 5)</sup>	1x	0.8x – 1.4 <sup>2)</sup>	0.8x – 1.6x <sup>3)</sup>	0.7x – 1.2x <sup>4)</sup>	1.2x – 1.5x <sup>4)</sup>	0.6x – 1.0x <sup>4)</sup>	0.8x – 2.0x <sup>8)</sup>
Gross tank size factor <sup>6)</sup>	1x	1.7x – 2.4x <sup>7)</sup>	1.7x	3.9x	7.3x	19.5x	~40x (~20x potential)

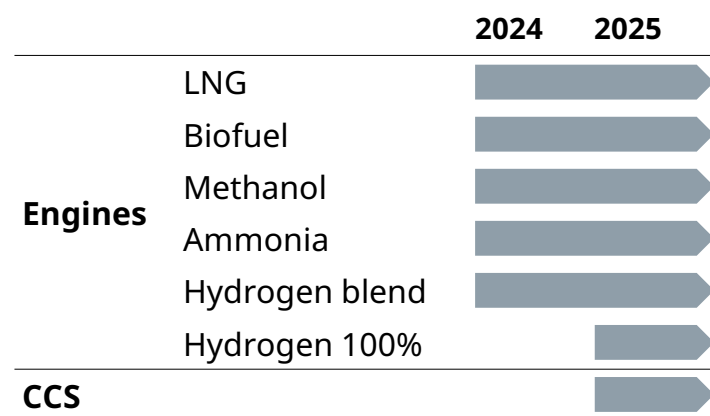
1) Fuel production cost estimate for 2025 and 2035; source: Maersk Mc-Kinney Møller Center for Zero Carbon Shipping – NavigaTE 2023; 2) Price range spans between fossil & electro- methane; 3) Price range spans between bio- & electro- methanol; 4) Price range spans between blue- & electro- ammonia/hydrogen; 5) Assuming 100% consumption subject to EU Fit-for-55, EU allowances at EUR 159/ton (source: Transport & Environment NGO); 6) Gross tank estimations based on Wärtsilä data; 7) 1.7x membrane tanks, 2.4x type C tanks; 8) Shore energy price EUR 0.1-0.27/kWh

# The alternative fuel ecosystem must continue to develop further to support the maritime green transition

## Engine technology

- Technology is readily available, with ~50% of the current vessel orderbook set to run on alternative fuels
- Wärtsilä leads in fuel flexibility and efficiency, having the industry's most comprehensive offering:

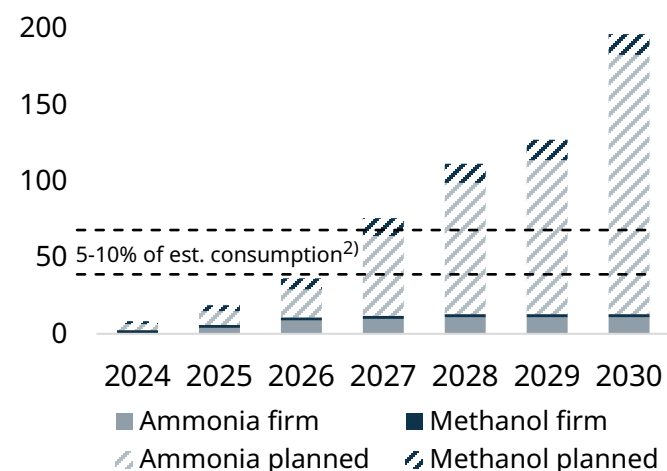
### Wärtsilä's alternative fuel roadmap



## Availability of fuels

- Alternative fuels are not yet available at the required scale
- Production is estimated to pick up, with planned capacity of sustainable methanol and ammonia reaching ~190 Mt by 2030<sup>1)</sup>:

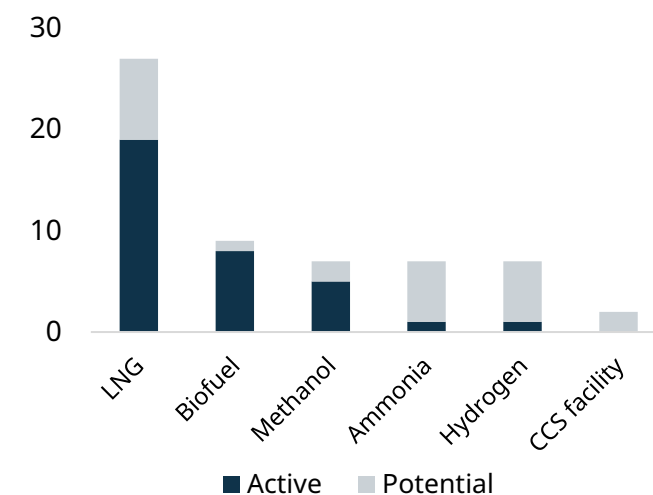
### Production of sust. methanol and ammonia, Mt



## Port infrastructure

- Bunkering infrastructure is limited but developing rapidly; carbon capture and storage infrastructure is still lacking
- ~60% of the top 50 ports worldwide are planning to build alternative fuel bunkering<sup>3)</sup>:

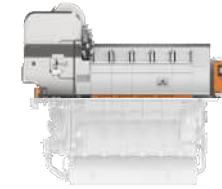
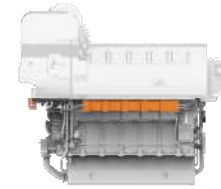
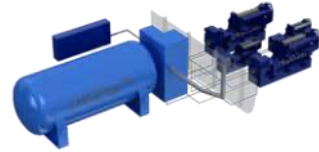
### Alternative fuels bunkering in top 50 ports, no. ports



1) Source: DNV AFI, 2) global fleet would require an estimated ~600Mt of fuel to run solely on ammonia and methanol due to their lower energy content, 3) Source: Clarksons



# Our engines have built-in upgradability to future fuels, with significant part commonality between different fuel versions and a modular design



LNG DF <sup>1)</sup> engine to run on:	Fuel System	Engine base	Engine top
▪ Bio/Synthetic diesel	▪ No changes	▪ No changes	▪ No changes
▪ Bio/Blue/Green methane	▪ No changes	▪ No changes	▪ No changes
▪ Ammonia	▪ Replace with AmmoniaPac	▪ No changes	▪ Change fuel injection system and power pack <sup>2)</sup>
▪ Methanol	▪ Replace with MethanolPac	▪ No changes	▪ Change fuel injection system and power pack <sup>2)</sup>
▪ Hydrogen blend <sup>3)</sup>	▪ Move to alternative fuel handling system	▪ No changes	▪ No changes

↓

Replacement of fuel handling and storage system has bigger impact in terms of CapEx, cargo space and vessel range

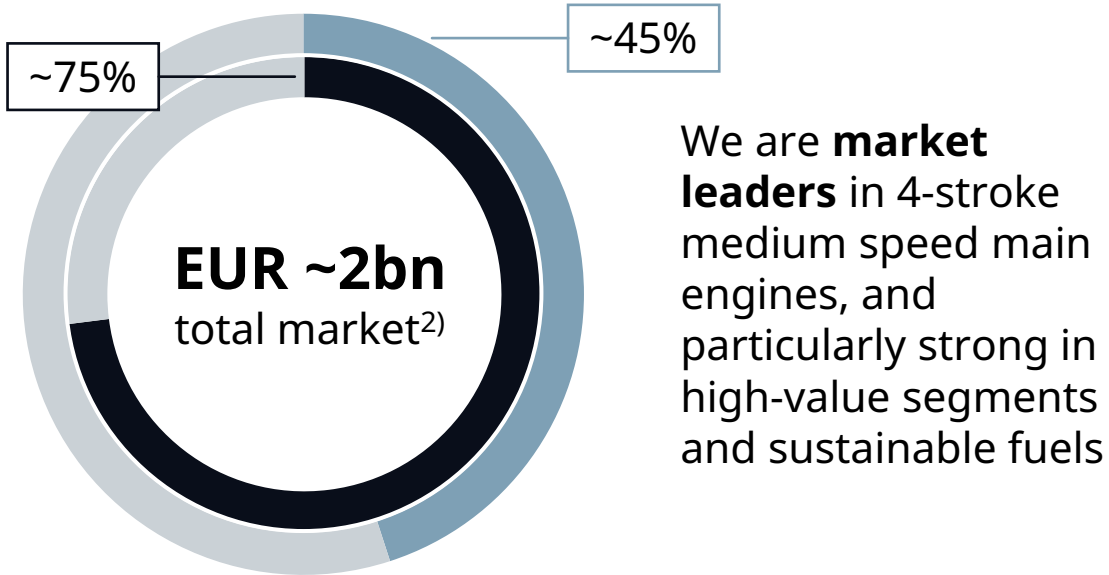
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Upgrading a multi-fuel engine to a new fuel requires limited investment thanks to high modularity and part commonality

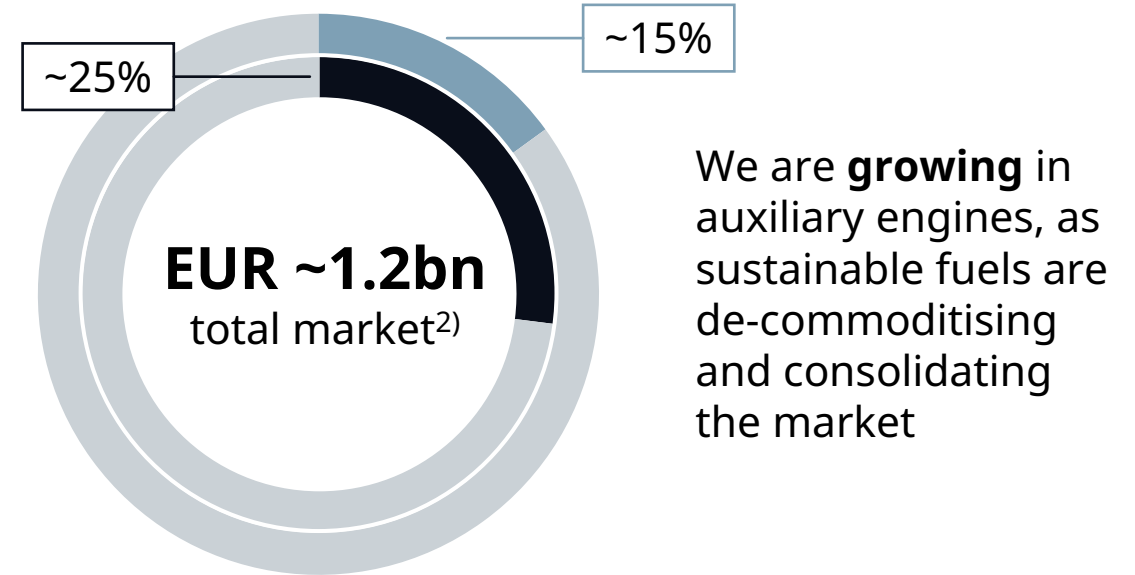
1) DF – Dual Fuel; 2) I.e., piston, cylinder liner, connecting rod; 3) Up to 15% on fuel volume

# Our market share is stronger on alternative fuel capable engines compared to diesel engines

4-stroke medium speed main engines market share<sup>1)</sup>



Auxiliary engines market share<sup>1)</sup>










● Outer circle: Wärtsilä total market share    ● Inner circle: Wärtsilä market share on alternative fuel engines

1) Wärtsilä estimates, MW; 2) Average 2024-2028, based on Clarksons March 2024 forecasts and internal models

Source: Marine theme call, May 2024

# We focus on the most high-value, performance-driven segments

## Typical Wärtsilä Marine offering per vessel<sup>1)</sup>

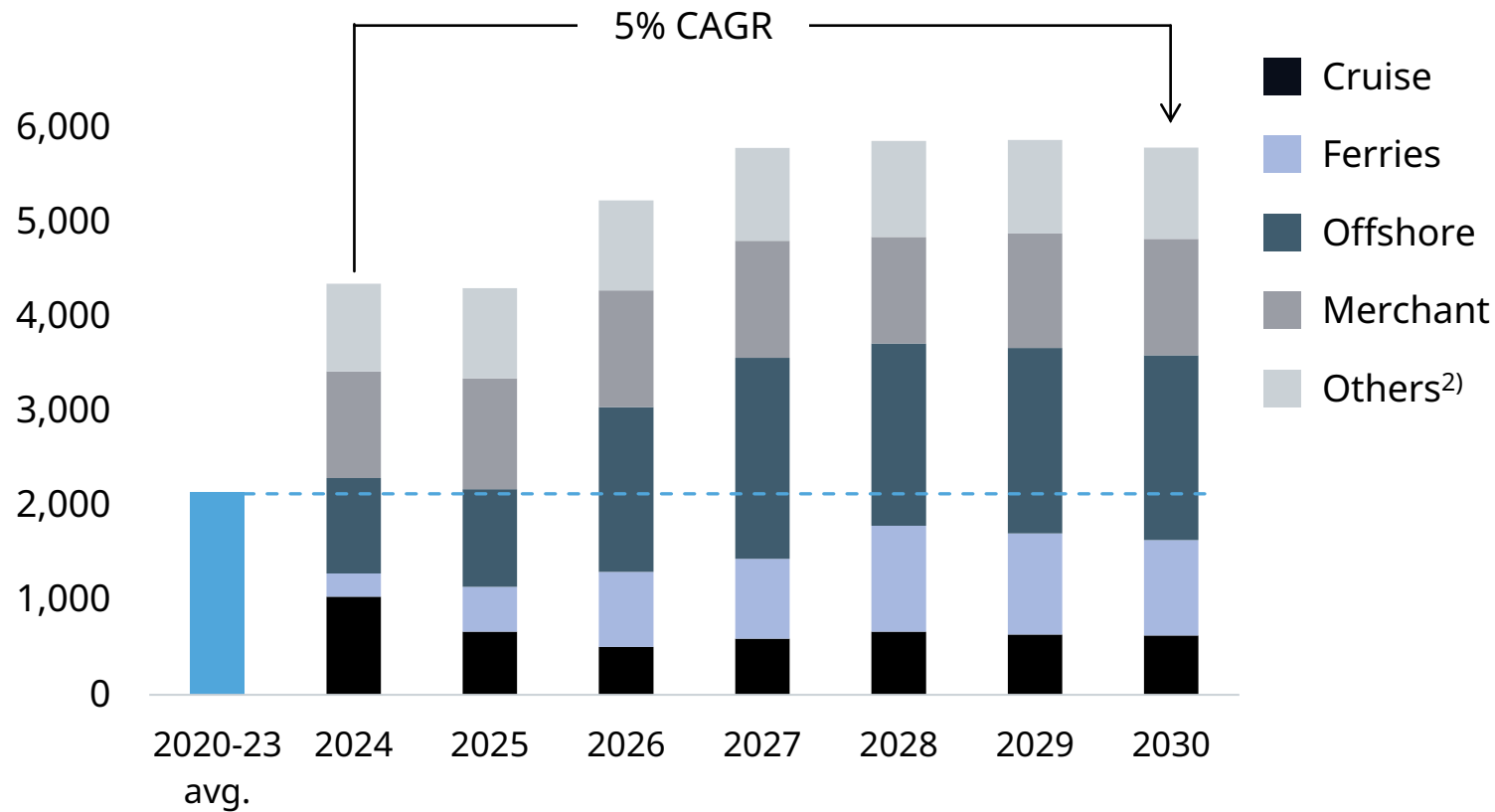
	Cruise	Ferries	Offshore	Navy	Specials	Merchant	Hy-EI merchant
							
<b>Engines / Hybrid<sup>1)</sup></b>	Diesel-Electric	Main Engines Aux Engines Hybrid System	Hybrid-Electric	Aux Engines	Main Engines	Aux Engines Main Engines <sup>5)</sup>	Hybrid-Electric
<b>Propulsion<sup>2)</sup></b>	Tunnel Thrusters	CPP or Waterjets	Steerable Thrusters Tunnel Thrusters	CPP, FPP or Waterjets	CPP or Steerable Thrusters Tunnel Thrusters	CPP Tunnel Thrusters EST	CPP Tunnel Thrusters EST
<b>Potential<sup>3)</sup></b>	EUR 15-40m	EUR 10-25m	EUR 5-15m	EUR 5-15m	EUR 5-15m	EUR 2-15m	EUR 25-30m
<b>% of Order Intake<sup>4)</sup></b>	~25%		~5%	~10%	~5%	~50%	-

1) Non-exhaustive list; offering depends on vessel specific configuration and may vary substantially. 2) CPP/FPP = Controllable/Fixed Pitch Propeller; EST = Energy Saving Technology, e.g., gate rudder, EnergoProFin, EnergoFlow, EnergoPac; 3) Potential per shipset; it includes catalyst systems and electrical systems; carbon capture is not included, and could unlock additional EUR 2-8m potential; 4) Marine equipment order intake, 2023; ~5% in non-vessel markets, mainly simulation and ports; 2-stroke cargo order intake mainly from LNG carriers and containerships; 5) Predominantly 2-stroke main engines, 4-stroke main engines only on small vessels and coastal vessels



# Recovery in our key target segments is growing the 4-stroke medium speed main engine addressable market

Newbuild ordering of 4-stroke medium speed main engines, MW<sup>1)</sup>



**We have a strong position in Cruise, Ferry, and Offshore segments**

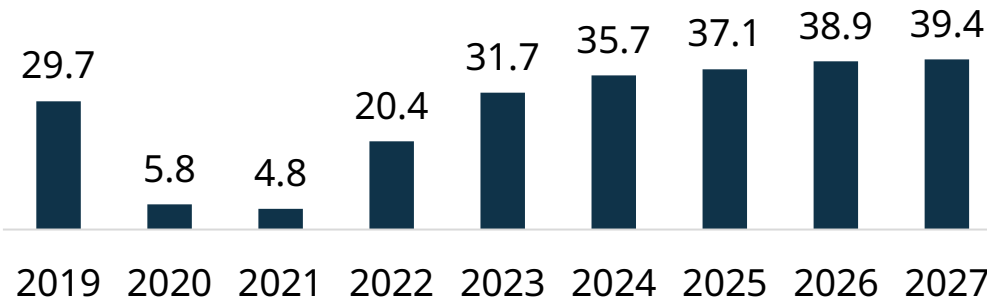
1) Clarksons September 2024 forecasts; 2) Fishing, dredgers, support units, yachts, tugs, etc.; 3) Market share on 4-stroke main and auxiliary engines as per Q4 2023, Wärtsilä estimates, MW



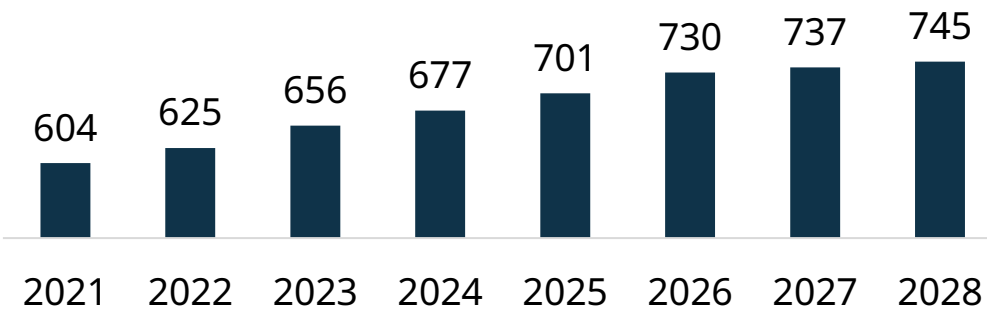
# Global cruise capacity is forecast to grow over 10% from 2024 to 2028



## Cruise passengers, million passengers



## Cruise capacity, 1000x lower berths<sup>1)</sup>



- ✓ Cruise travel reached 107% of 2019 levels in 2023, with 31.7 million passengers sailing; this compares to overall international tourism arrivals, which are 12% lower than 2019
- ✓ By 2027, cruise is forecast to grow to nearly 40 million passengers (+24% vs 2023)
- ✓ 60% of ships with delivery between 2023 and 2028 are set to run on LNG fuel
- ✓ Methanol is gaining traction, e.g., Celebrity Cruises new Edge Series ship will be equipped with Wärtsilä 46F methanol-ready engines

Source: CLIA, the state of the cruise industry 2024; 1) Lower berths indicate cruise capacity, assuming two passengers per stateroom

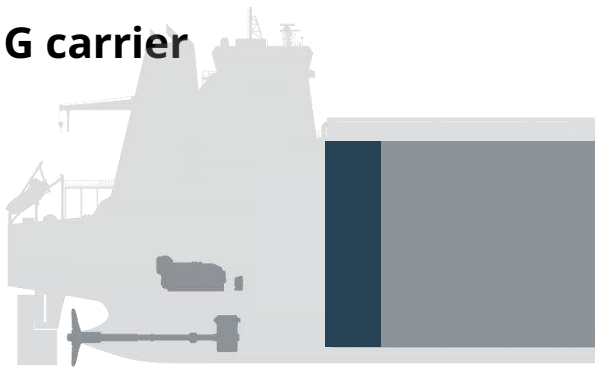
# Hybrid-Electric will challenge 2-stroke as prime-mover for LNG carriers, enabling higher efficiency and increased cargo capacity

**Wärtsilä Hybrid-Electric LNG carrier**

~185k cbm capacity

3x 4-stroke spark-gas gensets  
2x 4-stroke dual fuel gensets  
2 MWh batteries

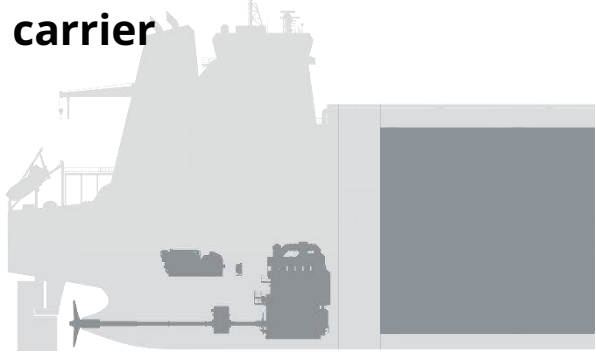
■ Extra cargo capacity



**Conventional 2-stroke LNG carrier**

174k cbm capacity

2x 2-stroke main engines  
4x 4-stroke aux engines

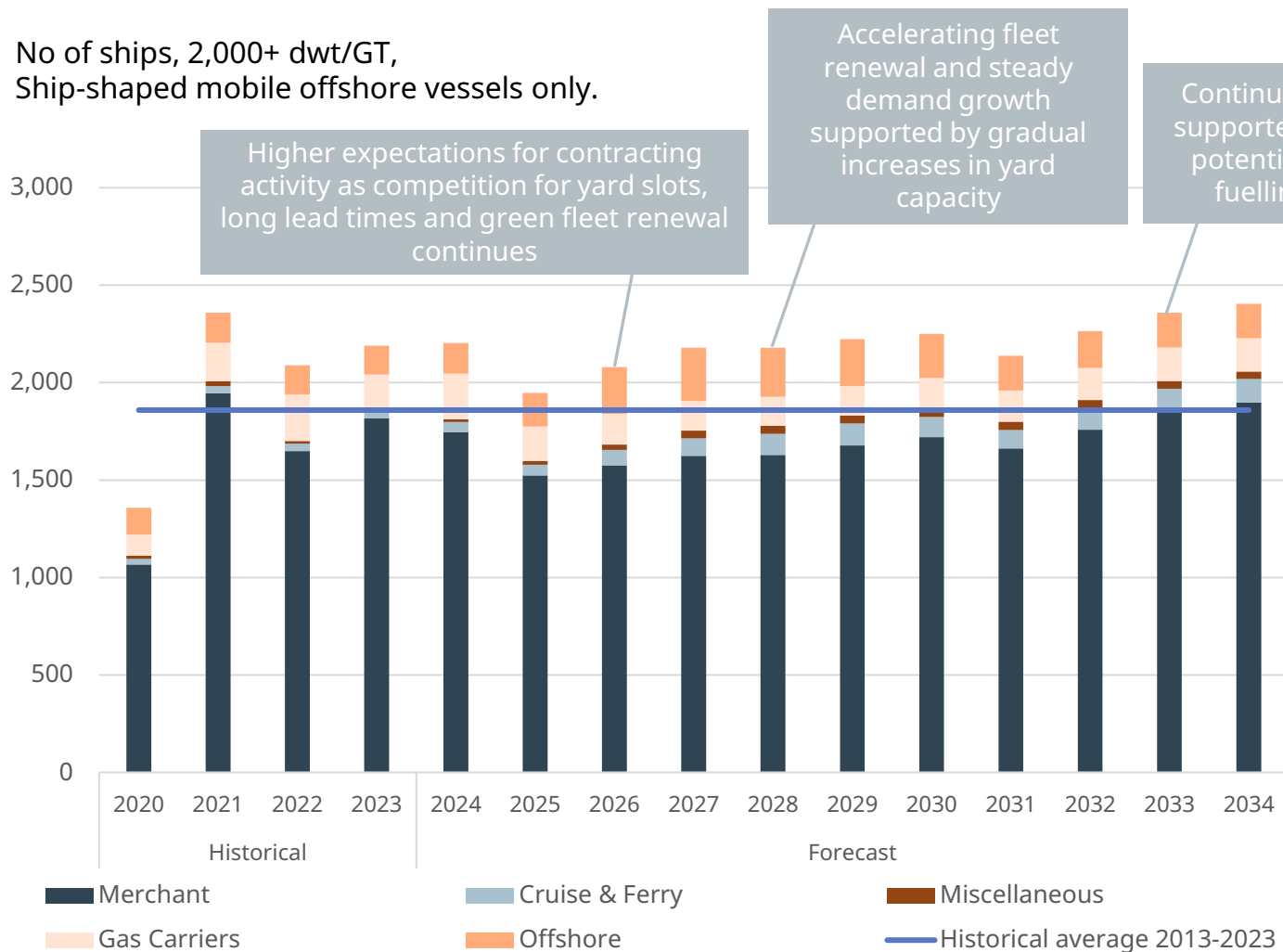


- ✓ **Launched at Gastech in 2023**  
with Shell and Hudong-Zhonghua Shipbuilding
- ✓ **6% extra cargo capacity**  
with same ship dimensions
- ✓ **>10% lower fuel consumption and emissions**  
with optimal efficiency across all speeds
- ✓ **20% lower maintenance costs**  
with fewer engine running hours
- ✓ **Superior redundancy, uptime, flexibility**  
as it can operate with fewer engines
- ✓ **Future proof**  
as it can integrate alternative power sources

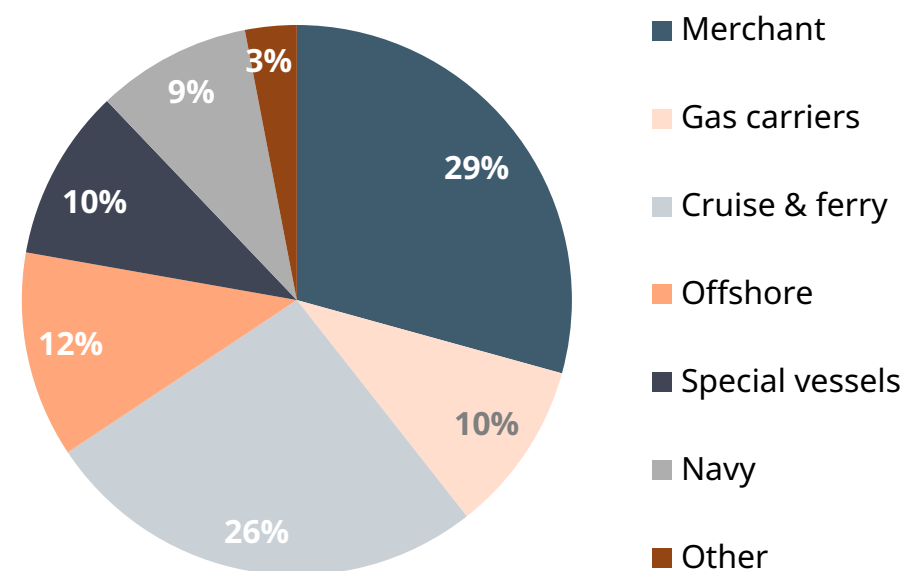
Values refer to a comparison with a conventional 174k cbm LNGC (2x 2-stroke low pressure DF main engines, 4x 34DF 4-stroke aux engines), calculated on full year cycle real operating profile with average speed of 15 knots in laden and 13.5 knots in ballast; cargo increase confirmed by Hanwa Ocean and Hudong-Zhonghua shipyards in their general arrangements and outline specifications

# Vessel contracting forecast

No of ships, 2,000+ dwt/GT,  
Ship-shaped mobile offshore vessels only.



## Wärtsilä's order intake in Marine businesses by customer segment in 2024



Includes both orders for equipment and services. The vessel types included in Merchant segment are bulk carriers, cargo-, container-, and RoRo vessels as well as tankers. The vessel types included in Special vessel segment are dredgers, fishing-, inland-, and service vessels as well as tugs.

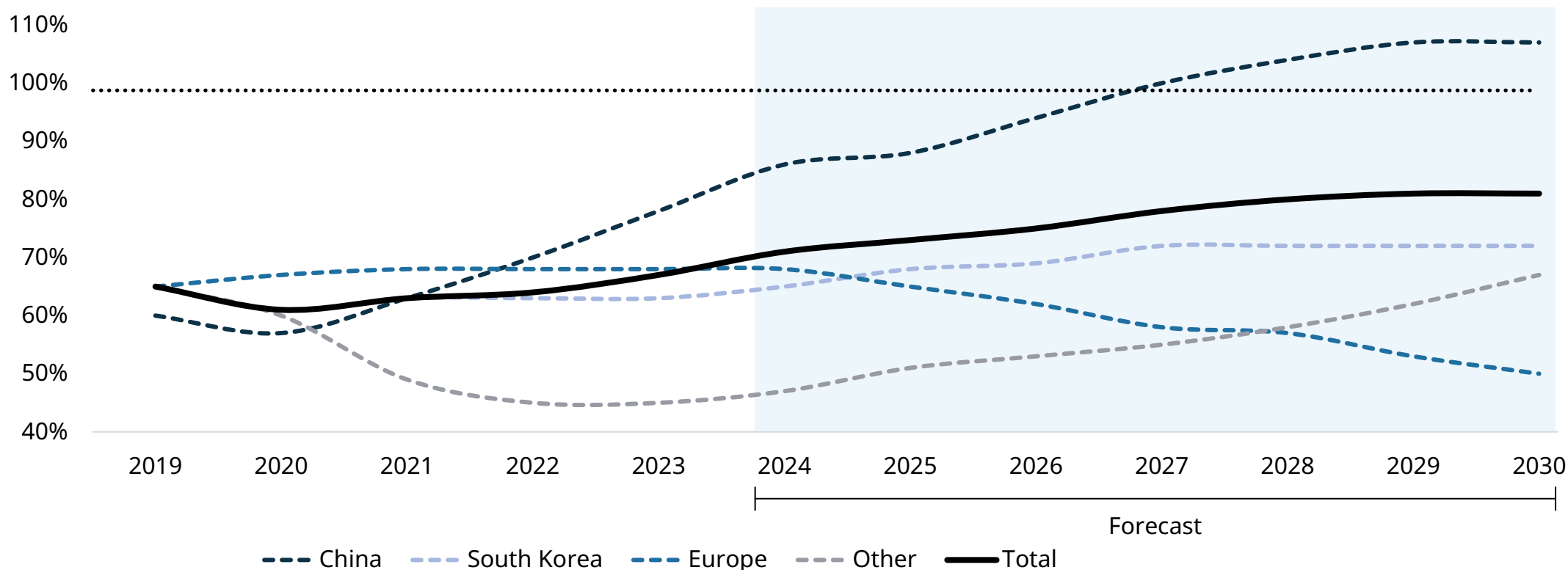


# Global shipyard capacity is currently at ~70% of previous peak, but is expected to increase to >80% by 2030

Capacity increases are expected especially in China

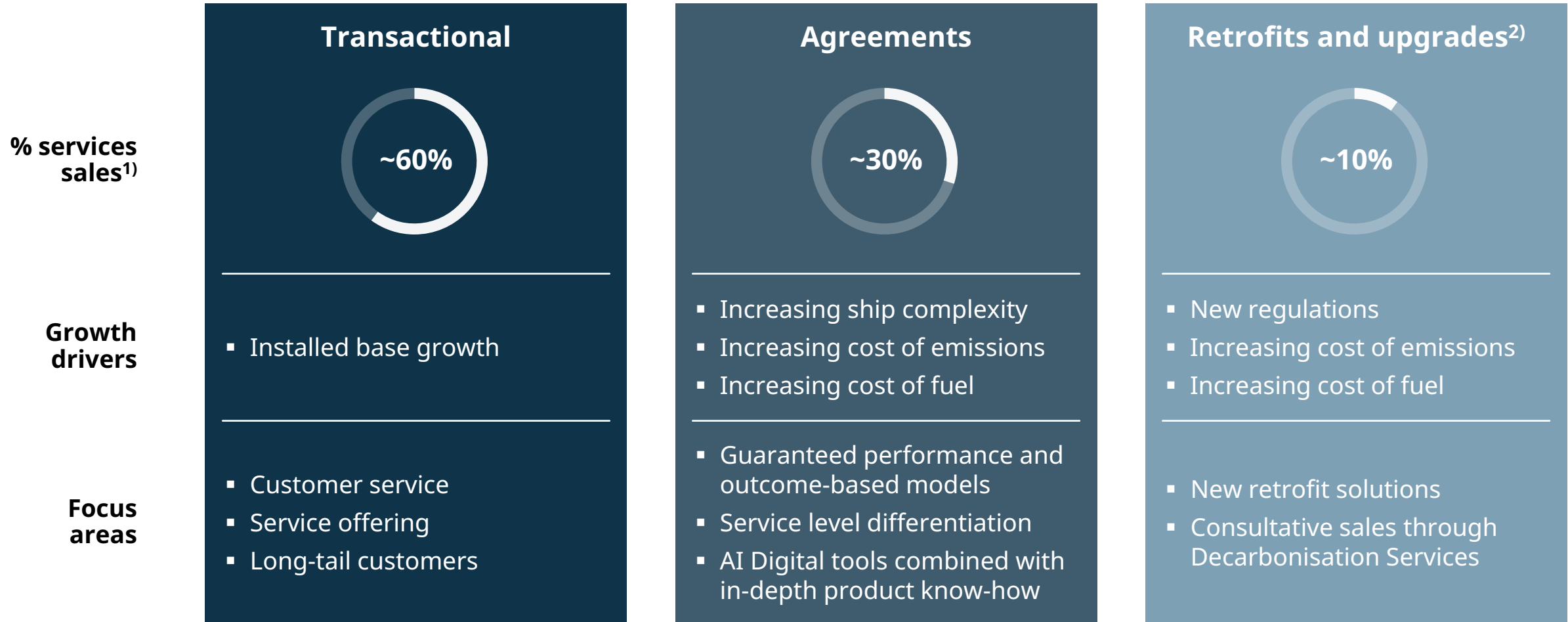
## Development of global shipyard capacity

Regional shipyard capacity as % of 2011-12 peak, CGT<sup>1)</sup>



1) Source: Clarksons Research, September 2024

# Services accounts for >60% of Marine sales; we operate through an integrated service framework with three service delivery models



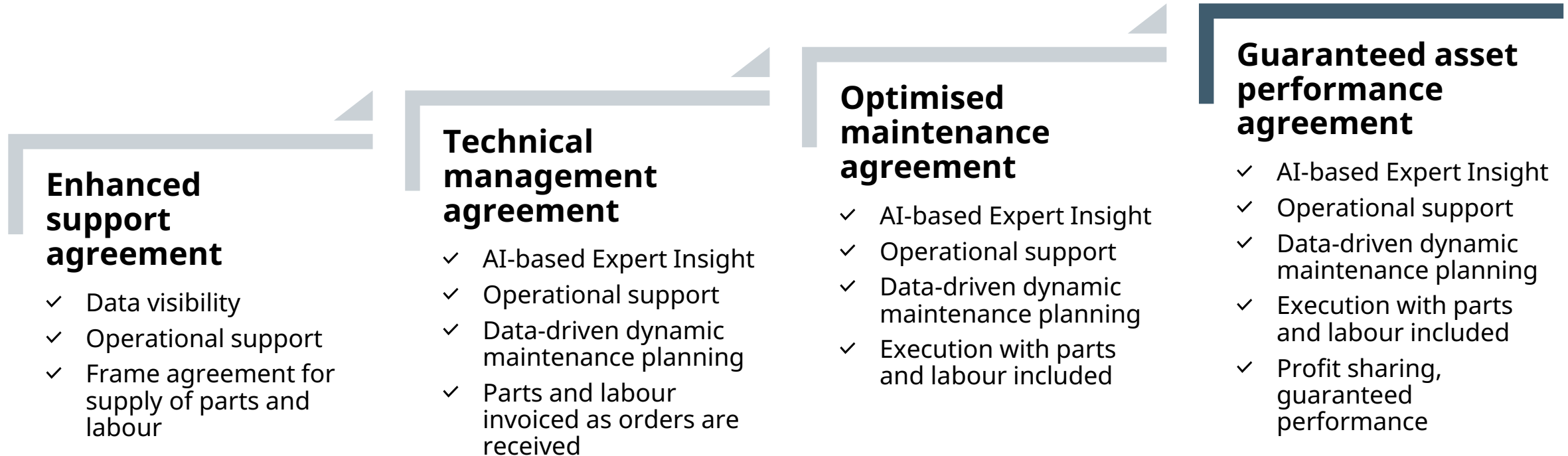
Source: Service call 2024. 1) Q3 2023–Q2 2024; agreement sales include all spare parts and field services sold to vessels under agreement, plus the agreement fee; 2) Referred to as Service Projects in the interim reports

# Moving up the service value ladder in Marine

We increase sales and profits by moving up our service value ladder

From 1x<sup>1)</sup>

Up to 2-3x<sup>1)</sup>



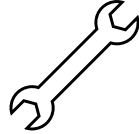
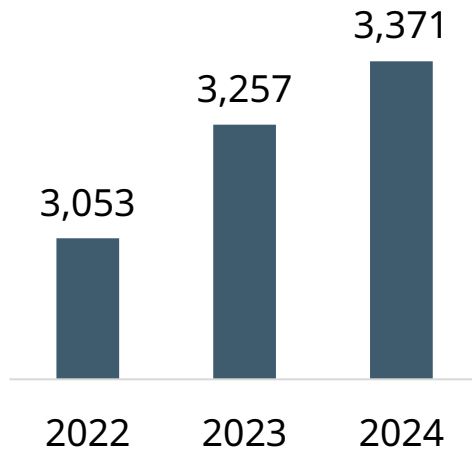
1) Sales EUR/kW relative to transactional

# We have the widest service network in marine



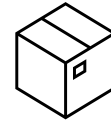
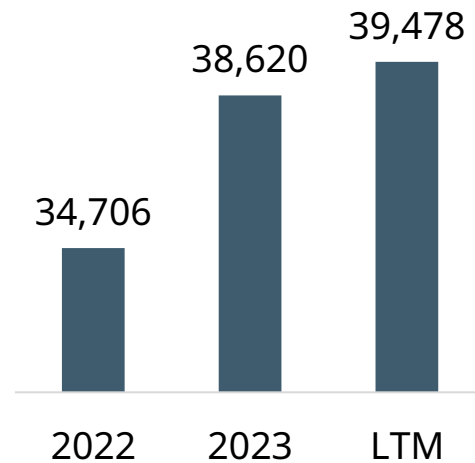
**~3,400**

professionals in 70+ countries<sup>1)</sup>



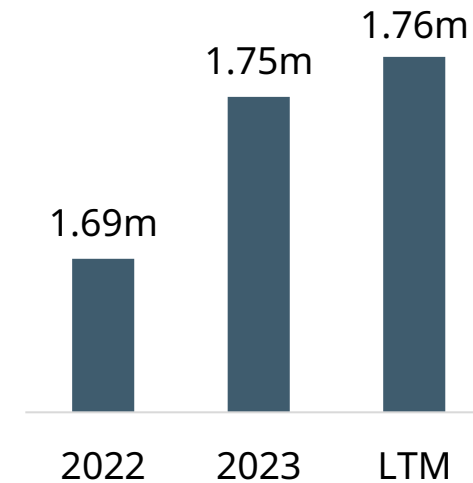
**~39,500**

marine field service jobs started annually



**~1,760,000**

marine outbound delivery lines annually<sup>2)</sup>



**We continuously review our footprint to better serve our customers and access the best talents**

LTM - Last twelve months, Q3 2023-Q2 2024; 1) Billable field services and workshop personnel as per Q2 2024, including Marine and Energy; 2) One delivery can include one or multiple lines to for the same customer, one line includes a material number and its quantity



# Service agreements enable maximum fleet efficiency and uptime



Reliability and uptime have increased while unforeseen maintenance events have decreased; with early anomaly detection, enabled by Expert Insight service, we expect to deliver further improvements in all these areas



Head of Fleet Asset Management, major cruise line



**11**

Expertise Centres, providing 24/7 remote technical support to agreement customers



**40 million**

datapoints collected on average every day from a connected vessel



**>90%**

issues resolved remotely



**EUR >60m**

fuel savings on a cruise fleet over a 6-year contract period



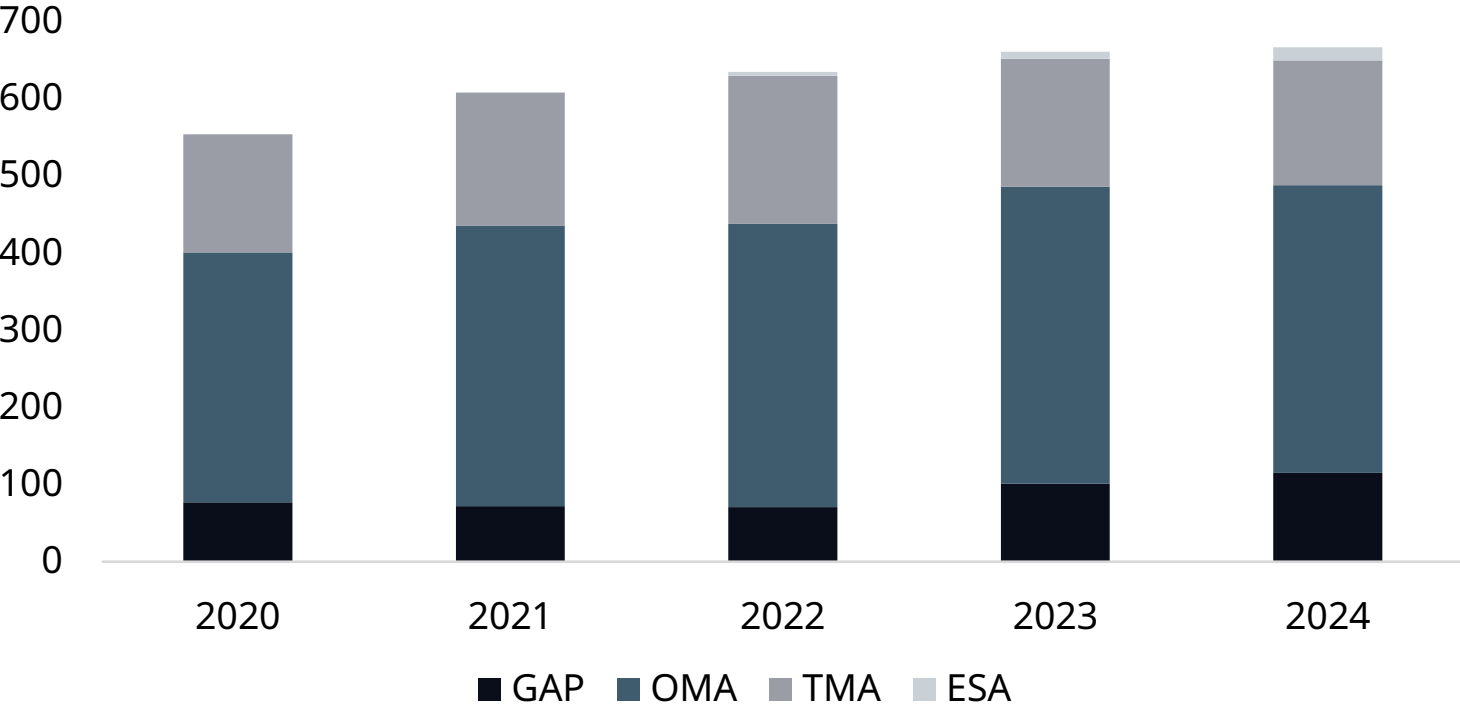
**25-30%**

average reduction in planned/unplanned maintenance<sup>1)</sup>

1) Analysis on 160 LNG carriers with an active GAP - Guaranteed asset performance or OMA - Optimised maintenance agreement

# The fleet under Wärtsilä service agreement keeps expanding and shifting towards higher-tier agreements

Fleet under agreement as end of Q2 over 2020-2024, # ships<sup>1)</sup>



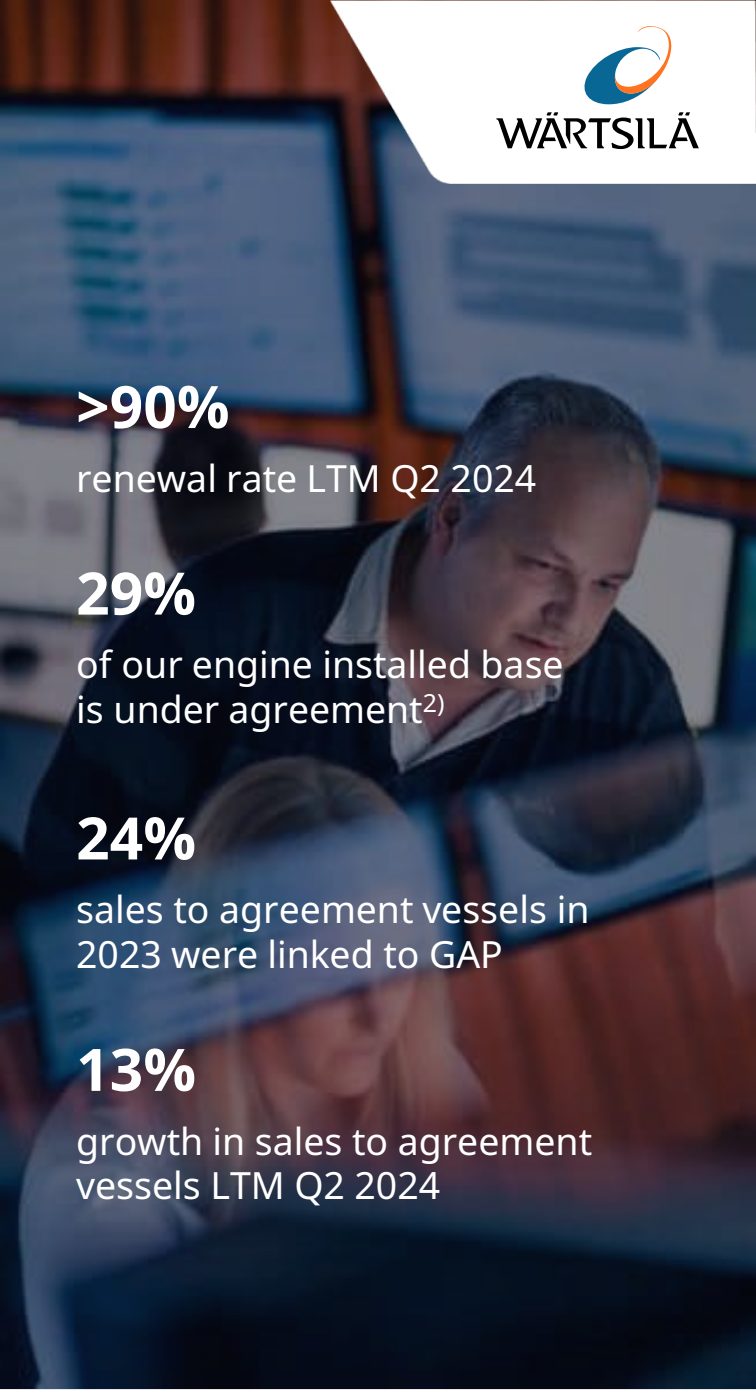
Source: Service call 2024. LTM - Last twelve months, Q3 2023–Q2 2024; 1) Agreement scope including 4-stroke and 2-stroke engines; Ship Electrical Solutions, Propulsions, Voyage, Exhaust Treatment excluded; GAP - Guaranteed asset performance agreement, OMA - Optimised maintenance agreement, TMA - Technical management agreement, ESA - Enhanced support agreement; figures as per end of June of each year; 2) In MW terms, 4-stroke installed base, excluding QuantiParts

**>90%**  
renewal rate LTM Q2 2024

**29%**  
of our engine installed base is under agreement<sup>2)</sup>

**24%**  
sales to agreement vessels in 2023 were linked to GAP

**13%**  
growth in sales to agreement vessels LTM Q2 2024



# Tightening regulations and increasing fuel and emission cost will boost demand for retrofits

Total investments in retrofits, including Carbon Capture and Storage solutions (CCS), are estimated to be EUR 15-20bn over the next decade<sup>1)</sup>

**53%**  
of the fleet is not CII compliant in 2024<sup>2)</sup>

**79%**  
of the existing fleet will not be CII compliant in 2028 if no action is taken<sup>2)</sup>

<b>Propulsion efficiency upgrades</b>	<b>Alternative fuel conversions</b>	<b>Radical power derating</b>	<b>Electrification projects</b>
Propulsion efficiency improvements, e.g., OptiDesign, EnergoFlow, EnergyProFin <sup>3)</sup>	Engine retrofits to run on alternative fuels on top of conventional diesel	2-stroke power output reduction to optimise efficiency, fuel consumption and emissions at lower speeds	Electrical system <sup>4)</sup> upgrade, including hybrids and shaft generators to improve OpEx, emissions, safety
<b>700+</b> vessels contracted	<b>10+</b> vessels contracted	<b>30+</b> vessels contracted	<b>30+</b> vessels delivered <sup>5)</sup>
<b>EUR 20k-1m</b> per shipset	<b>EUR 3-8m</b> per shipset	<b>EUR 5-8m</b> per shipset	<b>EUR 3-8m</b> per shipset

1) Source: Clarksons, incl. ESTs, CCSs, and engines, excl. hybrids and offshore; 2) CII (Carbon Intensity Indicator) applies to cargo, RoPax, cruise ships >5 000 GT (with some exceptions); source: Wärtsilä CII tool, correction factors excluded, ships with D or E rating considered as non-compliant; 3) OptiDesign: optimised propeller for actual operating profile; EnergoFlow: pre-swirl stator; EnergyProFin: propeller cap; OptiDesign, EnergoFlow, EnergyProFin can be sold both combined and as stand-alone; 4) E.g., Energy storage system, power distribution, energy management system; 5) Hybrid upgrades



# Onboard Carbon Capture and Storage (CCS) allows to capture >70% of the CO<sub>2</sub> generated onboard

Onboard CCS can unlock EUR ~10bn business in the next 10 years<sup>1)</sup>

- ✓ Applicable to all carbon-based fuels, vessels types and sizes
- ✓ Captured CO<sub>2</sub> is stored onboard for discharge at port reception facility
- ✓ At our research centre and test facility in Moss, Norway, we simulate vessel installations of onboard carbon capture:
  - Operated for >2 years
  - CO<sub>2</sub> capture capacity: 10 tons/day
  - CO<sub>2</sub> capture rate: ~70%
- ✓ First full-scale system operational on LPG carrier “Clipper Eris” in Q4 2024
- ✓ Commercial release in 2025



1) Newbuild and retrofits, mainly merchant 2-stroke, dependent on speed of regulation, CO<sub>2</sub> tax incentives, development of carbon capture and storage infrastructure, price spread development between fossil and green fuels



# Strong growth opportunities in marine based on technology leadership, moving up the service value ladder, and favorable vessel contracting mix

	Equipment		Services	
<b>Addressable market</b>	⊕ ⊕ ⊕	Favorable vessel contracting mix	⊕ ⊕ ⊕ ⊕	Decarbonisation-driven retrofits Growing installed base
<b>Market share</b>	⊕ ⊕	Decarbonisation: uptake of alternative fuels and emission reduction technology	⊕ ⊕	Moving up the service value ladder

# Energy highlights





# Significant value creation opportunity – improving performance and capturing growth

## Perform – on track to deliver our targets

- Driving performance in new build through **improved risk / reward**
- Continued **strong profitability in services** with a solid foundation for growth – Moving up the service value ladder
- Driving profitability in Energy Storage & Optimisation through **increasing value add in our products**
- Achieving **positive comparable operating result in Energy Storage & Optimisation**

## Transform – growth opportunity in Engine Power Plants

- **Thermal balancing** addressable market is expected to **grow 29% p.a.** between 2023-2030
- Wärtsilä is the **global market leader in engine power plants** with superior balancing capabilities vs. gas turbines
- **Capability to convert to future fuels** key for customers to avoid risk of stranded assets

## Transform – growth opportunity in Energy Storage & Optimisation

- **Energy storage addressable market** is expected to **grow 17% p.a.** between 2023-2030
- Wärtsilä is among top players in energy storage
- **Differentiated** by project execution excellence, safety, reliability, and a fully integrated design
- **Strategic review** now started

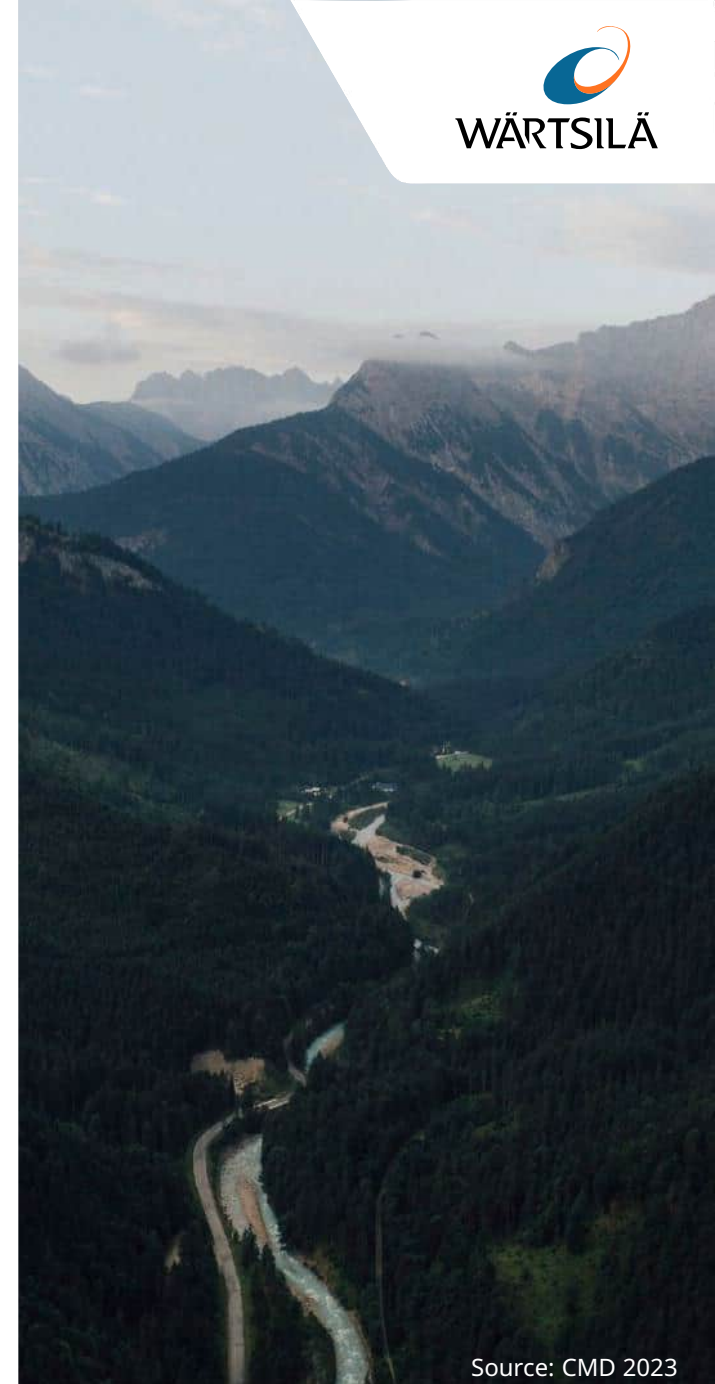
# Actions taken to improve new build profitability and achieve better risk / reward

## Organisation, team & governance

- **New organisation structure** with three global Business Units with P&L responsibility
- Significant changes in **Energy management & leadership**
- Energy has implemented **new governance**:
  - Updated sales-to-order processes to focus on **profitability** and a less volatile business
  - **Sales and operations planning** is regularly executed to improve productivity

## Offering & risk management

- Energy has **EEQ** (extended equipment supply) as **the preferred offering**, EPC (engineering, procurement and construction) is only considered in selected markets
- **More than 80% of the equipment net sales in 2024** consisted of extended equipment supply (EEQ) deliveries, compared to less than 50% in 2022
- Rebalance in risk appetite leads to **stronger order book risk/reward profile**

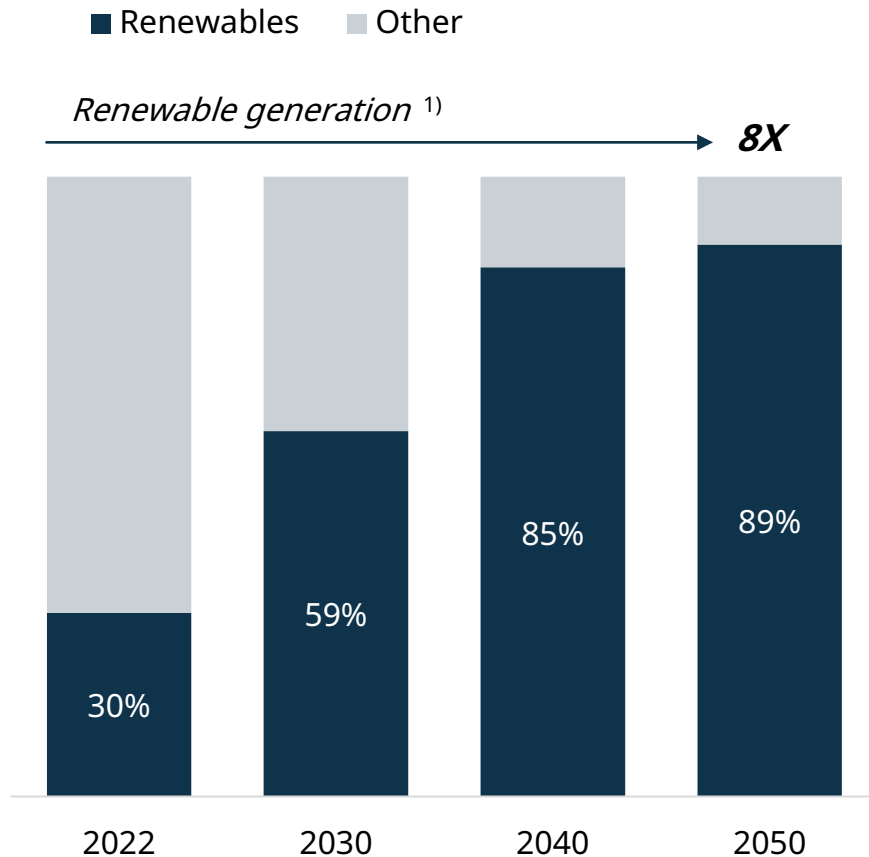




# As the renewable energy transition accelerates, balancing solutions are key enablers for the transition

## Share of renewables in global energy generation

## Technology disruption in the energy sector



**Renewables becoming main source of power**



**Gradual replacement of coal**



**Increased need for balancing solutions**



**Development and increasing use of sustainable fuels –  
Being enabled for future fuels avoids stranded assets**



**Power systems becoming increasingly more complex**

1) IEA World Energy Outlook 2023 (Net Zero Emissions scenario)

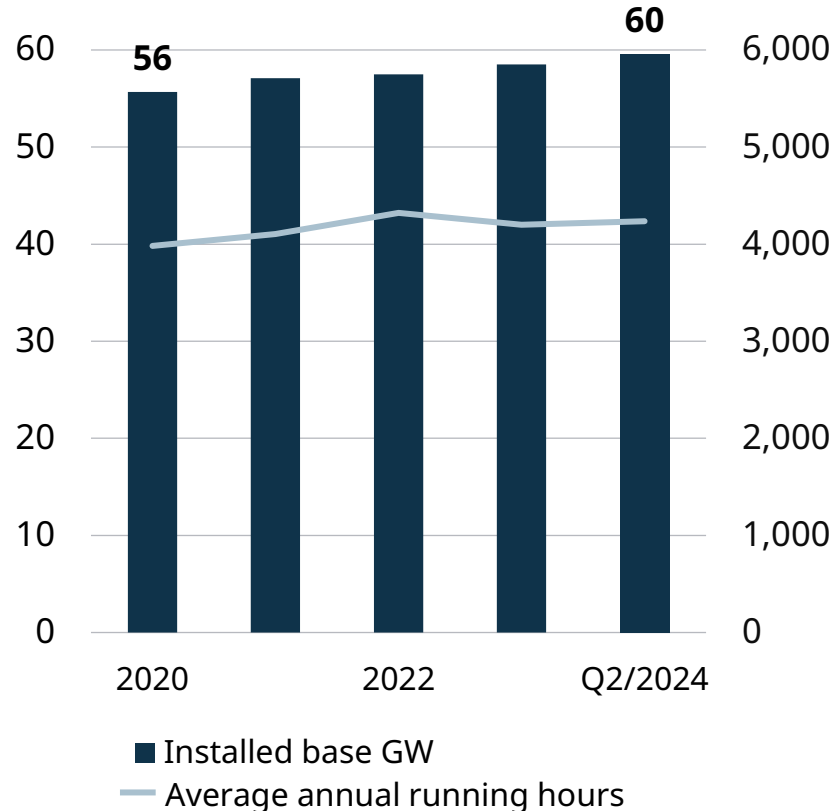
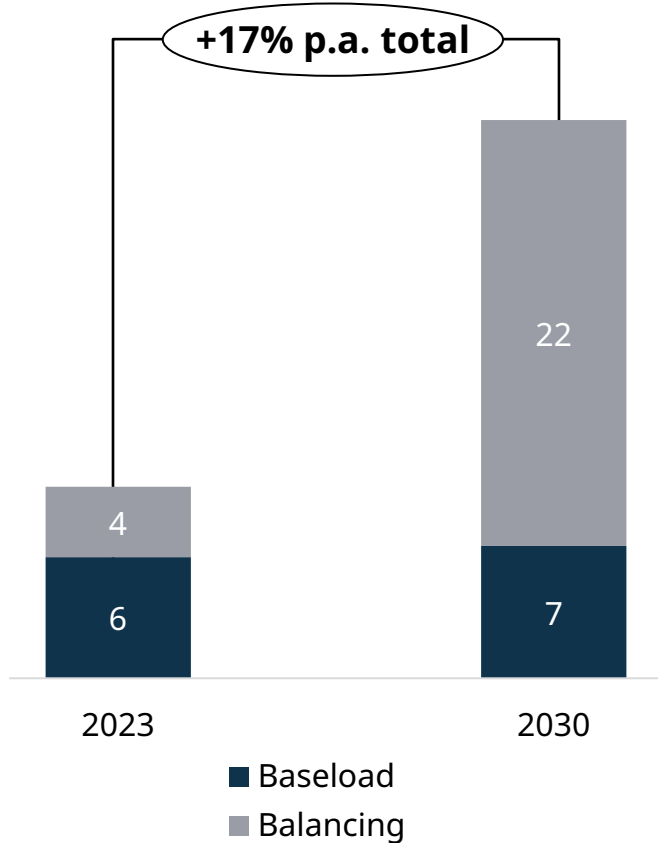


# Thermal balancer market expected to grow ~29% per year – the baseload market outlook remains stable

## Engine power plants

## Wärtsilä operating installed base (GW)

Addressable annual market (GW)



## Outlook

- The transition towards renewables is the driving force behind demand for thermal balancing
- We see large balancing market potential e.g. in North America and Europe
- The role of gas as a transition fuel is essential for a secure transition, as highlighted by the IEA
- Future fuels will play an important role, a credible roadmap is essential
- Running hours have remained stable even with the growth of balancing

1) Forecast based on BloombergNEF forecast on wind and solar capacity additions, and estimated share of balancing capacity compared to renewables growth

# Engine power plants are in a strong position as the balancing market grows. Power system knowledge makes Wärtsilä the go-to partner for capacity planning

## Engines superior to Gas Turbines for balancing

- **Faster start up** and continuous **ramping** for renewables
- **Cycling** several times per day with **no cost impact**
- **High efficiency** due to multiple modular units
- **Catching price spikes** and avoiding negative prices

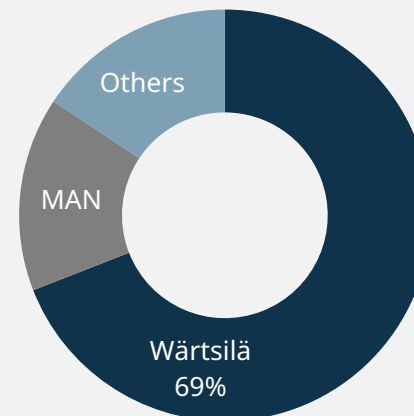
## Modelling supports Wärtsilä go to market approach

- We have modelled >190 countries and systems worldwide
- Transparent modelling shows value of balancing with engines
- Shift to net zero energy feasible with existing technology

## Wärtsilä is clear market leader in engine power plants

- Clear market lead in engine power plants with 50-70% market share
- **Technology leader** in new green fuels and performance-based services
- **Proactively develops** new engine markets, competing with gas turbines

Engine market shares <sup>1)</sup>



1) >5MW units, LTM Q2/2023. Based on public and Wärtsilä data

## Wärtsilä in strong position as thermal balancing market grows

- Balancing market expected to grow in key regions <sup>2)</sup>

	2027 (GW)	5-year CAGR
US	3.6	19%
Australia	0.7	
Europe	5.0	
India	1.7	

- Additional potential in markets like Brazil, Argentina, China, Japan and Vietnam

2) Based on BloombergNEF ETS and Wärtsilä data

# Wärtsilä's sweet spot is in 50 - 400 MW plants

## Engine technologies

### High-speed engines

- Low capex and low efficiency
- Best suited for backup and low running hours applications

### Wärtsilä medium-speed engines

- High efficiency due to multiple modular units
- Faster start-up; can cycle several times per day with no cost impact
- Transparent modelling shows the value of balancing with engines

*Most competitive in applications with high numbers of starts/stops and markets with structures and incentives that reward flexibility*

## Gas turbine technologies

### Aeroderivative gas turbines

- Lower capex than engines but less fuel-efficient
- More flexible than heavy-duty gas turbines (HDGTs)

### Open-cycle gas turbines (OCGTs)

- Low efficiency; poorly suited for balancing
- Competitive mainly in peaking applications with low amount of starts/stops

### Combined-cycle gas turbines (CCGTs)

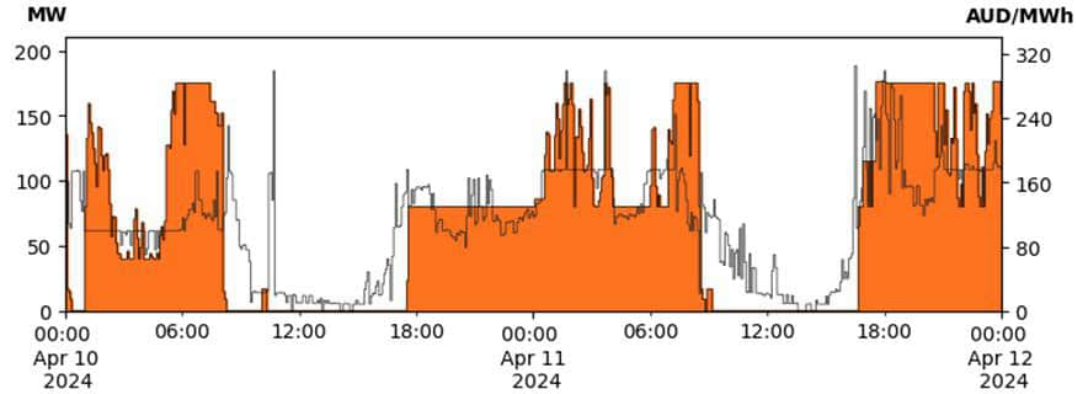
- High efficiency, but high capital costs (CAPEX)
- Best suited for large-scale baseload applications



# Engines are unique, flexible market assets

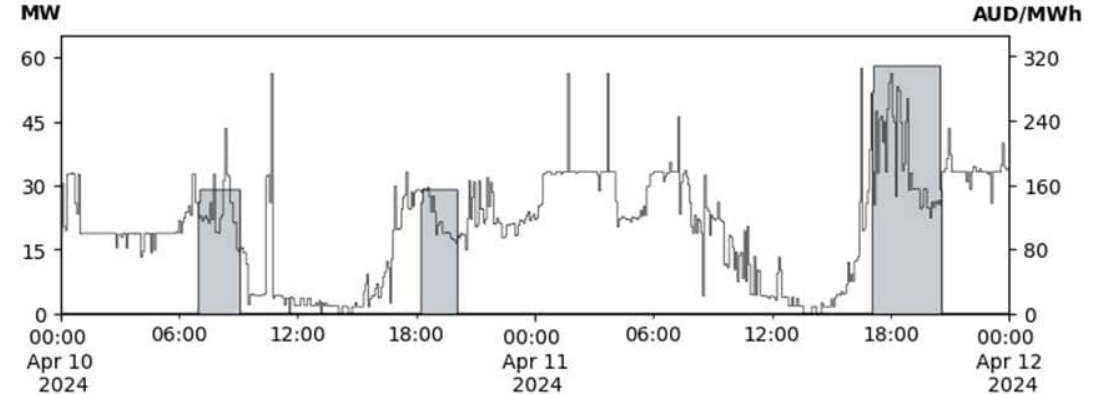
## Internal combustion engines (ICE)

Rapid start-stops, part-loading, and load following



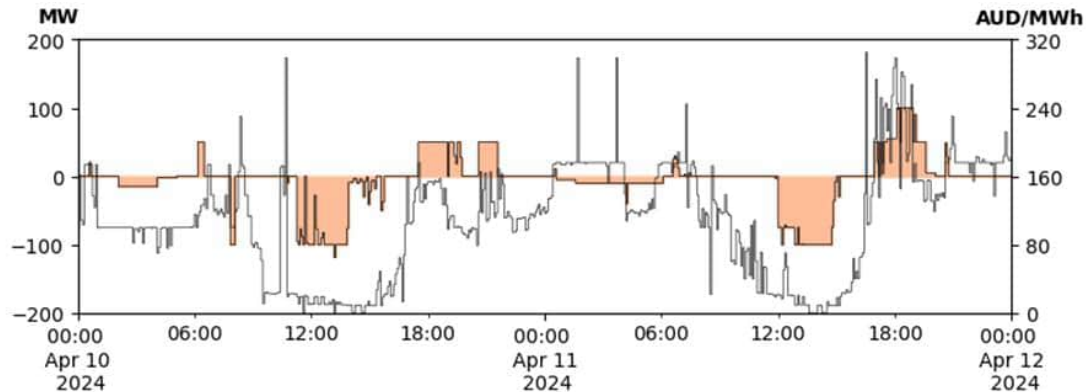
## Aeroderivatives and other open-cycle gas turbines (OCGTs)

Operating in an on-off pattern



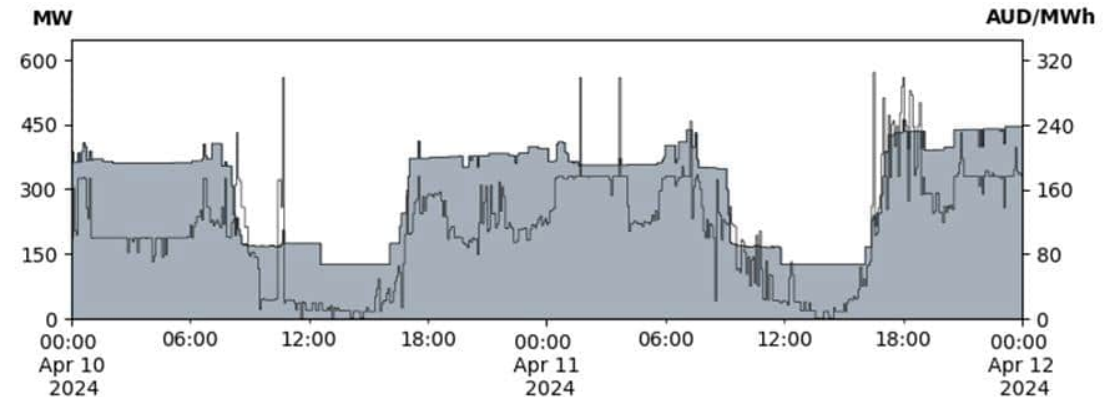
## Battery energy storage systems (BESS)

Focus on energy shifting and frequency regulation



## Combined-cycle gas turbines (CCGTs)

Continuous running, constrained by minimum load



Source: Energy Power Plants investor theme call in December 2024

Source: Engine Power Plants call 2024

# Advantages of Wärtsilä power plants over combined cycle gas turbines

## Faster startup time

- Combined cycle gas turbines can take over 30 minutes to start, whereas combustion engine power plants can start and reach full load in less than 5 minutes

## Advantages of modularity

- Combustion engine power plants are comprised of multiple generating units

## Better part-load efficiency and flexibility

- Unlike gas turbines, Wärtsilä engine power plants have near full range capability of emissions-compliant turndown

## Better pulse-load efficiency and profitability

- Combustion engine power plants are dispatchable and can adjust load daily, ramping up and down with demand

## Higher ramp rate

- Ramp rate = the rate at which a power plant can increase or decrease output
- Wärtsilä engines can ramp at over 100%/minute. For combined cycle gas turbines, typical ramp rates are around 10%/minute.

## Derating due to ambient temperature

- Combustion engines are less sensible to temperature and humidity

## Fuel flexibility

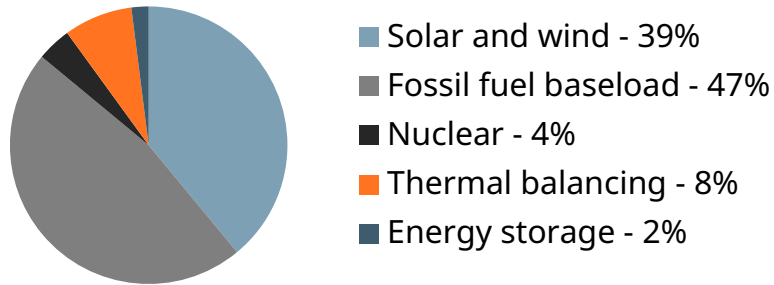
- Gas turbines have reduced availability and output when running on fuel oils

## Lower water consumption

- A combined cycle gas turbine power plant (CCGT) with a recirculating system = 780 liters/MWh.
- Wärtsilä combustion engine power plant operating in simple cycle on natural gas = 3 liters/MWh.

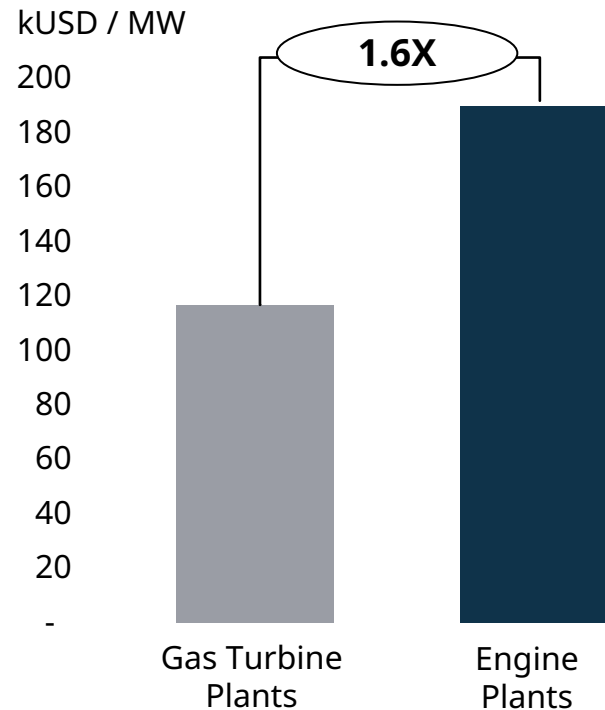
# Case Texas shows future trends. Increasing renewables creates need for balancing with engines outperforming competing technologies

30 million population with 133 GW of installed power (system size equal to France)



- 7% in annual growth of thermal balancing the last 5 years with expected continued growth
- Growing regulatory support for balancing in Texas
- Wärtsilä installed based (and growing):
  - 1 GW of thermal balancing
  - 1.2 GWh of energy storage

1.6X higher<sup>1</sup> real time market revenue potential for engines vs. gas turbines



## Texas as a proofpoint for thermal balancing

- High amount of renewables
- Granular price signals
- Policy support for balancing

Similar conditions forming in:

- Midwestern USA (SPP and MISO)\*,
- Australia
- Europe

\*SPP = Southwest Power Pool

\*MISO = Midcontinent Independent System Operator

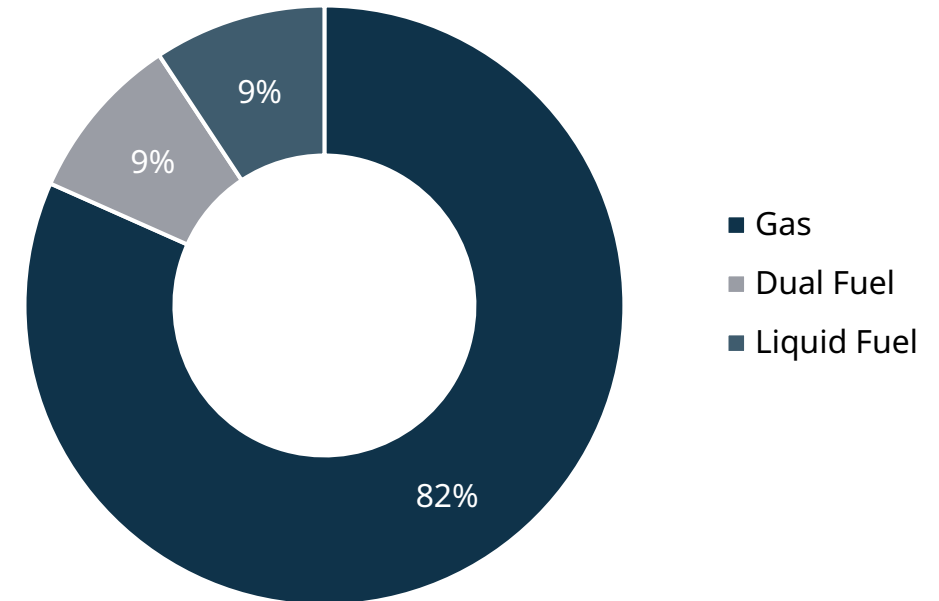
Source: S&P Capital IQ Pro, ERCOT (September 2023 data), 1) ERCOT's Security Constrained Economic Dispatch (SCED) data – Wärtsilä study. Data based on average of 2 Aeroderivative gas turbine plants and 2 Wärtsilä engine plants for the full year 2022

# Wärtsilä Energy is well positioned to provide the fuel flexibility needed for the energy transition

## Technology roadmap for engines

- Plant lifetimes stretching to 2050: **fuel flexibility future-proofs engines**
- There will be **no single global green fuel** for use in the energy sector
- We launched our **100% hydrogen** power plant in Q2 this year, expected to be released for sales in 2025
- 25% hydrogen blend already possible today
- Sustainable fuels come with high conversion losses and should be used **exclusively for balancing** and the decarbonisation of hard to abate sectors
- Using expensive sustainable fuels for inflexible baseload power does not make commercial or environmental sense – leading to a **future advantage for balancing**

## Energy Power Plants order intake by fuel, 2020-24 (MW)



- **91%** of engine MW designed for natural gas operation
- Strong upgrade track record, with **140 liquid fuel engines converted to gas** in 18 countries

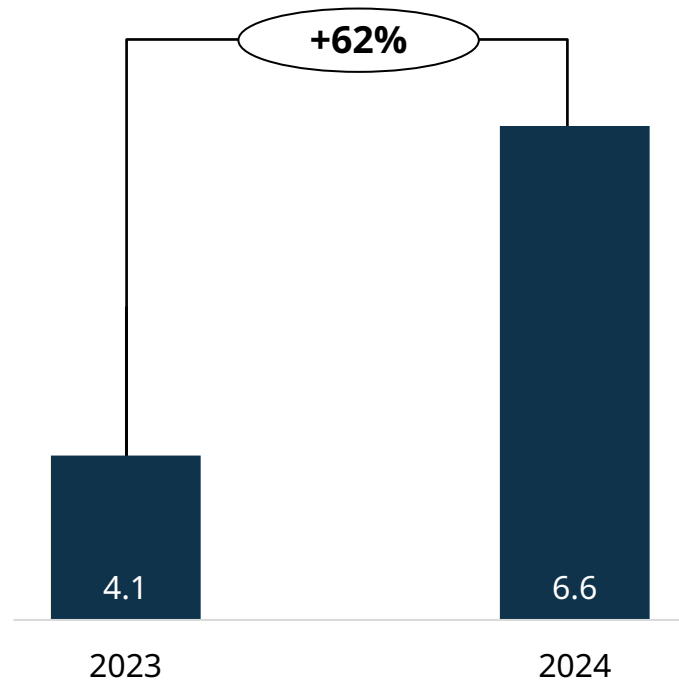
Source: Engine Power Plants call 2024



# Energy storage growth outlook remains strong

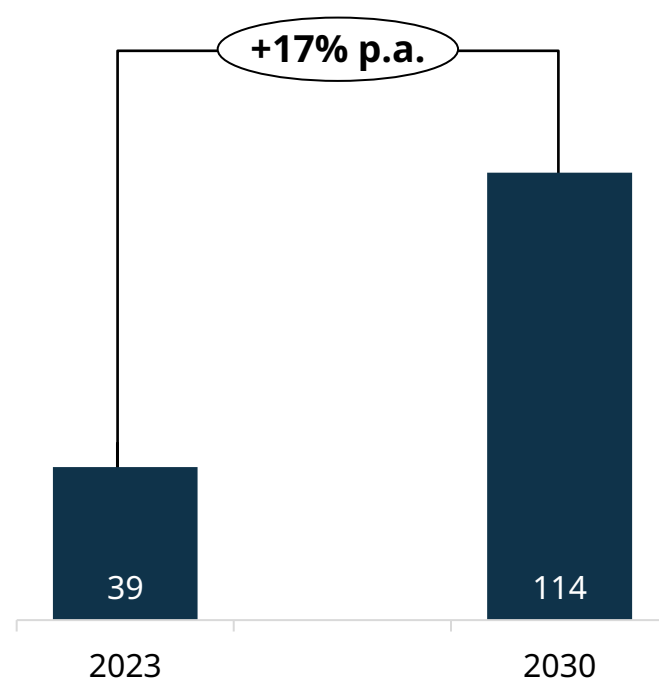
## Order intake

Order intake (GWh)



## Market outlook

Addressable annual market (GWh) <sup>1)</sup>



## Outlook

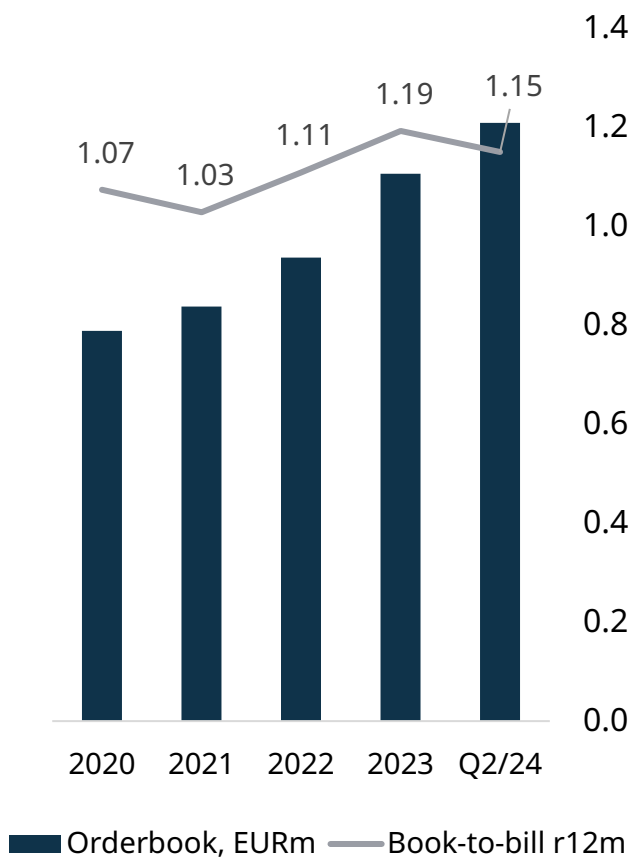
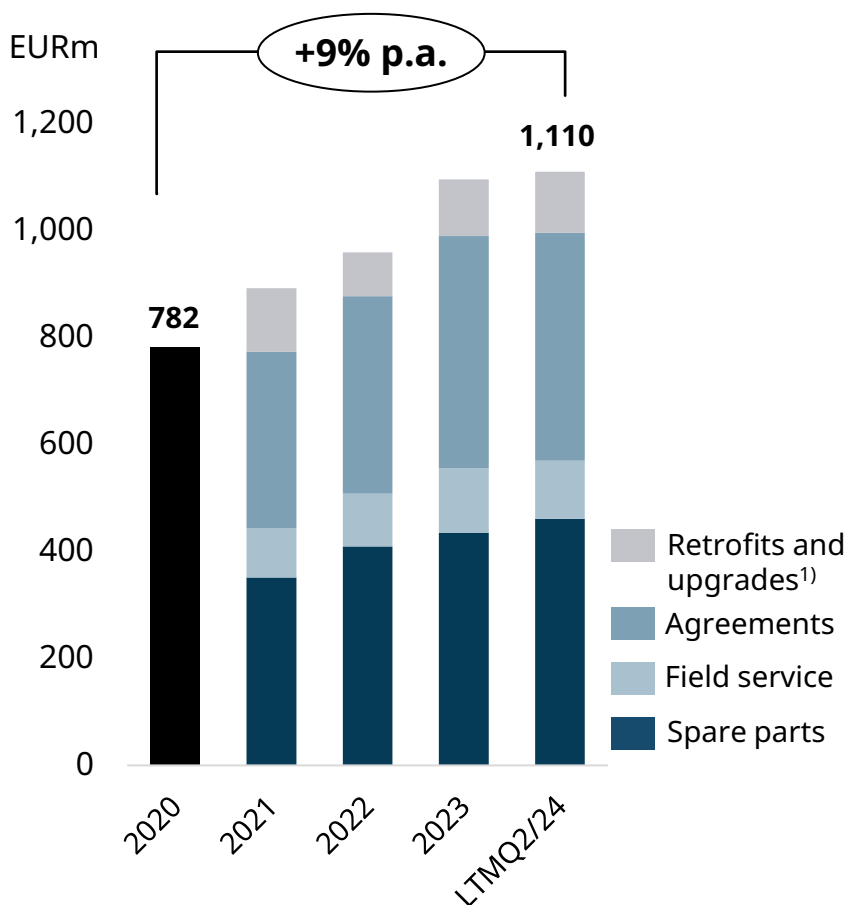
- Focus on profitable growth
- **Strong new build sales growth** expected, driven by market demand
- **>11 GWh** energy storage capacity delivered, awarded, contracted or in deployment
- **Complexity drives demand** for advanced energy management systems

1) Sources: BNEF and Wärtsilä estimates. Addressable market excluding certain geographical markets and residential and commercial storage

# Good performance in Energy Services with a solid foundation for future growth

Growing Service Net sales

All time high orderbook & strong book-to-bill



**+24% total Services sales**  
2021-LTM Q2/2024

**+29% Service agreements sales**  
2021-LTM Q2/2024

**+40% total orderbook**  
2020-2023

## Energy services growth drivers remain solid

- Increasing agreement coverage
- Growing installed base
- Upgrades & sustainable fuel conversion demand
- Growth potential in outcome-based and decarbonisation agreements
- Stable total running hours

1) Referred to as Service Projects in the interim reports

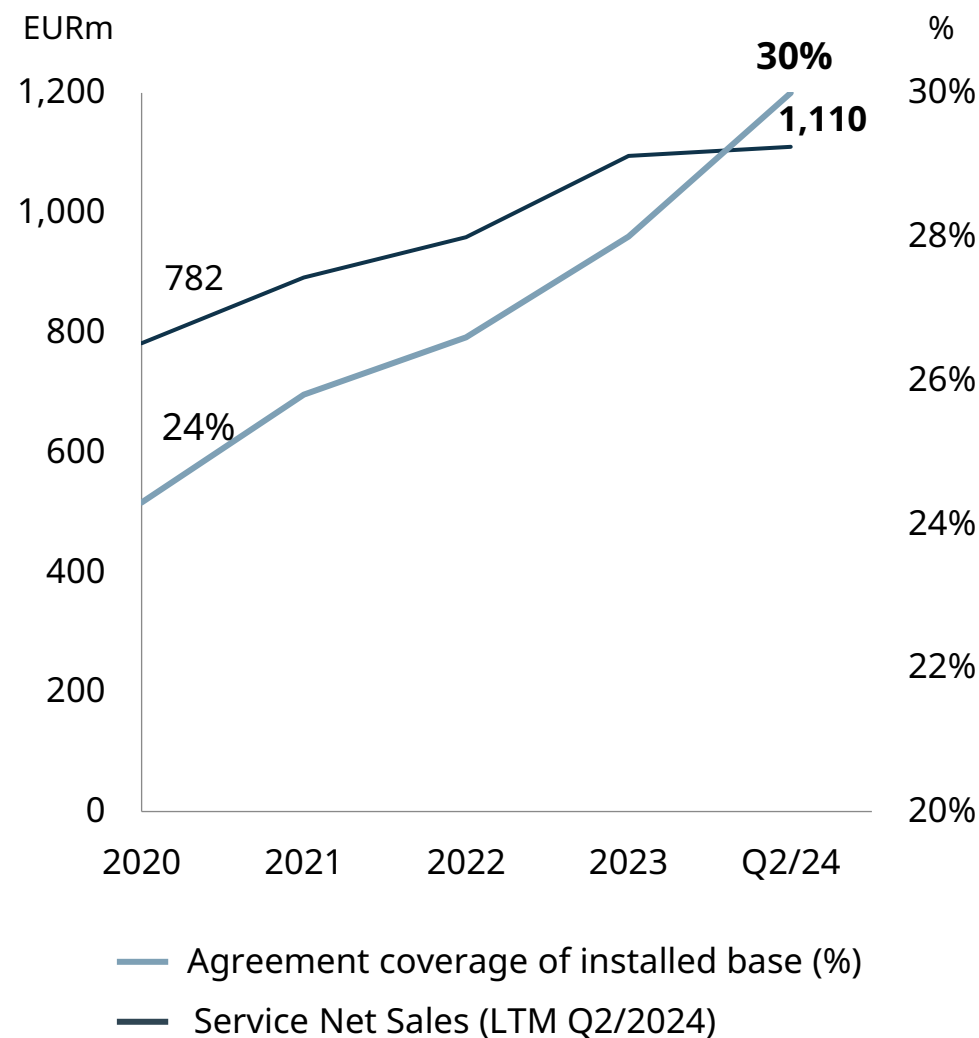
## Increasing agreement coverage is supporting growth



Our strategic focus to increase lifecycle agreement coverage is generating growth in Energy



**Anders Lindberg**  
President, Energy



Increasing share of agreement customers in our installed base  
**30% agreement coverage**

High agreement renewal rate for existing customers  
**>90% renewal rate** LTM Q2/24

Sales to installations under agreement account for  
**56% of net sales** (2023)

# Decarbonisation Services provide new growth opportunities

## Decarbonisation Services optimises microgrids by integrating



Energy Management Systems



Engine Power Plants



Battery Energy Storage



Customer's renewable power generation



**into outcome-based agreements**

Our target customers are captive microgrids in the industrial segment and small-scale island utilities, with requirements in:

**grid efficiency, reliability, and sustainability**

Our modelling shows that customers face challenges with optimising microgrids even at low renewable penetrations. As share of renewables grow, grid reliability constraints further complicates optimisation for **lowest CO2 and Levelised Cost of Electricity**

Out of our installed base, approximately 23% or **14 GW is addressable for Decarbonisation Services.**

In addition, as a part of new microgrid investments, we see an increasing interest for decarbonisation services

Source: Service call 2024

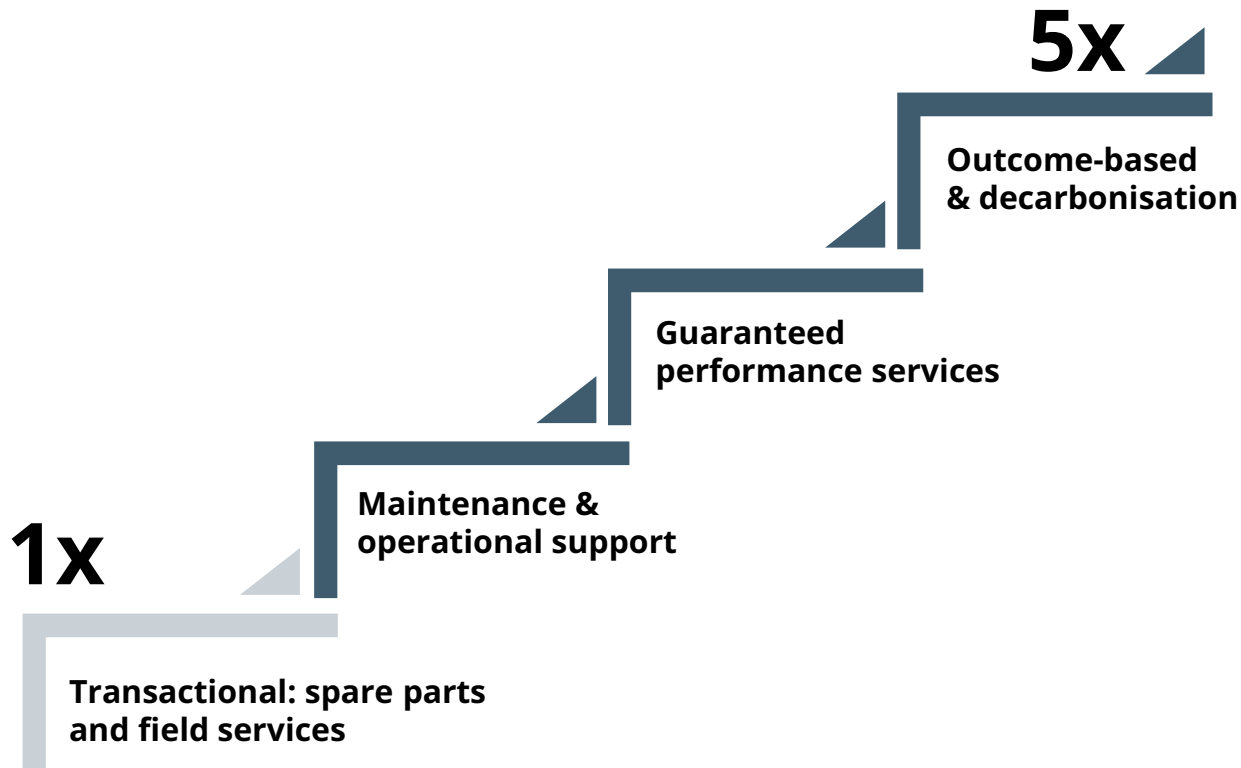


# Moving up the service value ladder in Energy

We increase sales, profitability and customer satisfaction by moving up the service value ladder

## Wärtsilä service value ladder

Sales EUR/kW relative to transactional



## Continuous growth in agreement coverage

- Securing service agreements for **new power plants**
- Maintaining **high renewal rate** for existing agreements: >90% renewal rate shows high customer satisfaction
- Increasing the **share of agreement customers** in our installed base: 29% agreement coverage and ~18GW under agreement<sup>1)</sup>, 3,4GW added since 2021

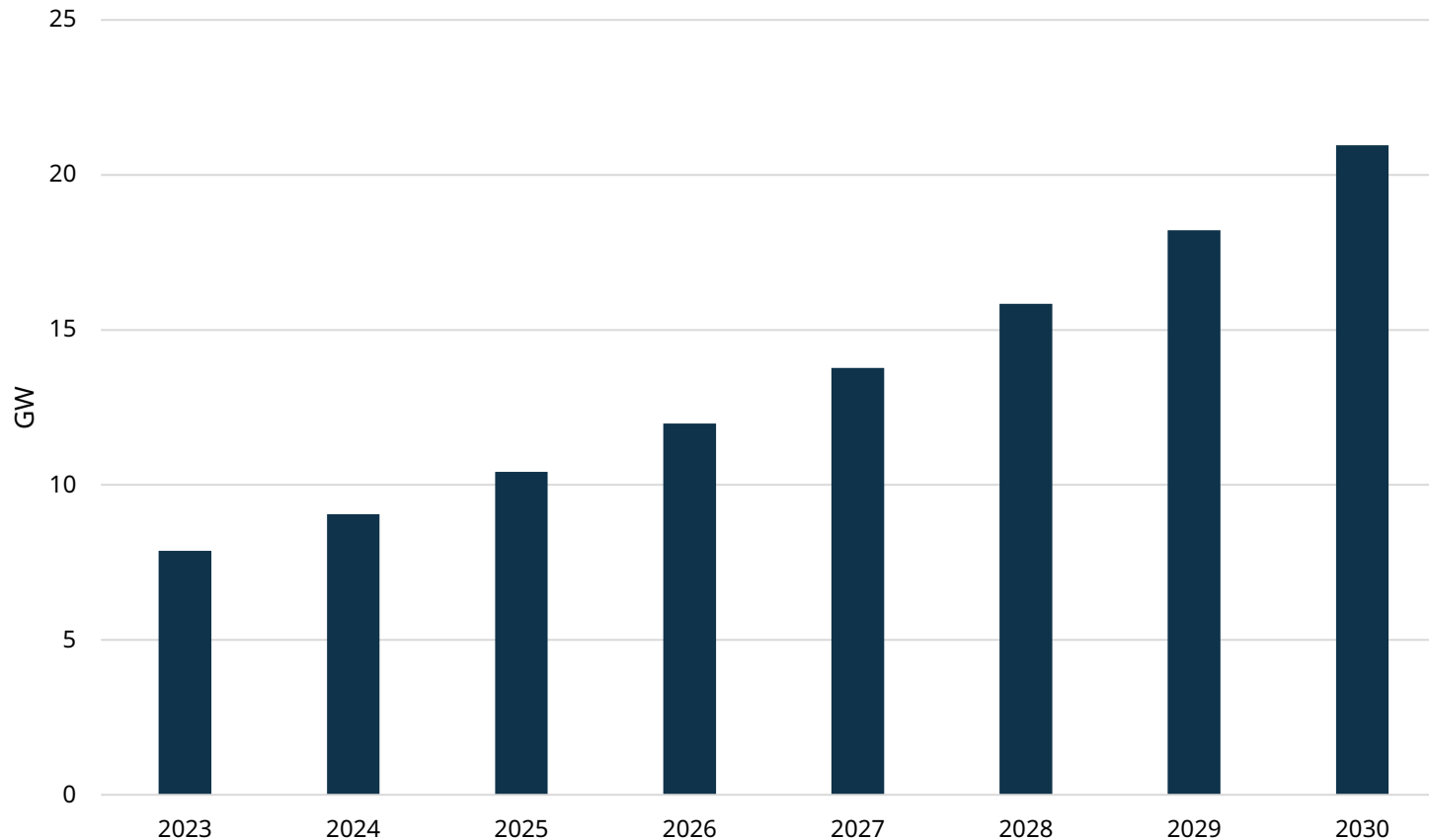
## Moving customers up the service value ladder

- Local presence, global operations, and investments in data & digital solutions enable us to meet high customer expectations
- Higher satisfaction scores for agreement customers that are higher up the value ladder
- Portfolio of **agreements with performance guarantees** is growing: Total 7GW with ~2GW added since 2021

1) Includes agreements covering both installed assets and assets to be installed in the future

# We see growth opportunities for baseload engine power plants in Data Centres

## Global data centre power demand growth<sup>1</sup>



New data centre power capacity expected to be added 2024-2027  
~ **45 GW**

Typical grid connection time currently  
**5 years**

Wärtsilä's sweet spot  
**Baseload power for off-grid data centres<sup>2</sup>**

1) Adapted from IEA Electricity 2024, 2) Waiting for grid interconnection due to grid constraints

# The Data Centre power market is shifting, with new thermal baseload opportunities in specific markets

## Historical: backup power


 **20-100 MW**  
typical power need

*Grid interconnections immediately available*

- Customer focus: CAPEX, availability
- Segment typically served by high-speed engines
- High risk in case of strict availability guarantees
- Limited lifecycle service opportunity



## Emerging: off-grid baseload

 **50-300 MW**  
typical power need

*Grid interconnection times up to 5-7 years in some markets*

- Customer focus: delivery time, OPEX, emissions
- Typically requires medium-speed engines or gas turbines
- Wärtsilä competitiveness high due to shorter lead times, modularity, reliability
- High lifecycle sales potential

**US market developing rapidly as baseload is needed while awaiting grid connection**

**>50%**  
of all data centres worldwide

**>10%**  
of total electricity consumption in at least 5 US states

**\$22 billion**  
invested in data centres (2023)

Sources: IEA, Linklaters

# Future performance will be driven by strong sales growth and service volumes, continuous improvement, and a future-proof solution portfolio

## Recent actions:

- ✓ **New organisational structure and processes:** Updated sales-to-order processes and Business Units with P&L responsibility
- ✓ **Rebalance in risk appetite:** EEQ as the preferred offering, EPC only considered in selected markets
- ✓ **Stronger risk / reward profile:** Legacy projects have been concluded

### New build margins

- ✓ New organisation & governance
- ✓ Stronger risk management
- ✓ Operational leverage from growth

### Continuous improvement

- ✓ Lean operations and flow efficiency
- ✓ Predictive and autonomous operations
- ✓ Cost indexation & active pricing

### New build sales

- ✓ Strong thermal balancing growth
- ✓ Strong energy storage growth
- ✓ Future-proofed portfolio for sustainable fuels and optimisation

### Service sales

- ✓ Growing installed base
- ✓ Increasing agreement coverage
- ✓ Climbing the service value ladder

← Profitability →

← Growth →

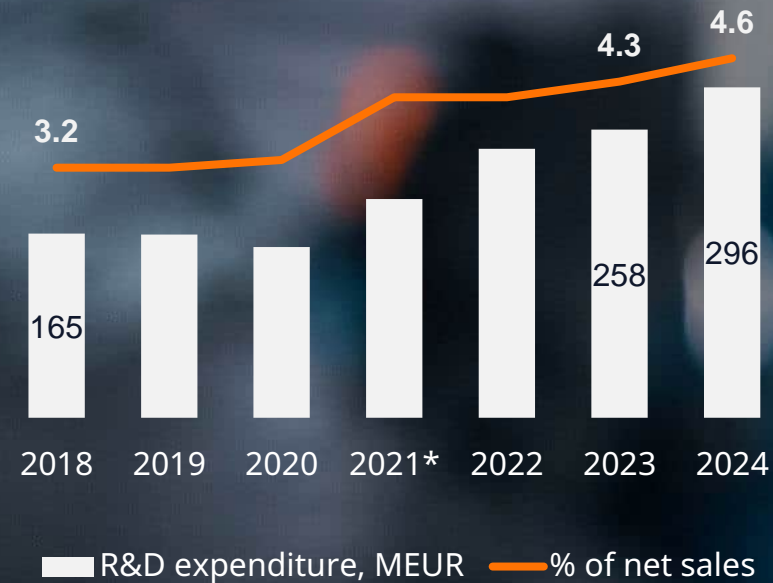


# R&D



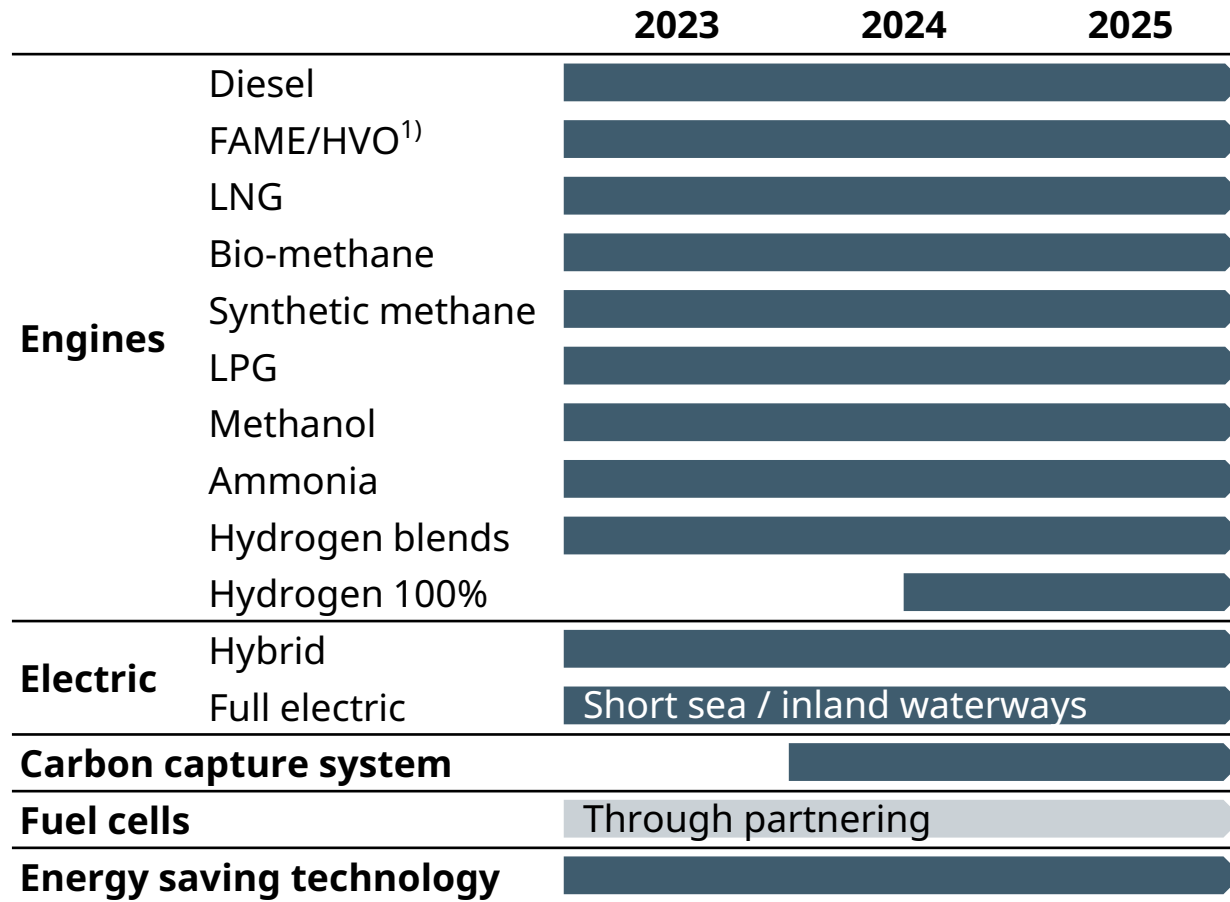
AMMONIA  
 $\text{NH}_3$   
 WÄRTSILÄ

We continue investing in innovation to ensure a broad, industry-leading solution offering



\* Figure in the comparison period 2021 has been restated to reflect a change in the definition of research and development expenditure.

# Industry's most comprehensive offering for decarbonisation



- ✓ Industry's fastest and broadest future fuel roadmap
  - ✓ Market leaders in 4-stroke medium-speed main engines
  - ✓ Industry-leading hybrid solutions
  - ✓ Pioneer with the world's first full scale carbon capture plant in 2024 and full commercial release in 2025
- ✓ Methanol engine types available today<sup>3)</sup>,
- ✓ Ammonia engine was launched in Q4 2023,
- ✓ 100% hydrogen-ready power plant engine technology was launched in Q2 2024

1) Biodiesels: FAME – Fatty Acid Methyl Esters, HVO – Hydrogenated Vegetable Oil; 2) Battery MWh on 2000+ GT hybrid vessels; 3) Newbuild and retrofits



# Q4 2024 development



5 February 2025



## Strong growth in order intake, net sales and profitability in Q4

- All-time high order book (8,366 MEUR)
- Order intake increased by 34%
- Net sales increased by 13%
- Comparable operating result increased by 18%
- Good progress in services continued:
  - Service order intake increased by 15%
  - Service net sales increased by 12%
- Strong cash flow from operating activities (437 MEUR)

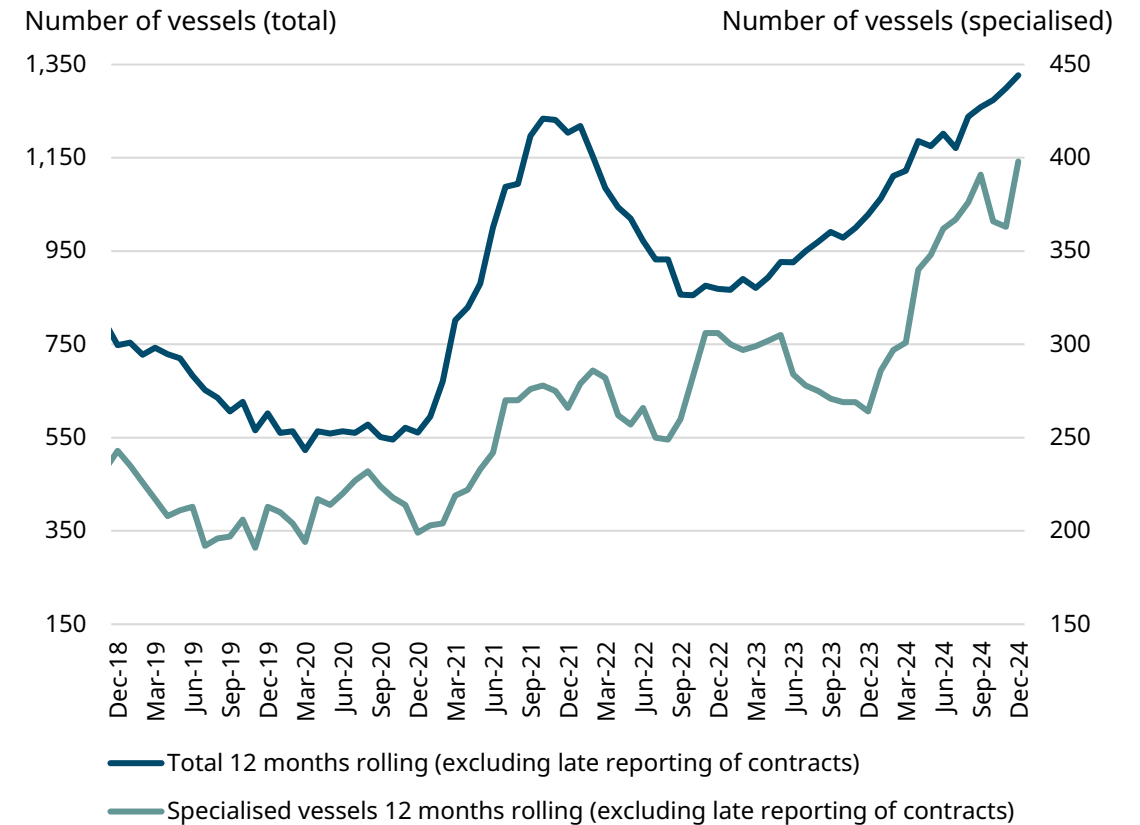


# Marine: market sentiment is positive for Wärtsilä's key segments

Increase in demand for new ships continued

- The number of vessels ordered in the review period increased to 2,765 (1,977 in the corresponding period in 2023), excluding late reporting of contracts.
- Newbuild contracting in 2024 was strong overall, driven by supportive freight market especially due to Red Sea re-routing, and underlying fleet renewal requirements.
- Global shipyard capacity reached its low point in 2020 at ~60% of 2011 peak level, currently being at ~70% of the peak and could increase to 80-85% by 2030, driven by yard reactivations and expansions in China.
- In 2024, 653 orders for new alternative fuel capable ships were reported in 2024, accounting for 24% (23) of all contracted vessels and 49% (43) of contracted vessel gross tonnage.

## 12 months rolling contracting trend



Source: Clarksons Research, as per 3rd of January 2025 (+100 gt, excluding late reporting of contracts).

12m rolling contracting in chart is based on the numbers taken at the beginning of each month for the previous month, excluding late reporting of contracts.

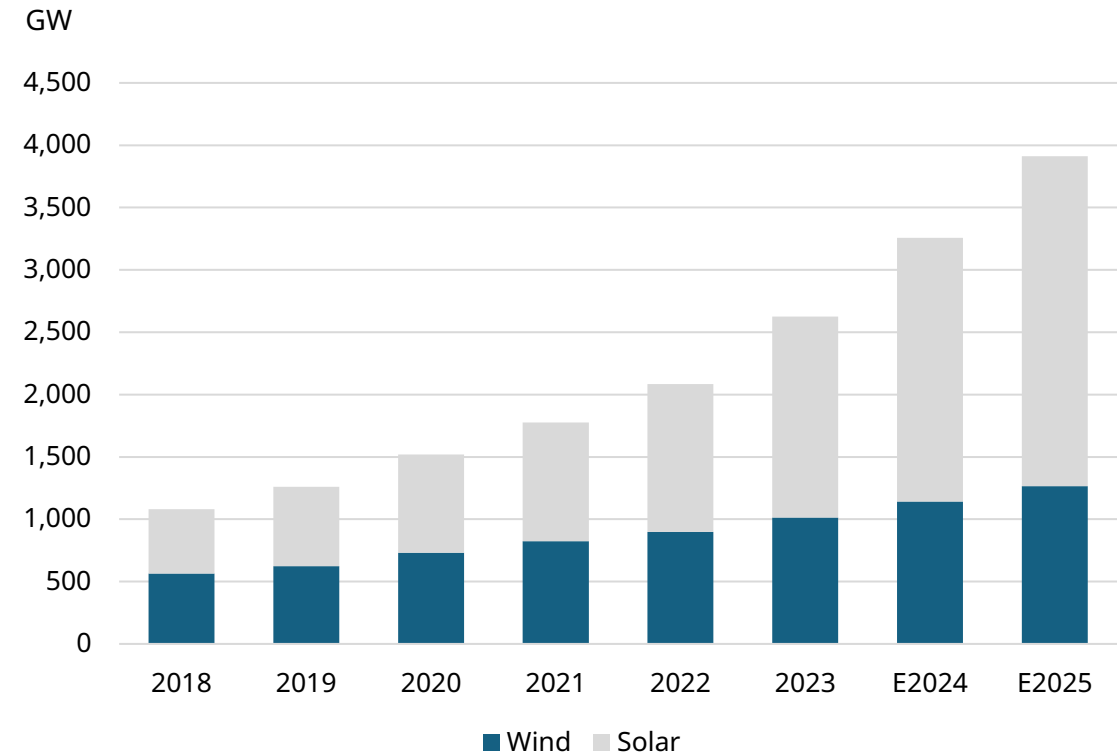
Specialised vessels include LNG carriers, LPG carriers, cruise & ferry, offshore, and special vessels.

# Energy: solid long-term market opportunities

The energy transition continued to advance in 2024

- Wind and solar are expected to post record installations in 2024 and 2025. Combined capacity additions from wind and solar are expected to be between 650 GW and 800 GW in 2025 according to IEA and BNEF.
- Energy-related macroeconomic development in 2024 was impacted by elevated risks in the geopolitical environment creating uncertainty and slower decision making.
- In 2024, both thermal balancing and battery energy storage experienced highest levels of market activity to date driven by the increasing share of renewables.
- Data centres present a promising baseload opportunity due to delayed grid connections. According to IEA, additional 45 GW of power capacity are expected to be added for data centres between 2024 and 2027.

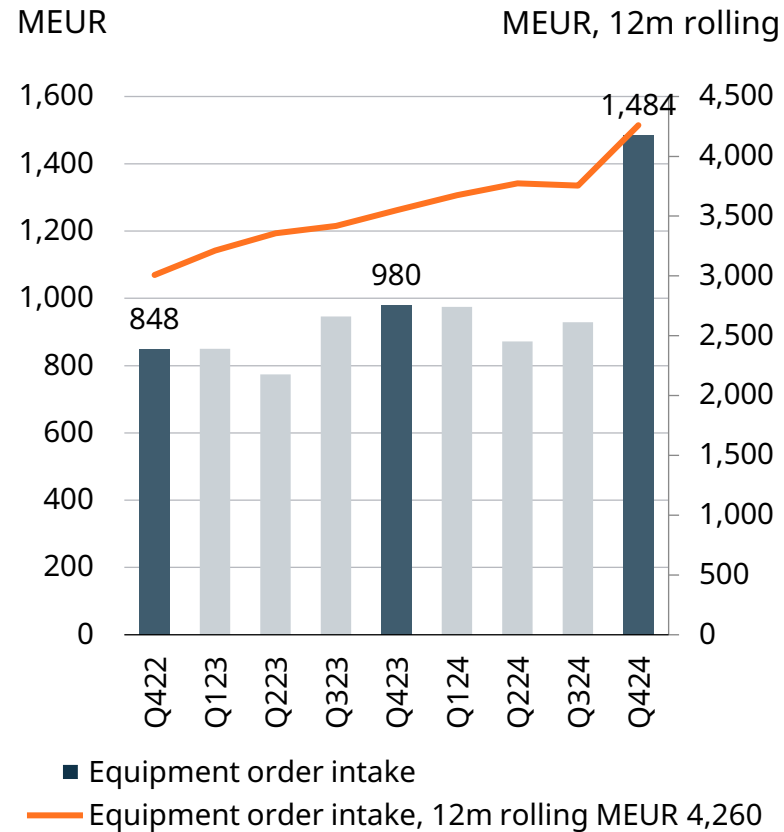
## Development on installed wind and solar capacity



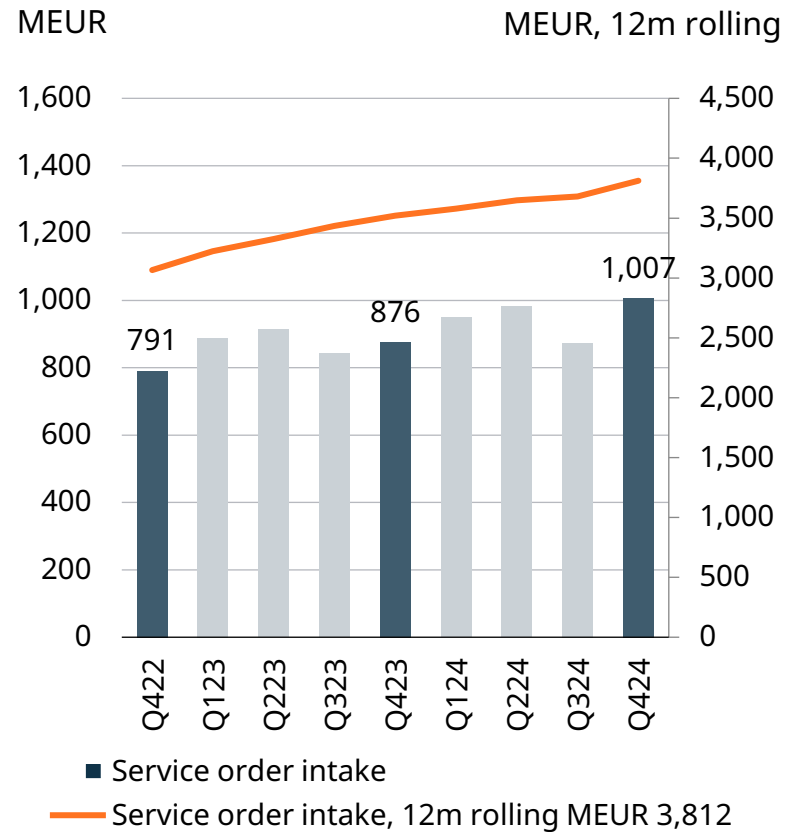
Source: IEA Renewables 2024 - Renewable Energy Progress Tracker

# Organic order intake increased by 35%

## Equipment



## Services



Order intake increased by 34%

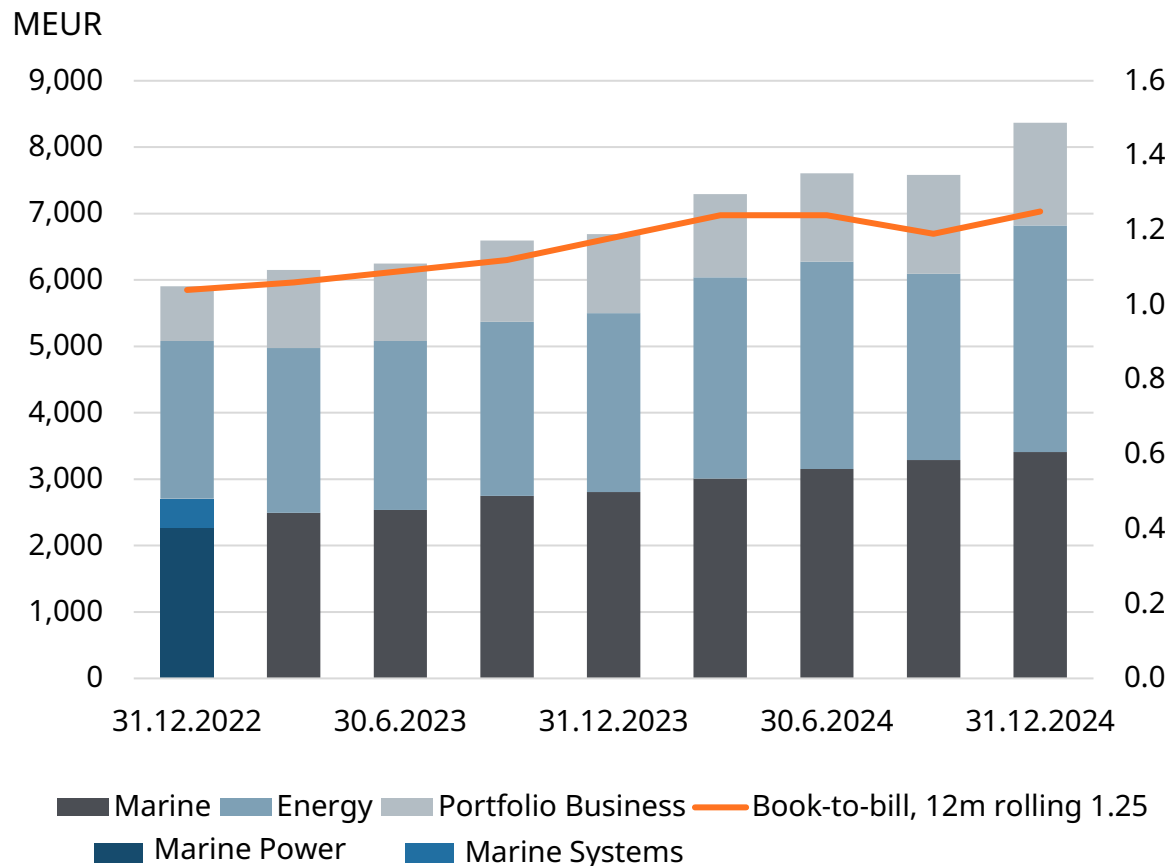
Equipment order intake increased by 51%

Service order intake increased by 15%

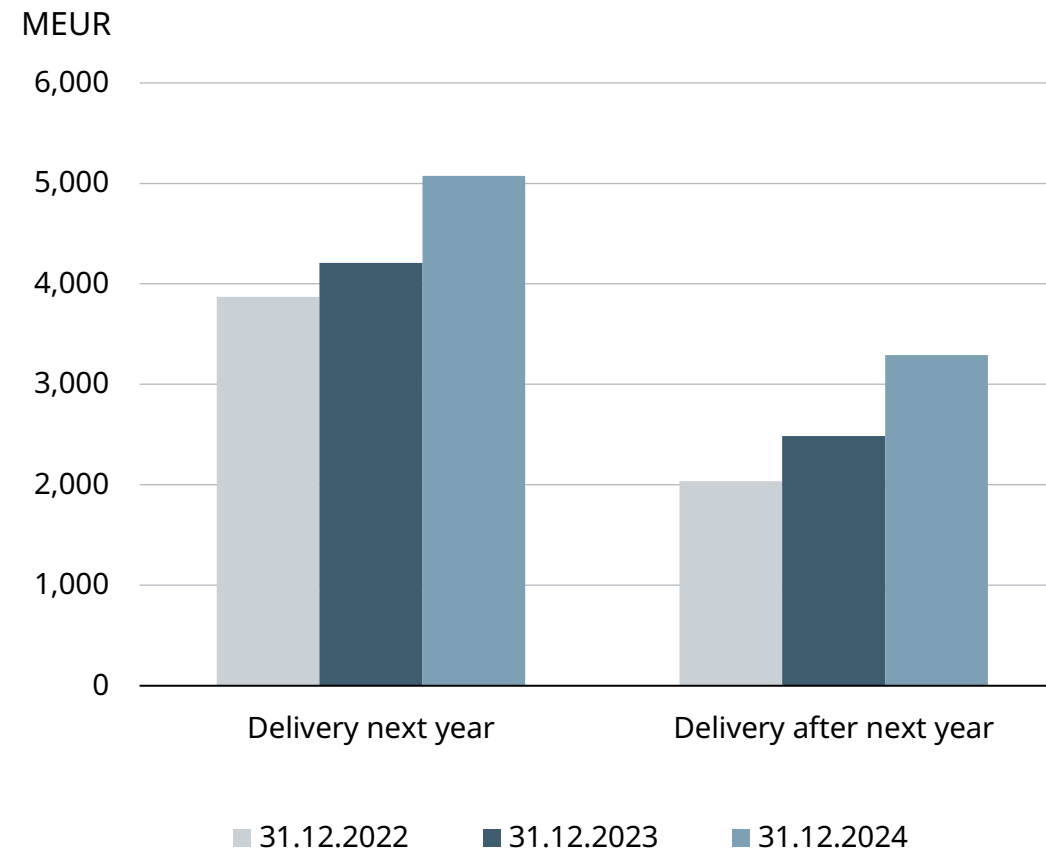


# All-time high order book, rolling book-to-bill continues above 1

## Order book by business



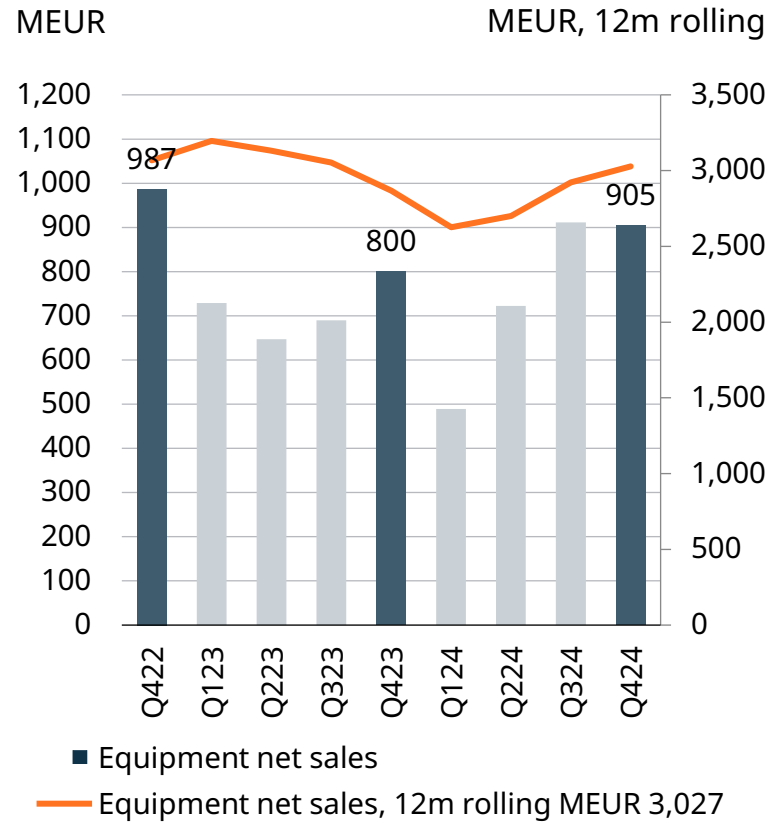
## Order book delivery schedule



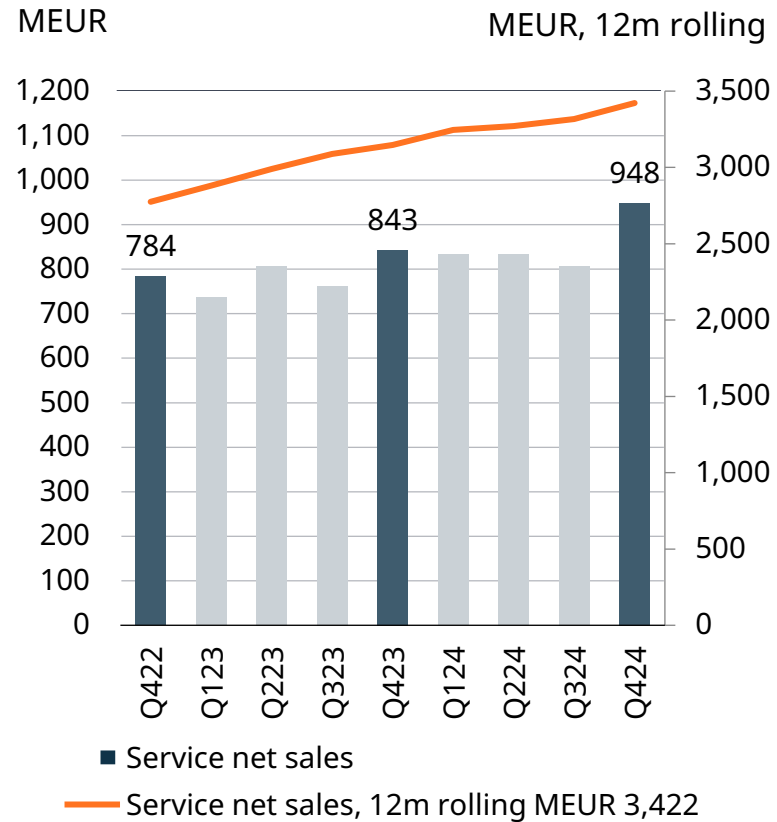
Financial figures for 2023 have been restated to reflect a redefined organisational structure after discontinuation of Marine Systems as a reporting segment as of 1 January 2024. Gas Solutions business unit was moved to Portfolio Business for divestment, and Exhaust Treatment and Shaft Line Solutions business units were moved from Marine Systems to Marine Power and consequently, Marine Power changed its name to Marine as of 1 January 2024. 2022 figures are restated to reflect the redefined organisational change considering the integration of Voyage into Marine Power and moving part of the Voyage business to the Portfolio Business.

# Organic net sales increased by 13%

## Equipment



## Services



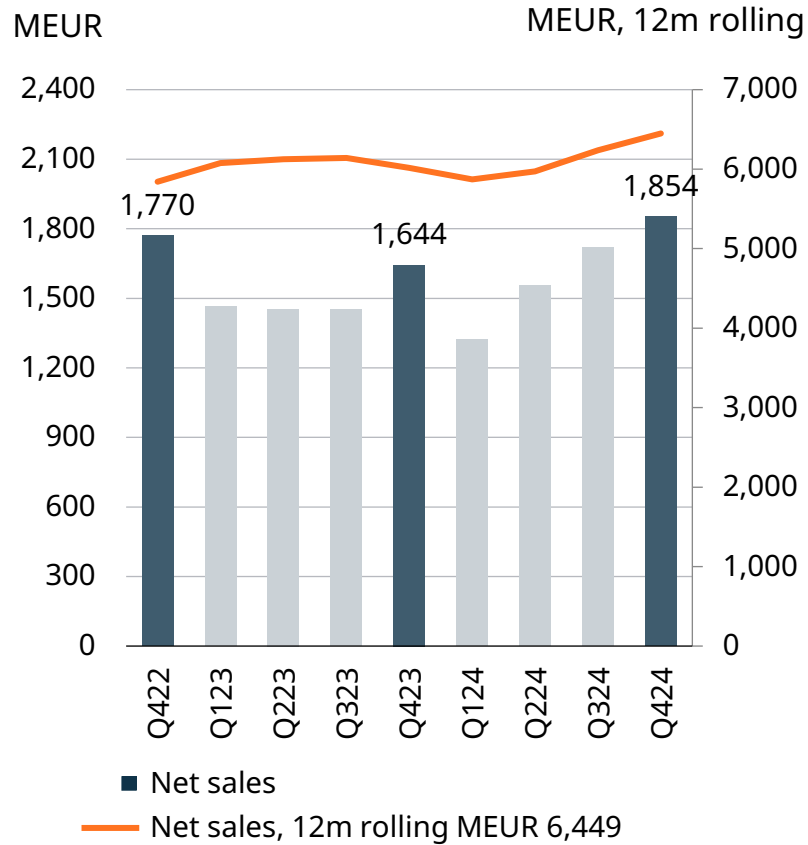
Net sales increased by 13%

Equipment net sales increased by 13%

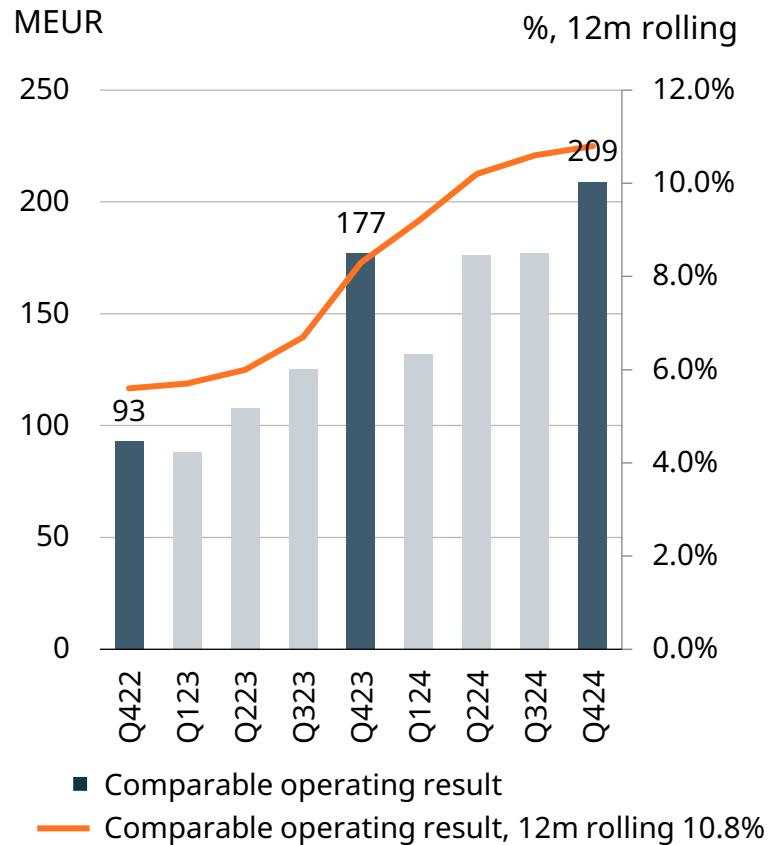
Service net sales increased by 12%

# Profitability continued to improve

## Net sales



## Comparable operating result



Net sales increased by 13%

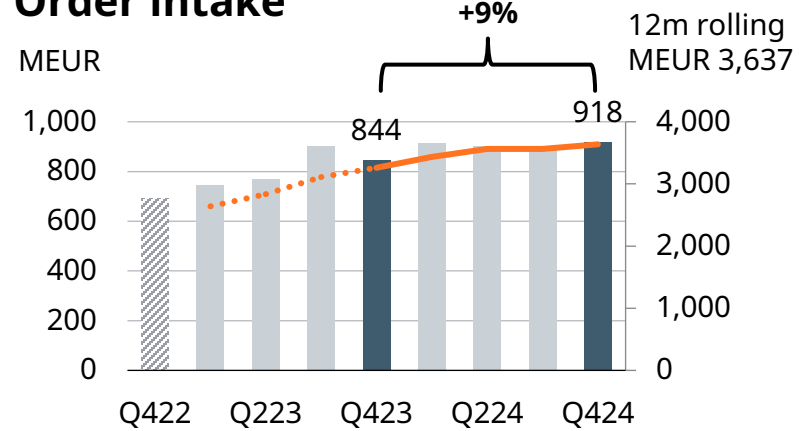
Comparable operating result increased by 18%

Comparable operating result margin 12m rolling at 10.8% (8.3%)

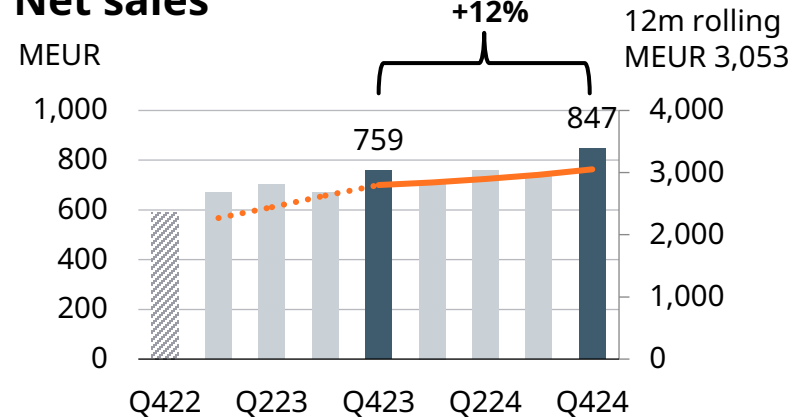
# Marine: Good performance continued

Order intake and net sales increased

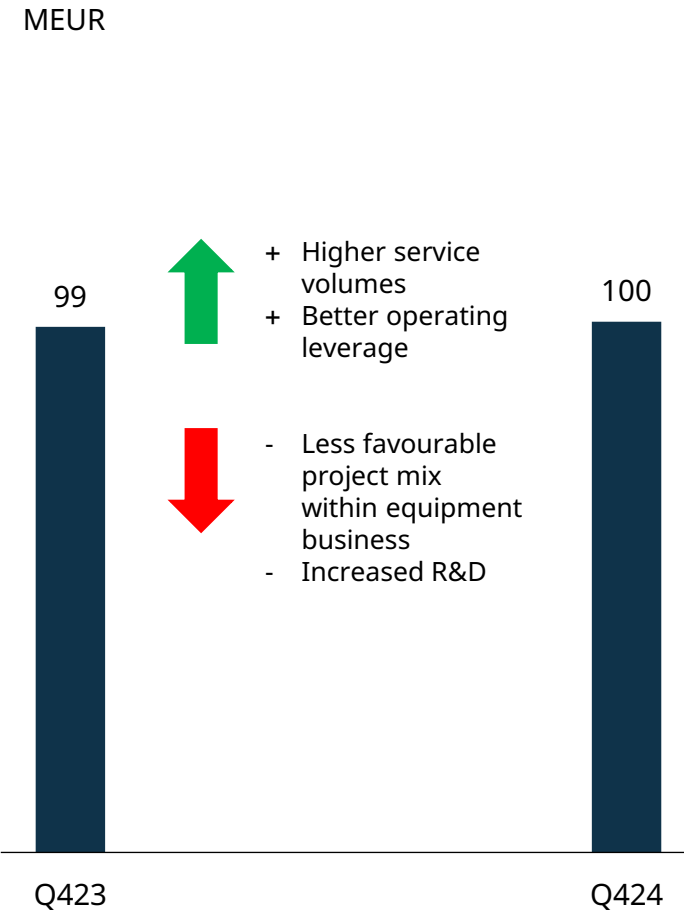
## Order intake



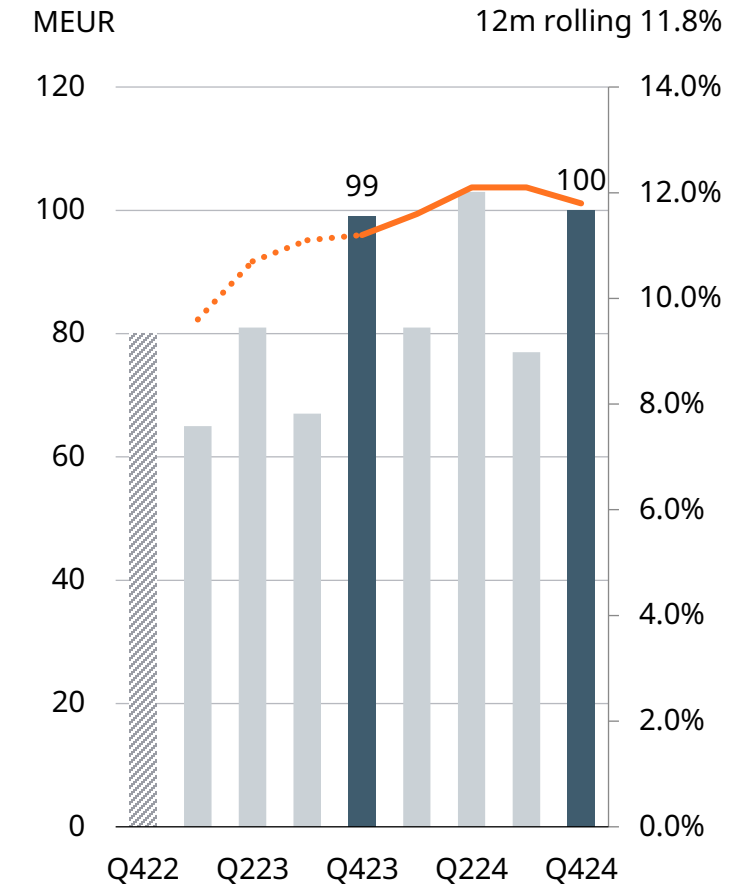
## Net sales



## Comparable operating result



## Comparable operating result



Financial figures for 2023 have been restated to reflect the redefined organisational structure after the discontinuation of Marine Systems as a reporting segment as of 1 January 2024. Exhaust Treatment and Shaft Line Solutions business units were moved from Marine Systems to Marine Power and consequently, Marine Power changed its name to Wärtsilä Marine. Financial figures for 2022 have been restated to reflect the redefined organisational change considering the integration of Voyage into Marine Power and moving part of the Voyage business to the Portfolio Business. As financial figures prior to 2023 have not been restated to account for the current organisational structure, the non-comparable figures are marked with dashed columns and a dashed line.

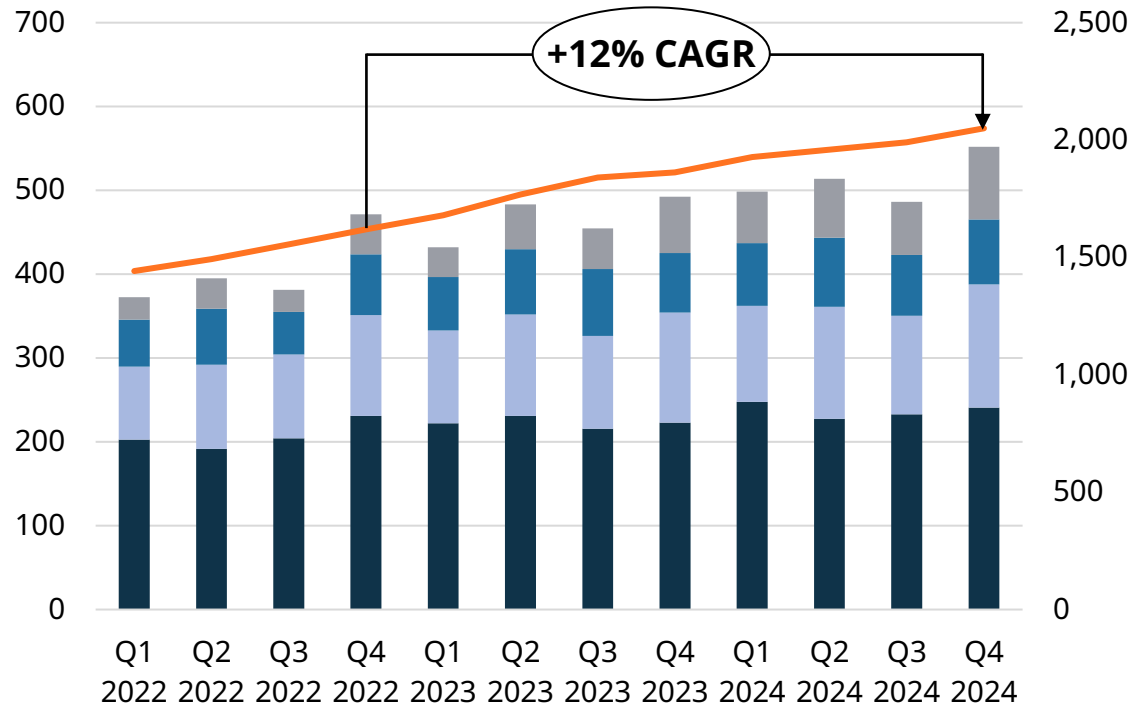


# Good development in Marine service

Book-to-bill above 1 in all service revenue streams

## Marine service, Net sales

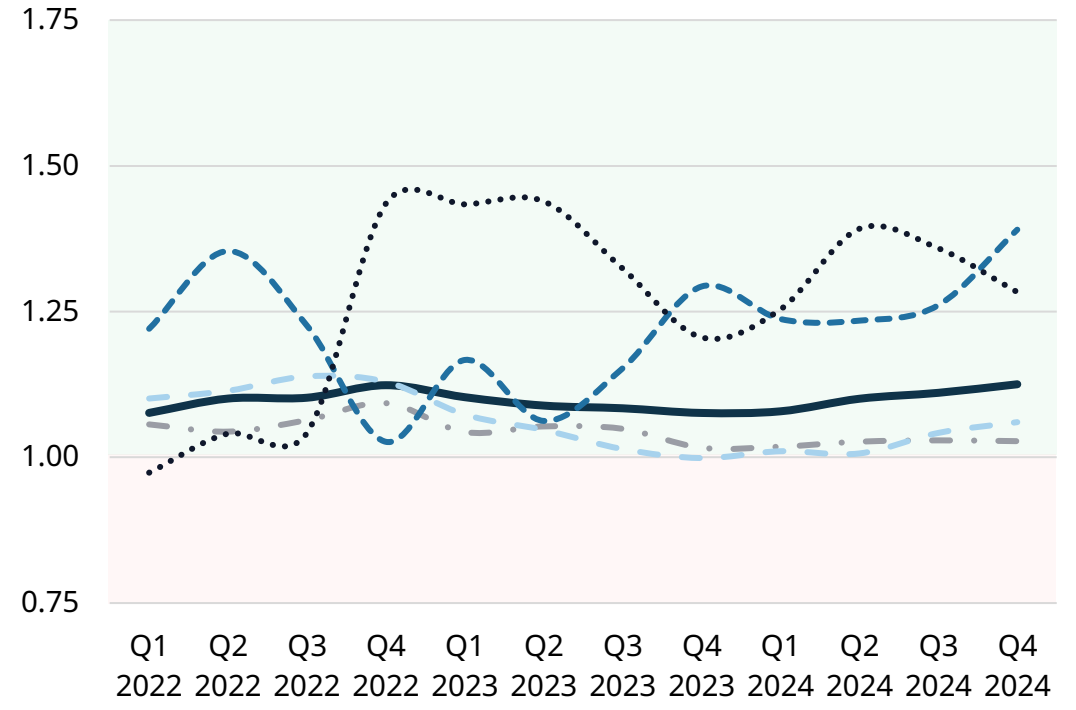
MEUR



- Spare parts
- Field service
- Service agreements
- Retrofits and upgrades
- Net sales, 12m rolling

## Marine service, Book-to-bill

12m rolling book-to-bill



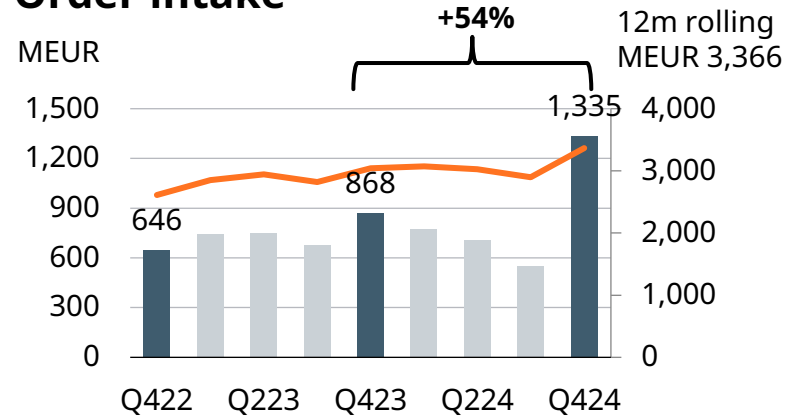
- Service, total
- Field service
- Service agreements
- Retrofits and upgrades
- Spare parts

2023 data restated to reflect the redefined organisational structure as of 1 Jan 2024. Figures prior to 2023 are not fully comparable due to organisational changes.

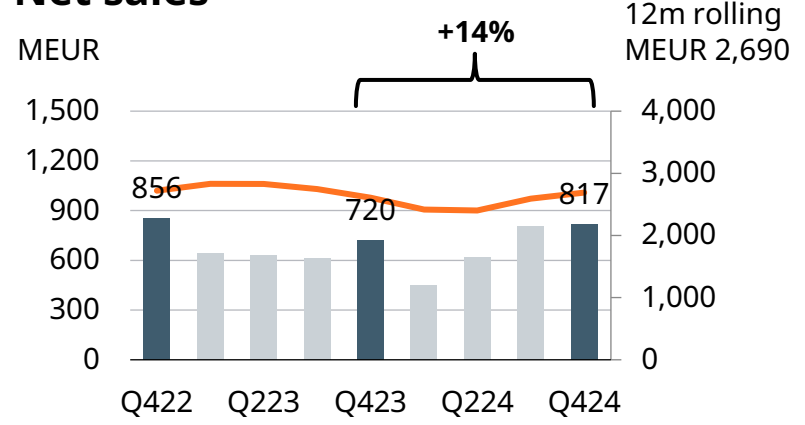
# Energy: Comparable operating result increased

Strong growth in order intake both in Engine Power Plants and Energy Storage & Optimisation

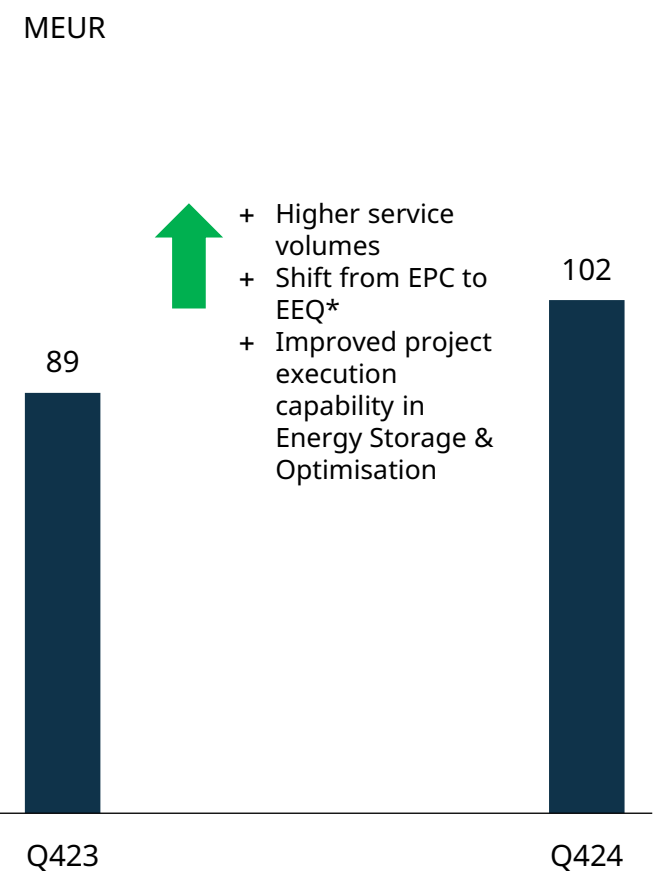
## Order intake



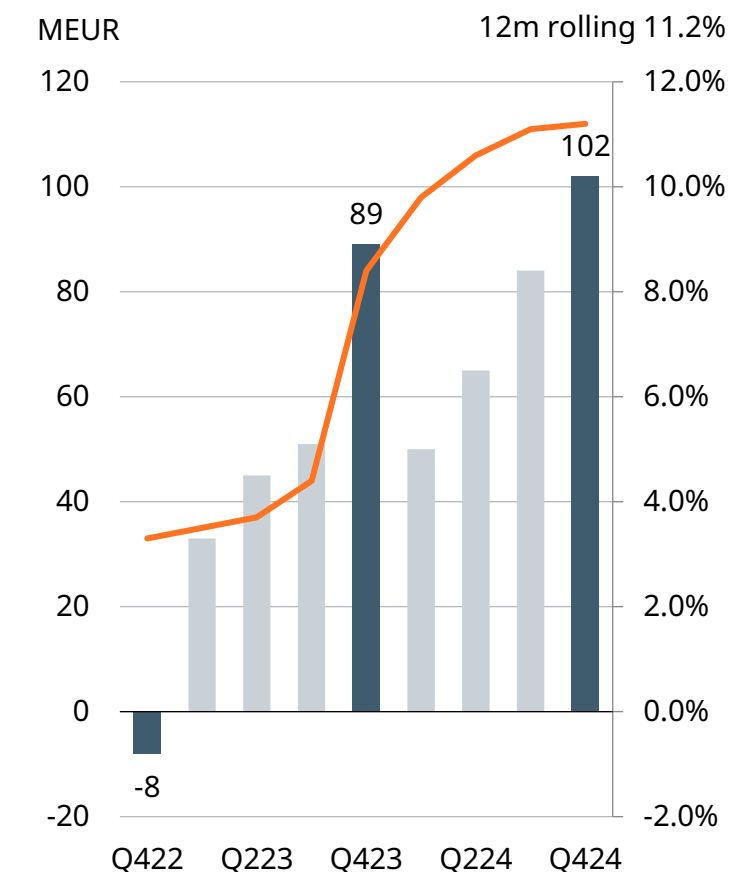
## Net sales



## Comparable operating result



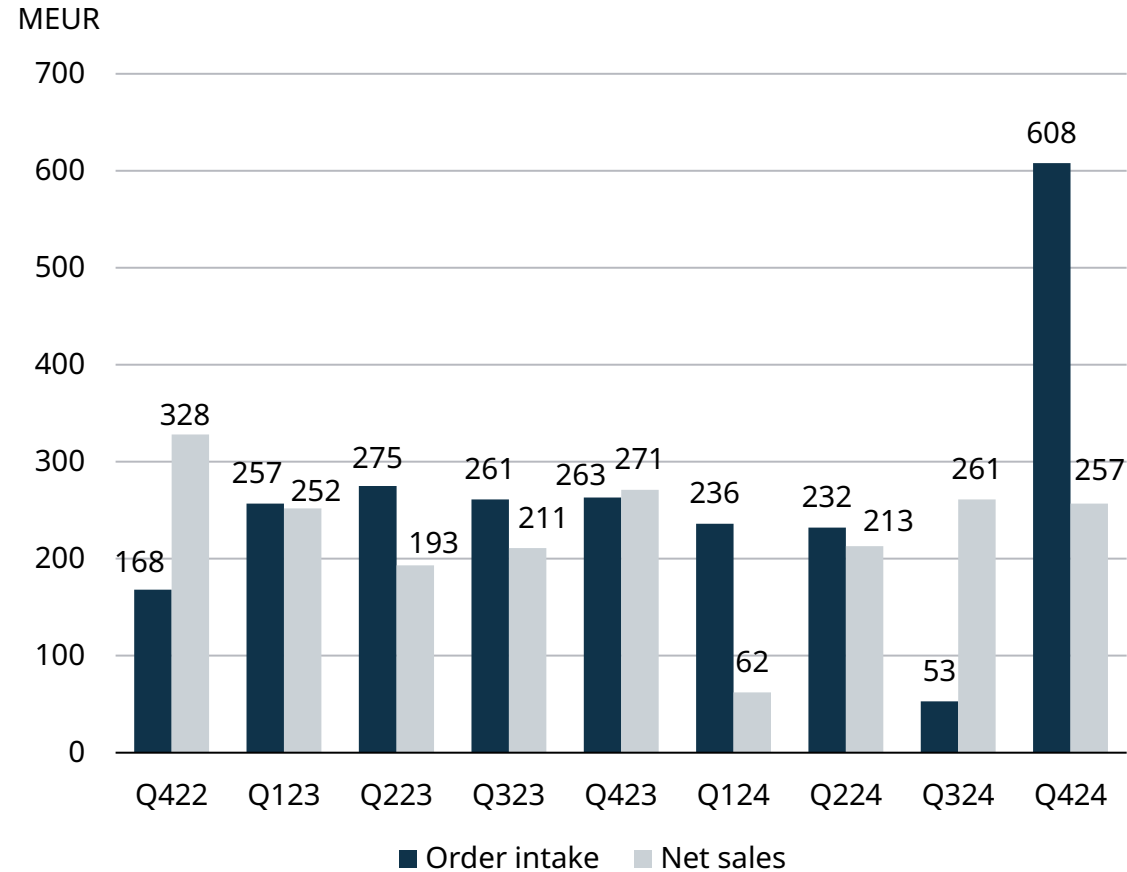
## Comparable operating result



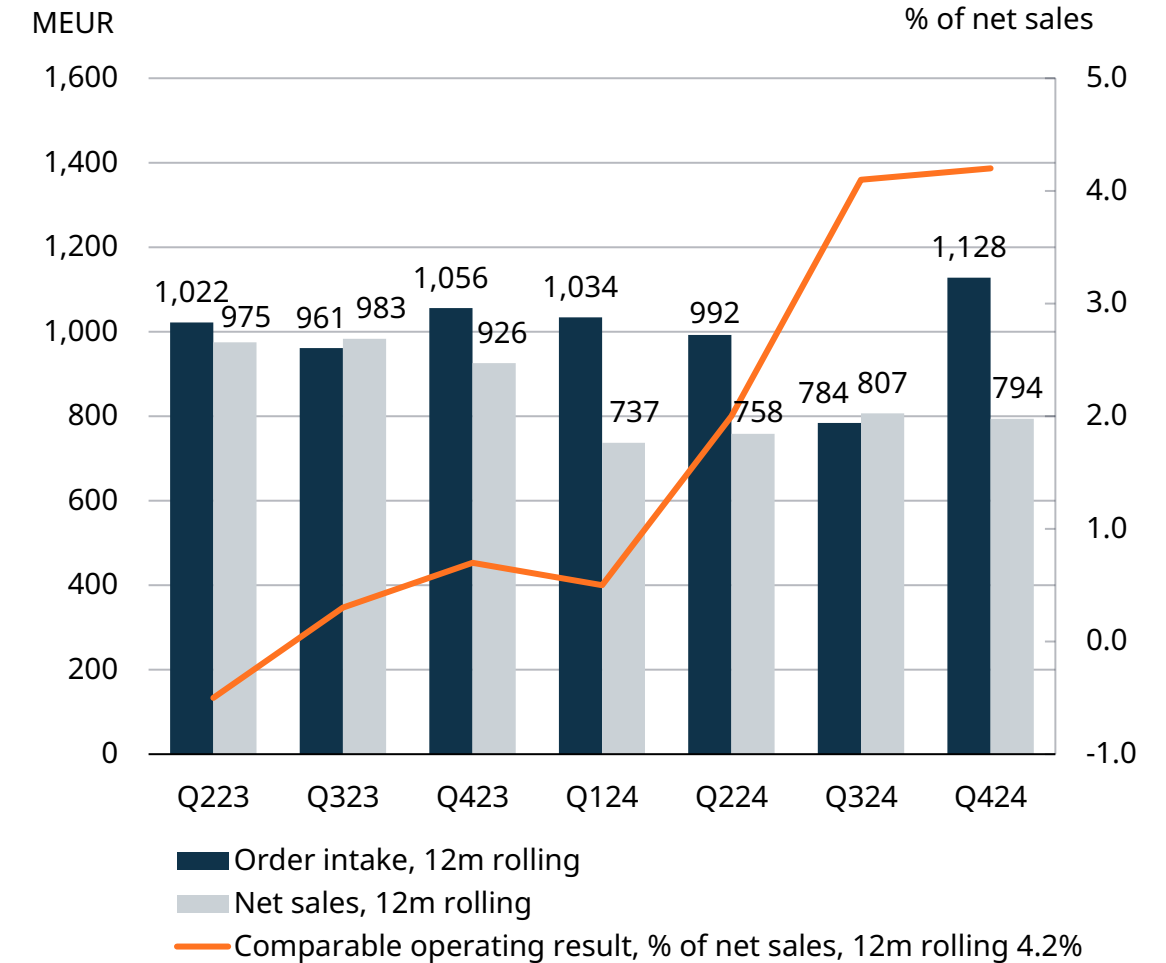
\* EPC: Engineering Procurement and Construction, EEQ: Extended Equipment Supply

# Energy Storage & Optimization: Comparable operating result margin (12m rolling) continued to improve

## Quarterly development



## Rolling 12 months development

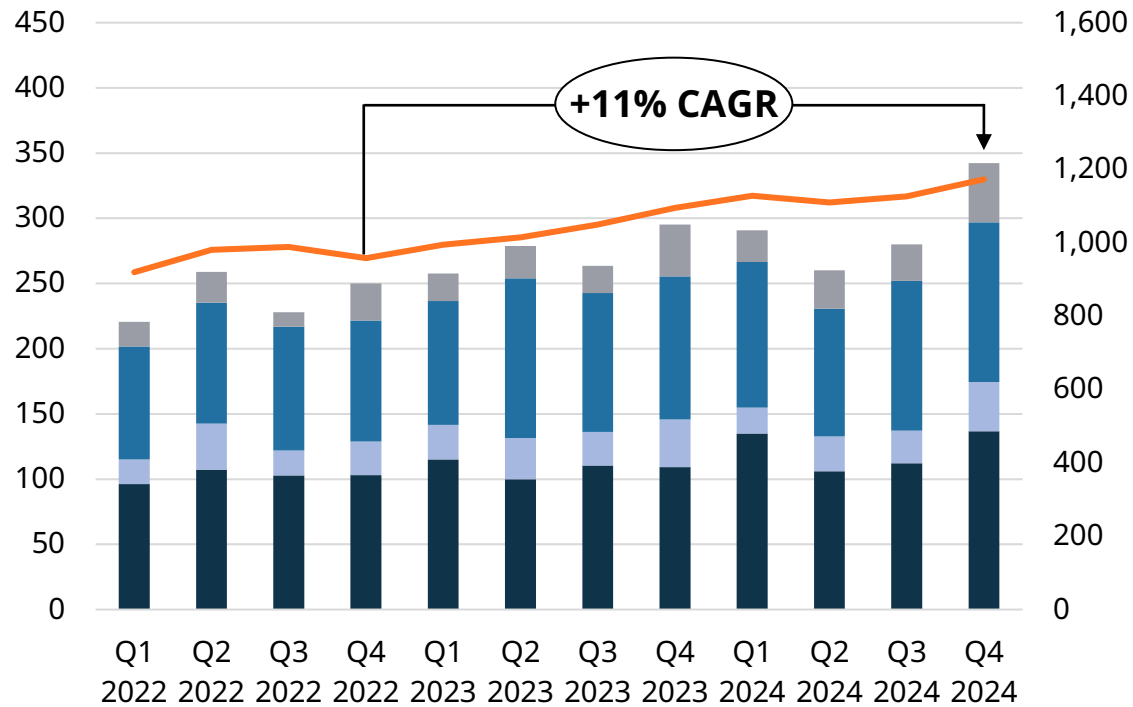


# Good development in Energy service

Book-to-bill above 1 in all service revenue streams

## Energy service, Net sales

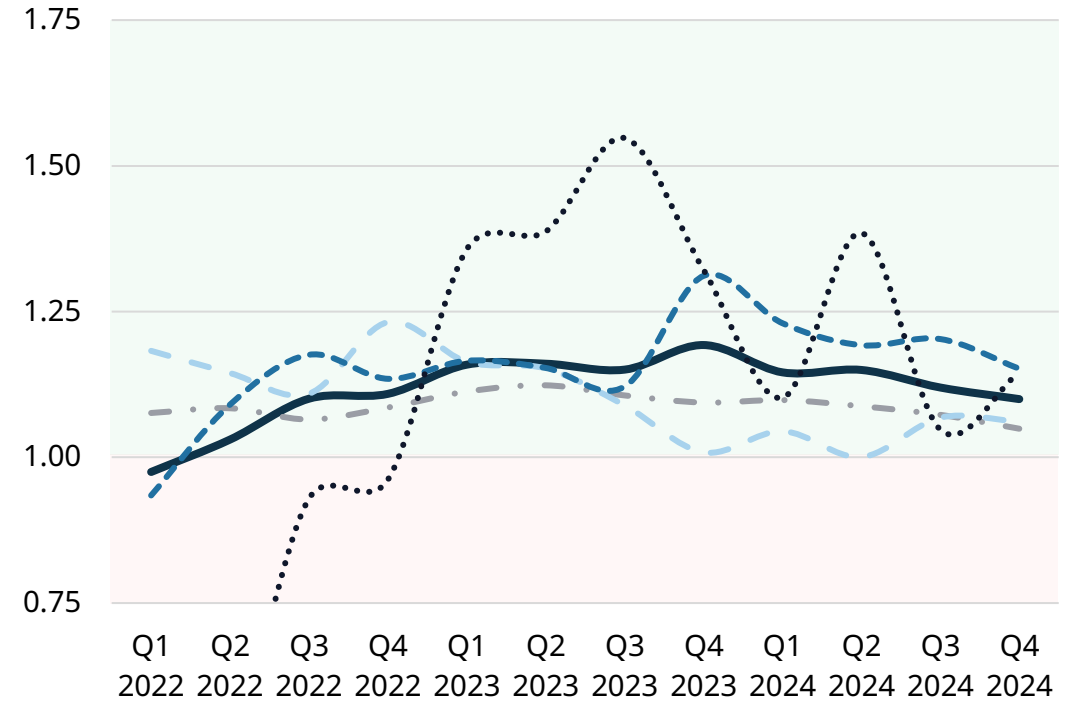
MEUR



- Spare parts
- Service agreements
- Net sales, 12m rolling
- Field service
- Retrofits and upgrades

## Energy service, Book-to-bill

12m rolling book-to-bill

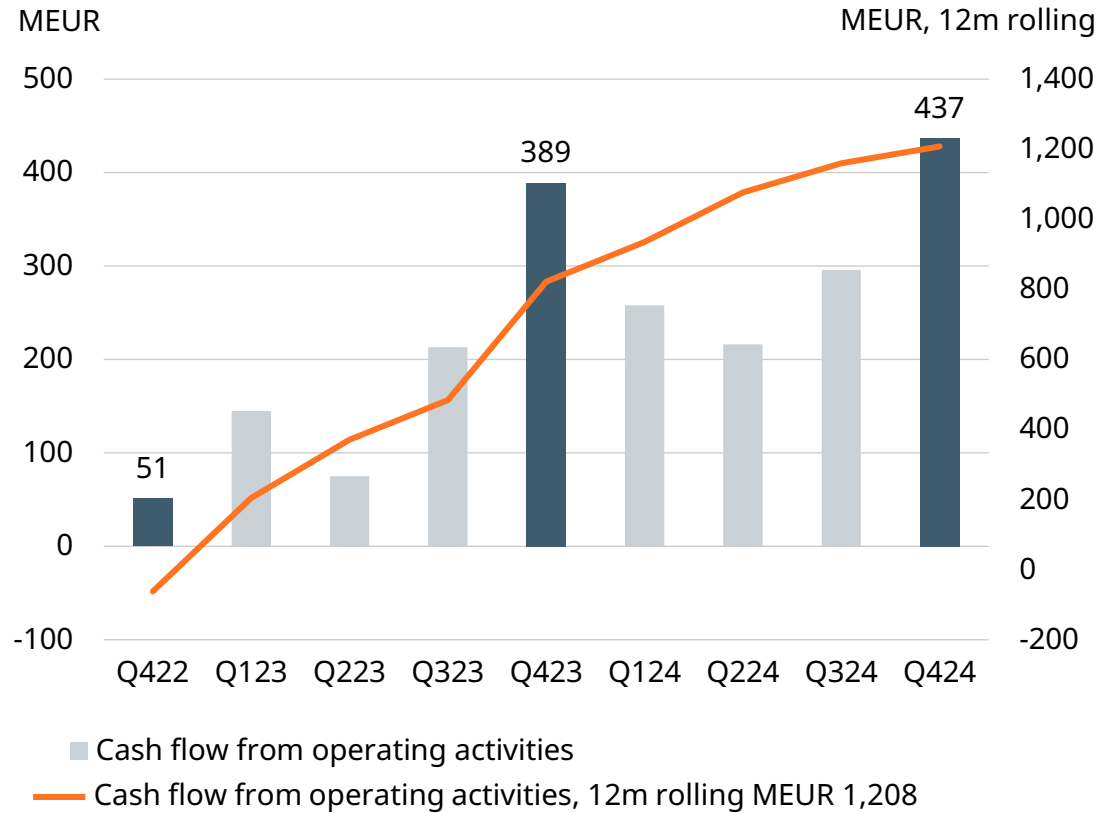


- Service, total
- Field service
- Retrofits and upgrades
- Spare parts
- Service agreements

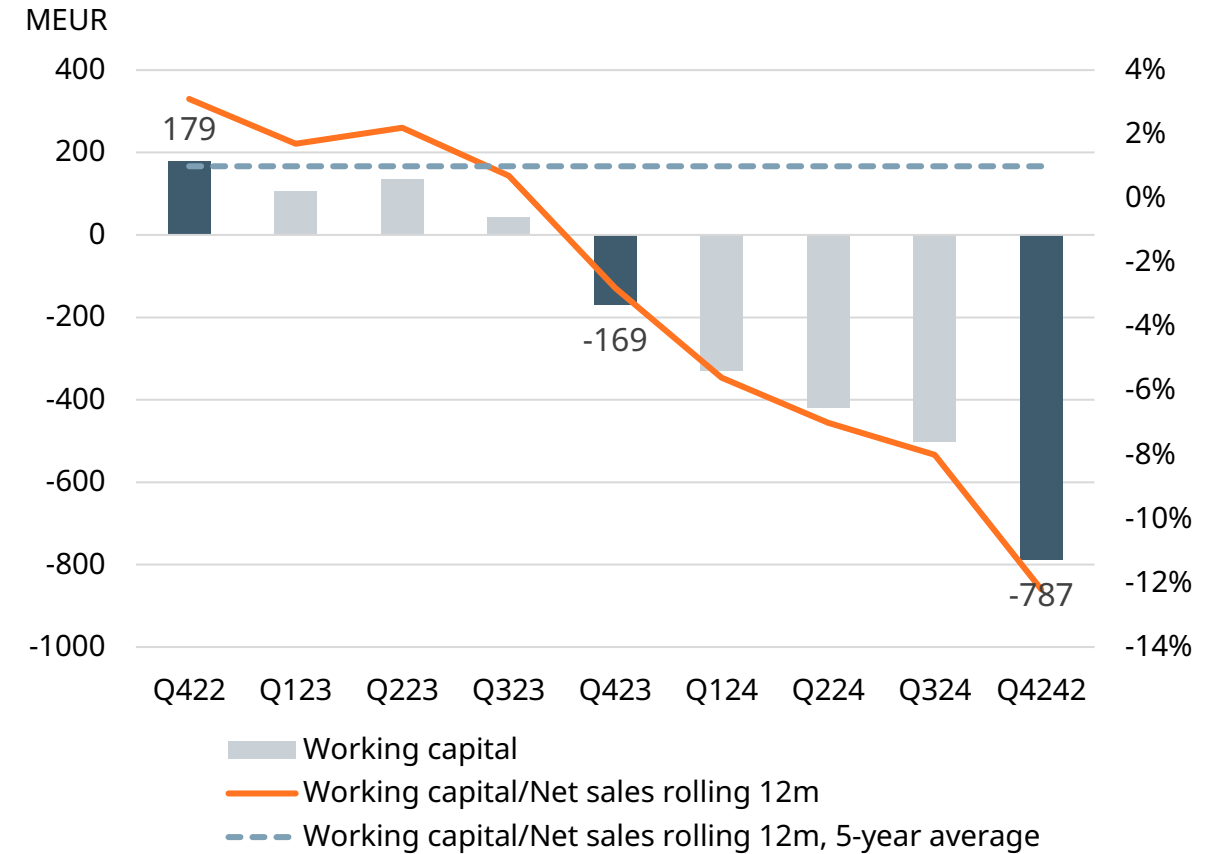


# Strong cash flow from operating activities

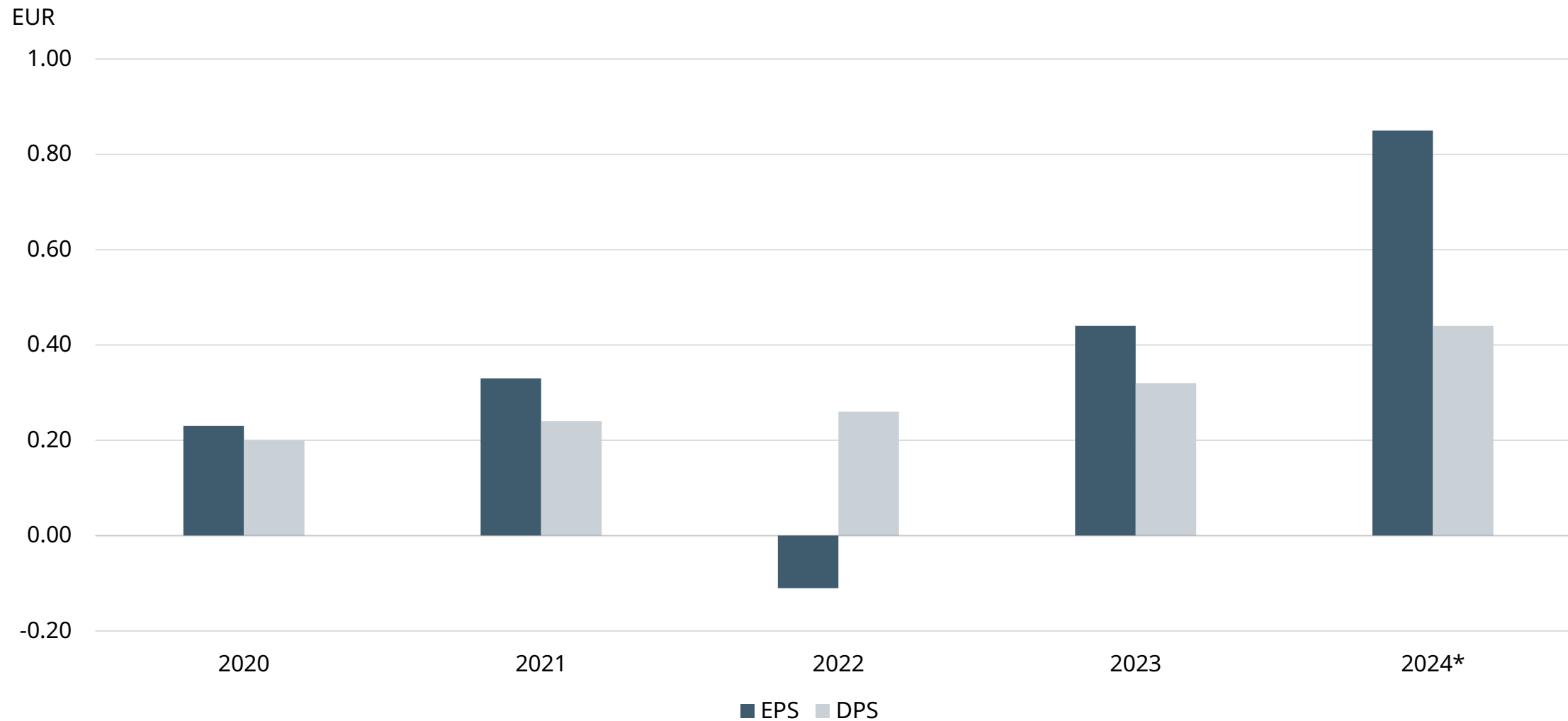
## Cash flow from operating activities



## Working capital to net sales ratio



# Earnings and dividend per share



\*Proposal of the Board



## Prospects

### Marine

- Wärtsilä expects the demand environment for the next 12 months (Q1/2025–Q4/2025) to be better than that of the comparison period.

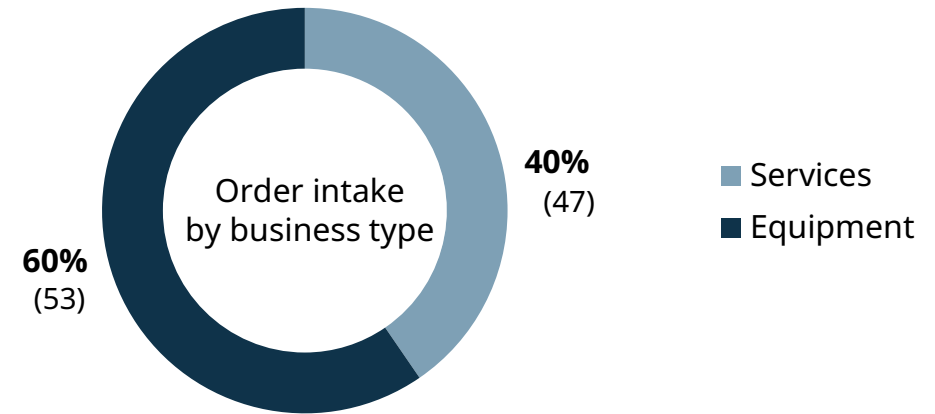
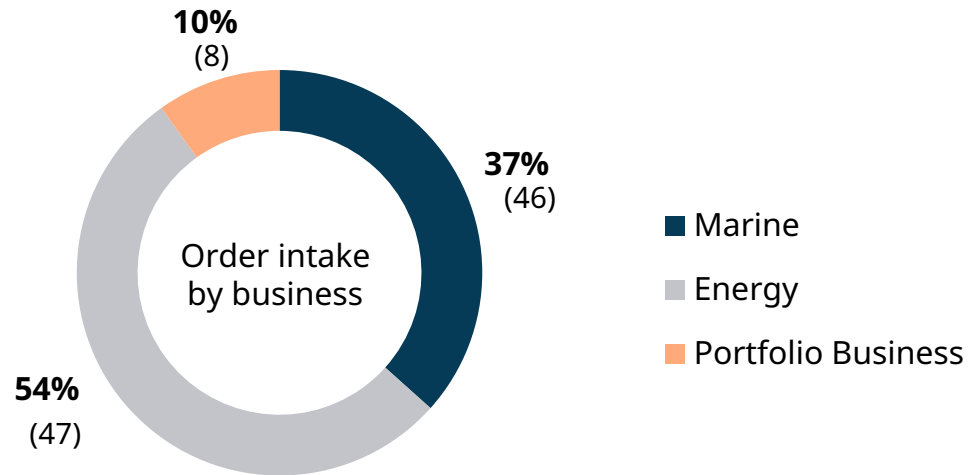
### Energy

- Wärtsilä expects the demand environment for the next 12 months (Q1/2025–Q4/2025) to be better than that of the comparison period.

However, Wärtsilä underlines that the current high external uncertainties make forward looking statements challenging.

# Order intake

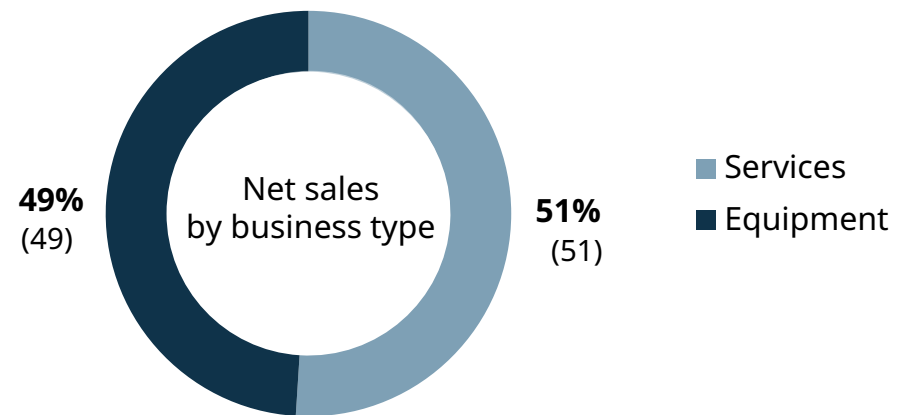
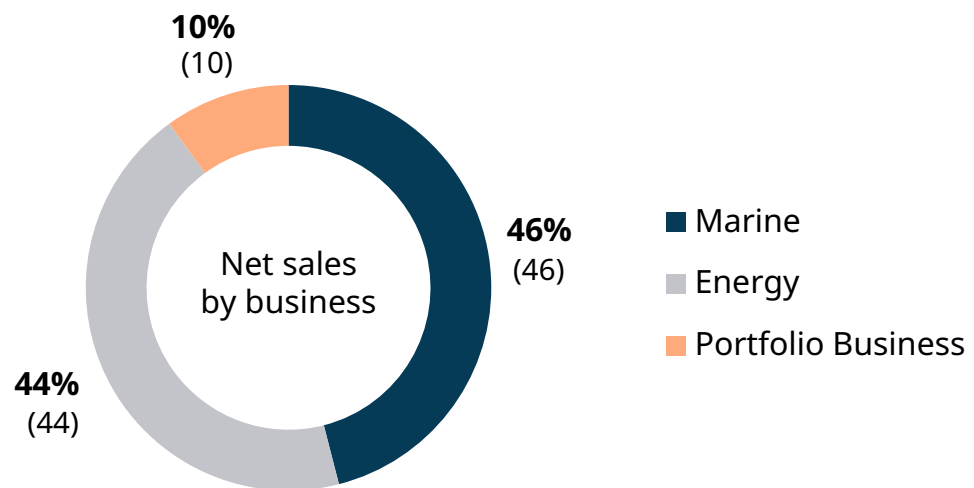
Fourth quarter development





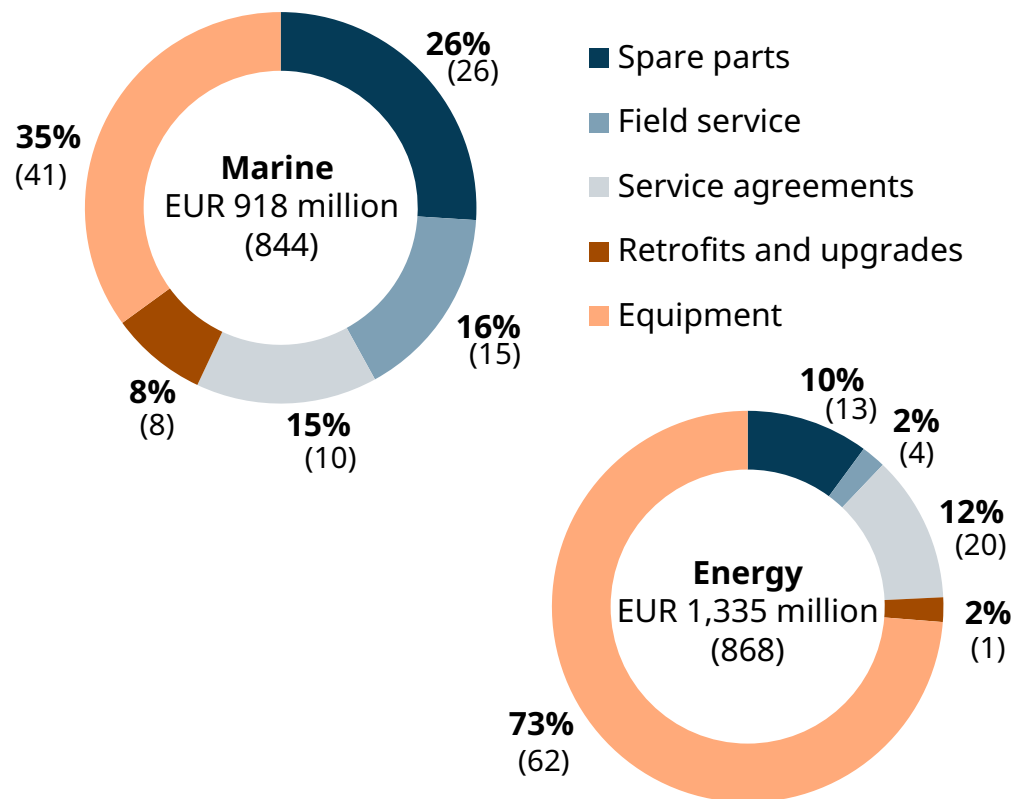
# Net sales

## Fourth quarter development

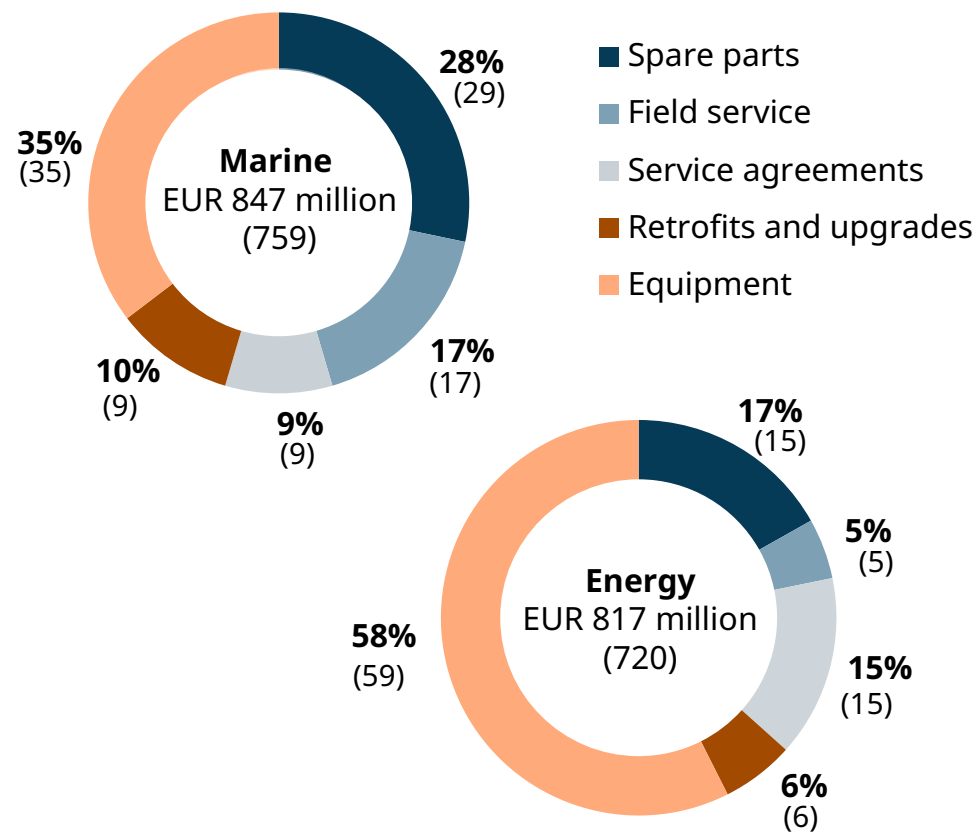


# Fourth quarter development by business type

## Order intake



## Net sales

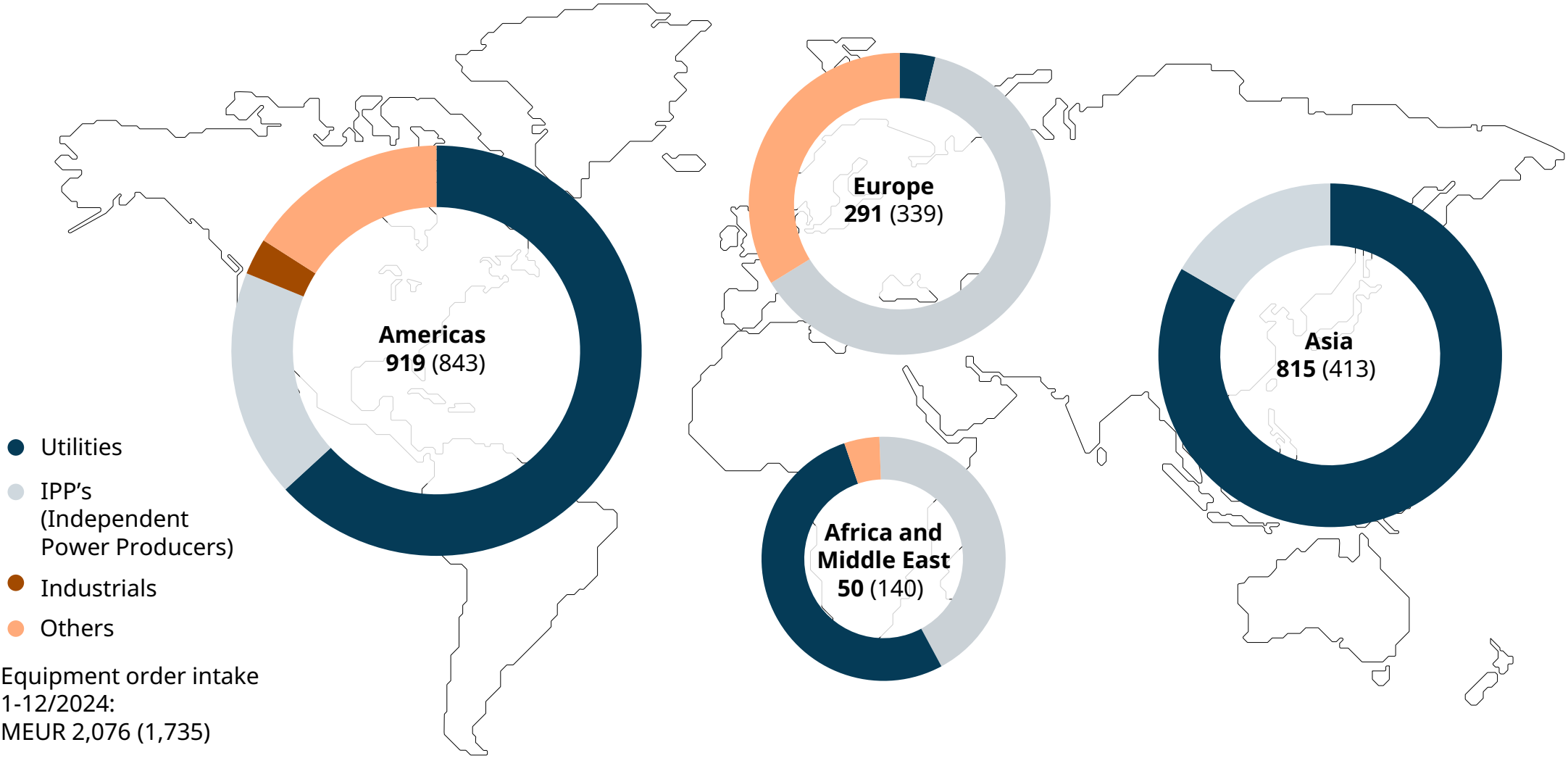


# January–December order intake by customer segment

<b>Marine</b>	<b>Gas carriers</b>	<b>Cruise &amp; ferry</b>	<b>Offshore</b>	<b>Navy</b>	<b>Special vessels</b>	<b>Merchant</b>	<b>Other</b>
Equipment	7% (11)	30% (22)	5% (6)	6% (8)	10% (5)	37% (44)	5% (4)
Services	12% (14)	24% (22)	16% (17)	11% (8)	11% (11)	25% (26)	1% (1)
<b>Total</b>	<b>10% (13)</b>	<b>26% (22)</b>	<b>12% (13)</b>	<b>9% (8)</b>	<b>10% (9)</b>	<b>29% (32)</b>	<b>3% (3)</b>

<b>Energy</b>	<b>Utilities</b>	<b>Independent Power Producers</b>	<b>Industrials</b>	<b>Other</b>
Equipment	63% (48)	24% (38)	1% (8)	12% (6)
Services	34% (32)	32% (33)	24% (25)	11% (10)
<b>Total</b>	<b>34% (32)</b>	<b>32% (33)</b>	<b>24% (25)</b>	<b>11% (10)</b>

# Orders received for Energy equipment globally



# Sustainability





# We are delivering towards our sustainability targets

## On track for our 2030 decarbonisation targets

- ✓ To become **carbon neutral in own operations**
- ✓ To provide a **product portfolio ready for zero carbon fuels**

## Improving safety, wellbeing and employee engagement

- ✓ **Positive trend in safety indicators**
- ✓ **Wellbeing behaviours & toolkit launched** to support teams
- ✓ **Improving trend in employee engagement**

## Strengthening thought leadership and being a responsible company

- ✓ Developing **industry ecosystems** and **co-operation with academia**
- ✓ Continued focus on **ethical compliance**
- ✓ Listed by TIME magazine as **TIME100 most influential companies in 2023**



# Strong presence in sustainable development indices

Member of  
**Dow Jones  
Sustainability Indices**

Powered by the S&P Global CSA

**Sustainability Yearbook**  
Member 2021

**S&P Global**

S&P Europe 350 ESG Index



RATED BY  
**ISS ESG**

**STOXX**

Member 2020/2021  
**ESG Leaders  
Indices**



**FTSE4Good**










# Decarbonising our own operations requires a wide range of actions

## "SET FOR 30"

### OUR MAIN DECARBONISATION INITIATIVES

2021

2030

-  Energy efficiency measures +/-€
-  Low emission company vehicles +/-€
-  Heat pumps in heating +/-€€
-  R&D and factory engine testings - reduced time +/-€
-  Self-generation and green electricity +++/€€
-  Simulations and other technologies +/-€
-  Replacing fossil fuels with alternative fuels +++/€€€



+ GHG reduction potential € Cost to reduce

# Governance





# Board of Management



**Håkan Agnevall,**  
President & CEO



**Arjen Berends,**  
Chief Financial  
Officer



**Tamara de Gruyter,**  
President, Wärtsilä Portfolio  
Business



**Kari Hietanen,** Corporate  
Relations and Legal Affairs



**Roger Holm,** President,  
Wärtsilä Marine



**Anders Lindberg,** President,  
Wärtsilä Energy



**Teija Sarajärvi,**  
Human Resources



**Anu Sirkiä,** Marketing and  
Communications



# Board of Directors



**Tom Johnstone CBE**, Chair of the Board, President and CEO of AB SKF 2003–2014



**Mika Vehviläinen**, Deputy Chair of the Board, President & CEO of Cargotec Oyj 2013–2023



**Karen Bomba**, President of Smiths Interconnect 2017–2020



**Morten H. Engelstoft**, CEO & EVP of A.P. Møller - Mærsk A/S, APM Terminals 2016–2022



**Karin Falk**, President, Husqvarna Construction Division



**Johan Forssell**, President and CEO of Investor AB



**Mats Rahmström**, President & CEO of Atlas Copco AB



**Tiina Tuomela**, CFO, Fortum Corporation

## Largest shareholders January 2024 (CMi2i quarterly update)

#	Name	Shares	Share %
1	Invaw Invest AB	104,711,363	17.70
2	Keskinäinen Työeläkevakuutusyhtiö Varma	25,159,960	4.25
3	BlackRock Fund Advisors	21,293,179	3.60
4	The Vanguard Group, Inc.	18,668,374	3.15
5	Keskinäinen Eläkevakuutusyhtiö Ilmarinen	18,068,037	3.05
6	Amundi Asset Management SA (Investment Management)	10,201,418	1.72
7	Keskinäinen Työeläkevakuutusyhtiö Elo	8,856,000	1.50
8	BlackRock Investment Management (UK) Ltd.	7,842,952	1.33
9	SSgA Funds Management, Inc.	7,172,253	1.21
10	BlackRock Advisors (UK) Ltd.	7,018,870	1.19
11	Acadian Asset Management LLC	6,243,050	1.06
12	Marathon Asset Management Ltd.	5,702,189	0.96
13	Legal & General Investment Management Ltd.	5,529,144	0.93
14	Arrowstreet Capital LP	5,443,392	0.92
15	The State Pension Fund	4,700,000	0.79
	Retail Investors (Finland)	121,154,264	20.47
	<b>Total Top 15</b>	<b>256,610,181</b>	<b>43.36%</b>

## For more information, visit our [Investors page](#)

### Next upcoming IR events

- 17.-21.2. Citi's Global Industrial Tech and Mobility Conference in Miami
- 19.2. Annual Report 2024
- 20.2. Barclays Industrial Select Conference in Miami
- 26.2. CEO strategy call
- 6.3. Carnegie Capital Goods Conference in Stockholm
- 11.3. Morgan Stanley Industrials Day in Paris
- 13.3. Annual General Meeting

### Wärtsilä Investor Relations

**Hanna-Maria Heikkinen, Vice President, Investor Relations**

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**Samu Heikkilä, Senior Manager, Investor Relations**

tel. +358 10 709 1121, email: [samu.heikkila@wartsila.com](mailto:samu.heikkila@wartsila.com)

**Maija Hongas, Senior Manager, Investor Relations**

tel. +358 10 709 3178, email: [maija.hongas@wartsila.com](mailto:maija.hongas@wartsila.com)

**Noora Suni, Investor Relations Specialist**

tel. +358 10 709 1101, email: [noora.suni@wartsila.com](mailto:noora.suni@wartsila.com)

### Meeting requests

**Janine Tourneur, Executive Assistant**

tel. +358 10 709 5645, e-mail: [janine.tourneur@wartsila.com](mailto:janine.tourneur@wartsila.com)

# Appendix



# Main competitors

## Engines

MAN  
Himsen  
Rolls-Royce

## Other marine solutions

Kongsberg  
Alfa Laval  
GE  
Siemens  
Schottel

## Other energy solutions

GE  
Siemens  
Tesla  
Fluence  
Sungrow

# Customer base

## Marine businesses

Ship owners  
Ship operators  
Ship management  
companies  
Charterers  
Shipyards  
Port authorities

## Energy

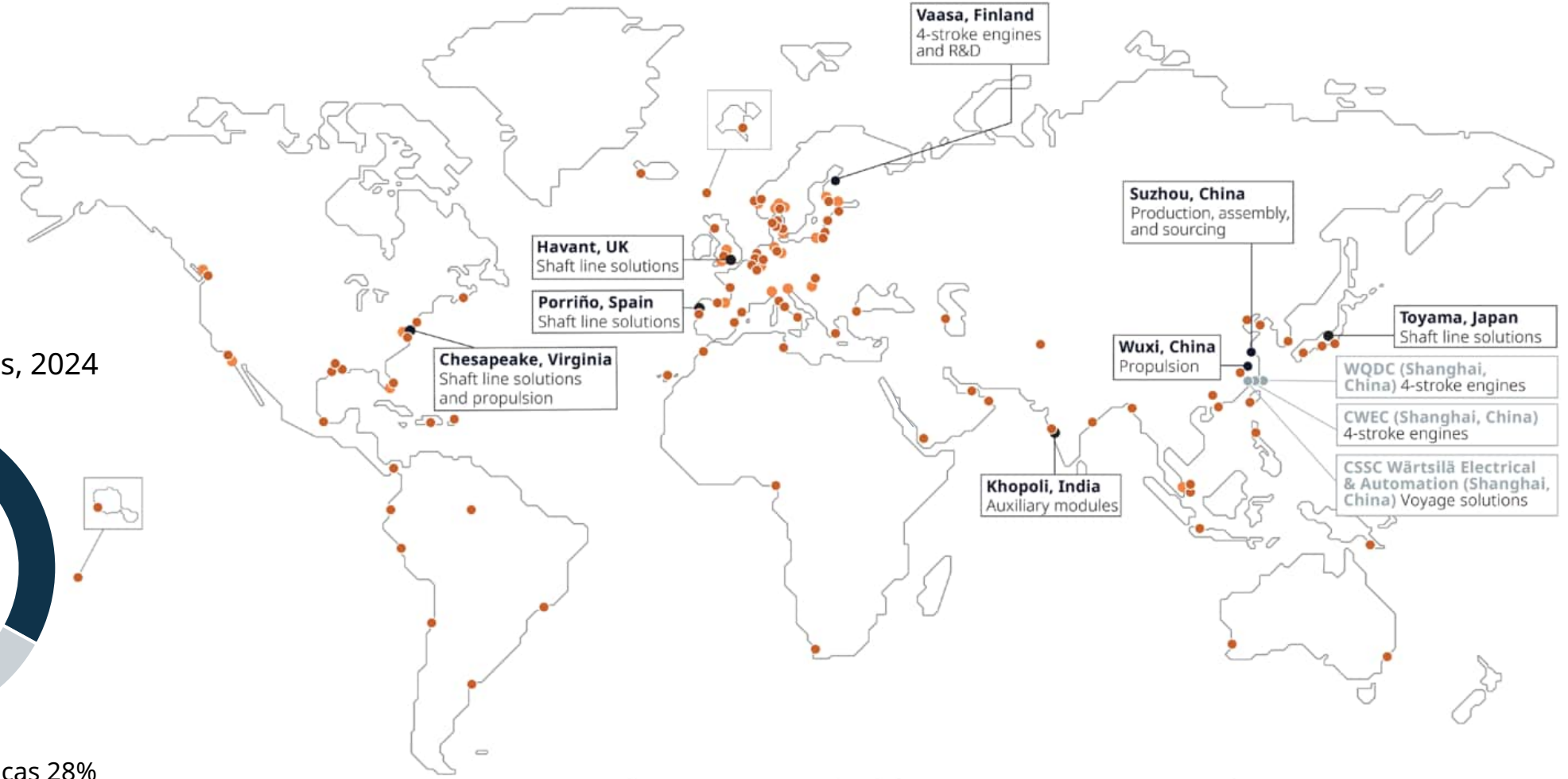
Utilities  
Independent Power Producers  
(IPPs)  
Industrial customers

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

Geographical net sales, 2024



- Europe 33%
- Americas 28%
- Asia 26%
- Other 13%



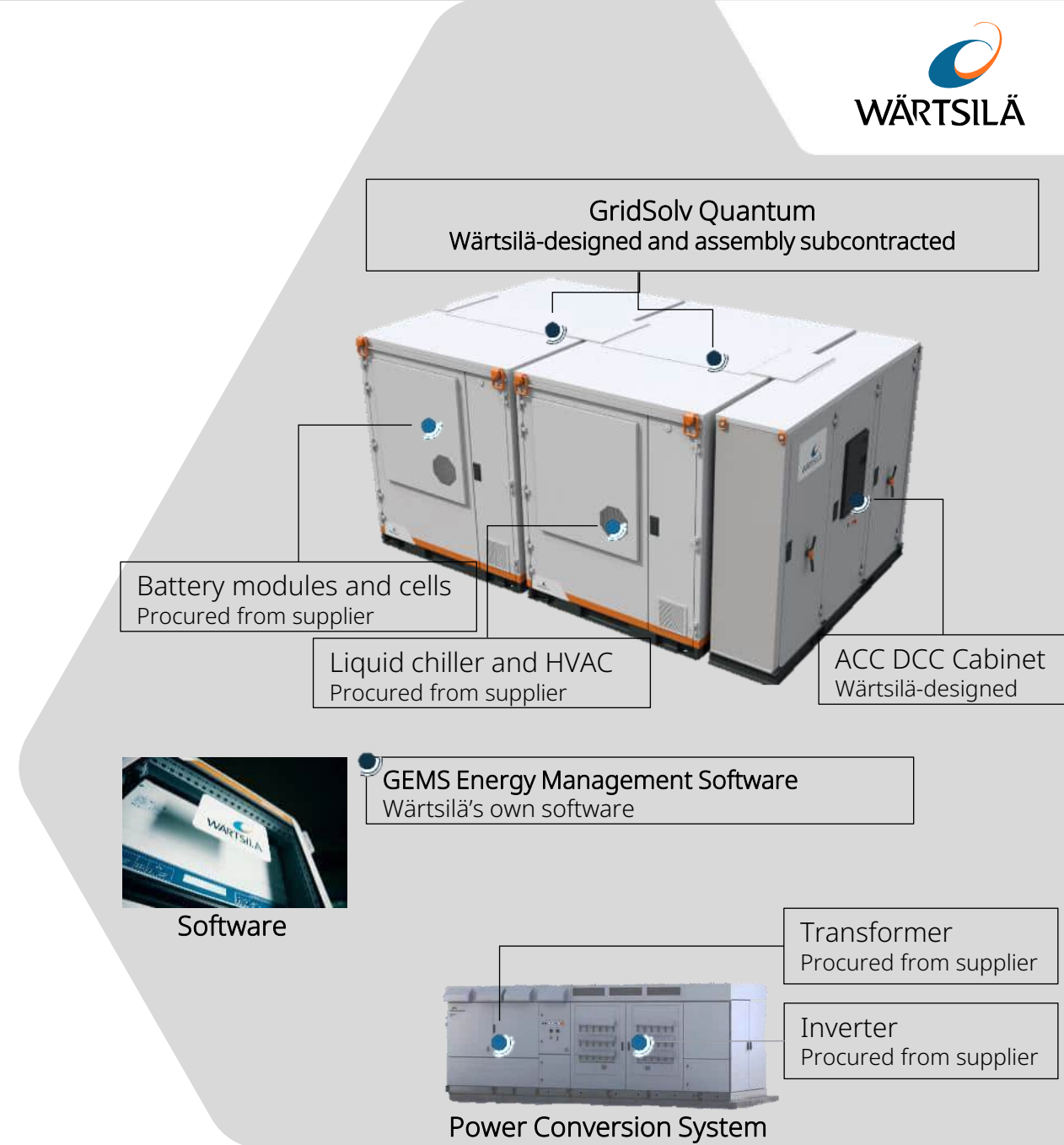
- Sites with engineering, R&D (fully owned)
- Sites with sizeable manufacturing (fully owned)
- Joint venture sites
- Service locations

# Wärtsilä Energy Storage offering

## Our role in the value chain

- Our **core offering** consists of 1) battery energy storage hardware, 2) GEMS Digital Energy Platform, and 3) lifecycle services,
- We are an energy storage **system integrator**, adding value to our customers by providing fully-engineered, end-to-end storage solutions:

- 1 **Wärtsilä's energy storage hardware** integrates battery modules, Battery Management System and Power Conversion System to a Wärtsilä-designed GridSolv enclosure to offer a complete energy storage system (ESS) to our customers.
- 2 Our project execution team manages **full installation and integration** at the customer's site(s).
- 3 Wärtsilä's **GEMS Digital Energy Platform** monitors, controls and optimises storage and other energy assets in the system
- 4 Our **Service+ lifecycle solutions** include Expertise Center support, planned maintenance, performance guarantees and software maintenance





# Wärtsilä Energy Storage competitive advantages

## Our key differentiators

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- **Integration and scalability:** Wärtsilä's GridSolv Quantum is a fully-integrated energy storage solution. Its modular and scalable design enables ease of deployment and optimisation. It integrates storage to other energy assets and to the electricity grid to ensure full utilisation of storage benefits.
- **Reliability and maturity:** Wärtsilä combines 15+ years of proprietary software leadership, top-tier battery energy storage systems, and extensive power sector experience in project execution in all key markets. We are a leading player in storage integrator space globally, with a wide services network and +3.6 GW/+9.1 GWh of deployed and contracted projects to-date.
- **Safety:** Wärtsilä's ESS is designed to meet stringent safety and quality standards (including UL certification for fire safety)
- **GEMS and bankability:** With smart optimisation software and complex renewables and grid integration capabilities, our solution ensures the lowest lifecycle costs, the smallest system footprint and new revenue opportunities for our customers – to fully optimise on industry price volatility and demanding transitions in energy.





# Key figures in 2024



# KEY FIGURES 2024

Order intake  
**8,072 MEUR**

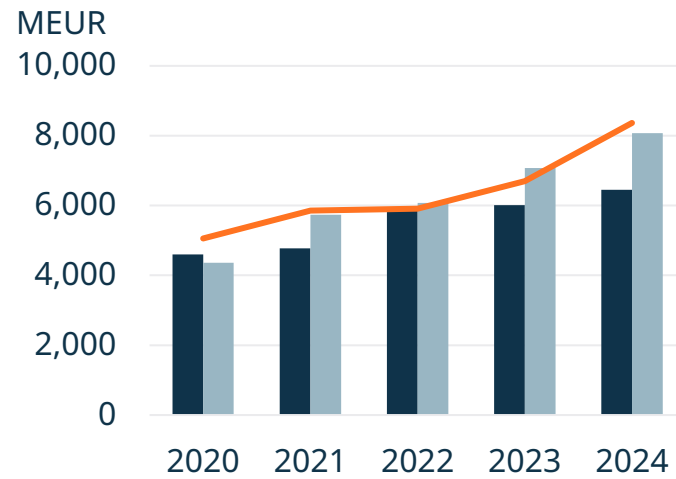
Net sales  
**6,449 MEUR**

Comparable operating result  
**694 MEUR**  
**10.8% of net sales**

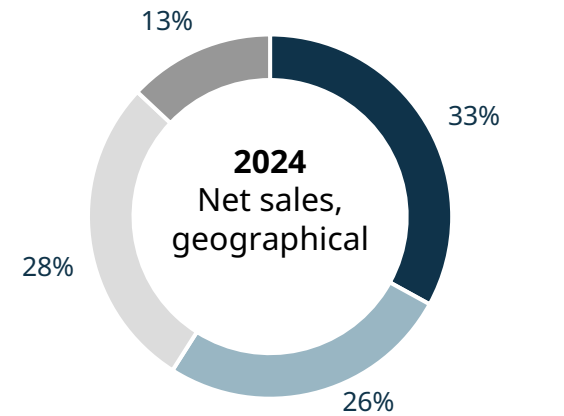
Operating result  
**716 MEUR**  
**11.1% of net sales**

Cash flow from operating activities  
**1,208 MEUR**

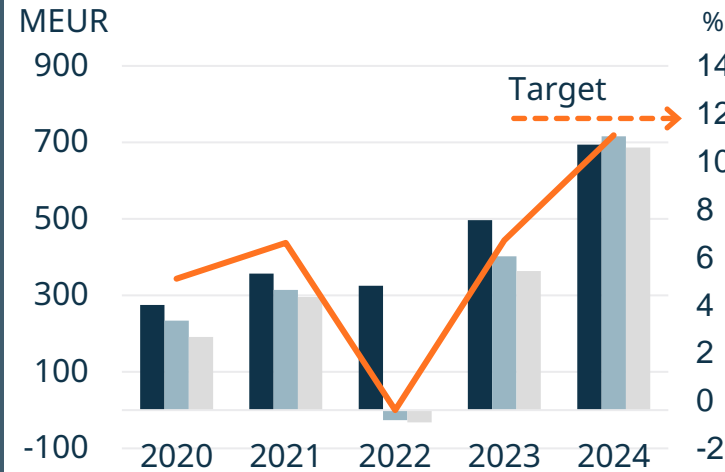
Personnel  
**18,300**



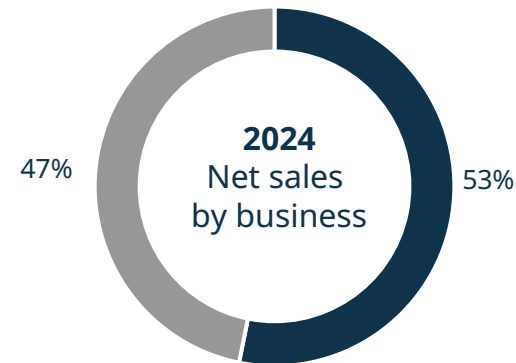
■ Net sales ■ Order intake  
— Order book



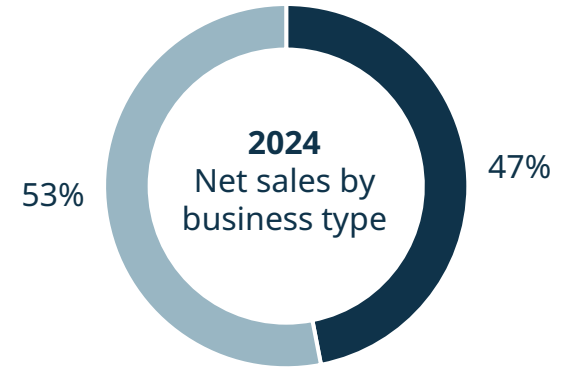
■ Europe ■ Asia ■ Americas ■ Other



■ Comparable operating result ■ Operating result ■ Result before taxes  
— Operating result, %



■ Marine ■ Energy



■ Equipment ■ Services

# Wärtsilä Marine – Leading the path towards decarbonisation by developing state of the art technology and enabling adoption of clean fuels

## Key figures in 2024

Order intake  
**3,637 MEUR**

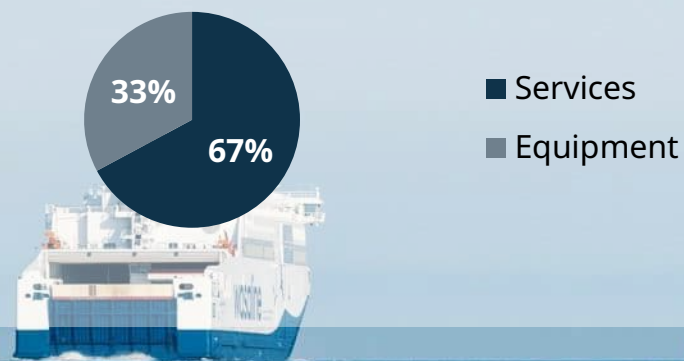
Net sales  
**3,053 MEUR**

Comparable operating result  
**360 MEUR**  
**11.8% of net sales**

## Share of total net sales in 2024



## Net sales by business type in 2024



## Offering

- Multi-fuel 4-stroke engines
- Propulsion systems
- Catalyst systems
- Fuel gas supply systems
- Hybrid and electrification solutions
- Voyage and fleet optimisation
- Exhaust treatment
- Shaft line solutions
- Services
  - Spare parts and maintenance services
  - Performance based agreements
  - Retrofits and upgrades

## Key customer segments

- Gas carriers
- Cruise & ferry
- Offshore
- Navy
- Special vessels
- Merchant

\* Financial figures for 2023 have been restated to reflect the redefined organisational structure after discontinuation of Marine Systems as a reporting segment as of 1 January 2024. Exhaust Treatment and Shaft Line Solutions business units were moved from Marine Systems to Marine Power and consequently, Marine Power changed its name to Wärtsilä Marine as of 1 January, 2024.

# Wärtsilä Energy – Towards a 100% renewable energy future

## Key figures in 2024

Order intake  
**3,366 MEUR**

Net sales  
**2,690 MEUR**

Comparable operating profit  
**302 MEUR**  
**11.2% of net sales**

## Share of total net sales in 2024



## Net sales by business type in 2024



## Offering

- Future-fuel enabled grid balancing power plants
- Hybrid solutions
- Energy storage and optimisation technology, including the GEMS Digital Energy Platform
- Lifecycle services

## Key customer segments

- Utilities
- Independent Power Producers (IPPs)
- Industrial customers





**WÄRTSILÄ**