Moving up the Service Value Ladder in Marine

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Wärtsilä Marine services

* Adjusted to reflect a change in categorisation between equipment and services in Wärtsilä Marine Power and Marine Systems.
** Restated to reflect the redefined organisational change of integrating Voyage to Marine Power. Voyage figures added to Marine Power figures for 2019–2021 for indicative purposes. Split by category not available before 2021. LTM = Last twelve months, Q222-Q123

**Key growth drivers**
- Good activities in key segments
- Growing installed base
- Moving up the Service value ladder through increased agreement coverage
- Growing retrofit business connected to decarbonisation
Once on board, Wärtsilä engines generate service revenues for 34 years, on average

**Marine Power 4-stroke installed base, GW**

<table>
<thead>
<tr>
<th>Year</th>
<th>GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>52</td>
</tr>
<tr>
<td>2020</td>
<td>54</td>
</tr>
<tr>
<td>2021</td>
<td>56</td>
</tr>
<tr>
<td>2022</td>
<td>58</td>
</tr>
</tbody>
</table>

+7%

**Key considerations**

- We serve 3,300 customer groups at least once a year
- Our OEM installed base includes 56 GW of 4-stroke engines (+7% compared to April 2019) and 14,600 propulsion equipment
- Lifecycle sales (EUR/kW) has a sweet spot between 5 and 15 years, as the engines are more likely to be served according to the maintenance plan
- 40% of our installed base is between 5 and 15 years old

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1) 4-stroke, excluding Quantiparts; 2) Excluding Quantiparts (13 GW) and Propulsion Controls (6000)
We address customers’ maintenance needs via 3 distinct revenue streams: Transactional, Agreements, Retrofit Projects

<table>
<thead>
<tr>
<th>Transactional</th>
<th>Agreements</th>
<th>Retrofit projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Spare parts and labour</td>
<td>▪ Spare parts and labour</td>
<td>▪ Engineering, planning and execution of retrofit projects, e.g. re-powering, upgrades, fuel conversions, engine power limitation, hybridisation, shaft generators, energy saving devices</td>
</tr>
<tr>
<td><strong>Growth drivers</strong></td>
<td></td>
<td></td>
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<tr>
<td>▪ Capture growth through long-tail customer development, increased share of wallet, price strategy</td>
<td>▪ Convert existing transactional customers to service agreements</td>
<td>▪ Establish a leading position in decarbonization-driven retrofits</td>
</tr>
<tr>
<td>▪ Optimize cost-to-serve through continuous improvement</td>
<td>▪ Climb the service value ladder, grow in guaranteed asset performance and outcome-based agreements</td>
<td>▪ Engage with customers in planning an upgrade path for their fleets via Decarbonization Services</td>
</tr>
</tbody>
</table>

1) According to agreement-specific scope; 2) Agreement sales considered as all sales related to vessels under agreement, including field services and spare parts out of the agreement scope
We are growing our transactional sales...

...while continuously improve our cost-to-sell

4-stroke engine lifecycle sales, EUR/kW

Sales/kW for transactional business is 12% higher in Q1 2023 vs 2019

The ratio of non-billable vs billable resources in Field Services & Workshops business unit has been reduced by 6%+ in 2022 compared to 2020.

Sales through digital channels has increased by over 60% in Marine Power between 2019 and 2022; today, 25% of part sales is made through digital channels.

Energy and Marine customers are served by the same global Field Services network and by the same Global Logistics Services distribution centre, enabling synergies and optimal capacity management.
Wärtsilä’s agreement value ladder consists of four steps: enhanced support, technical maintenance, optimized maintenance, guaranteed asset performance.

Our primary targets are high value assets where uptime and efficiency are important and/or assets with new technology.

Wärtsilä Service Value Ladder, sales EUR/kW relative to transactional

1x

We increase customer stickiness and value add by climbing our services value ladder

2-3x
Combining data analytics capabilities with product know-how, we augment customer value and improve our own service operations.

### Decreased customer’s costs of unscheduled maintenance with Wärtsilä Expert Insight

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentual change vs 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>0%</td>
</tr>
<tr>
<td>2018</td>
<td>-31%</td>
</tr>
<tr>
<td>2019</td>
<td>-69%</td>
</tr>
</tbody>
</table>

### Advanced analytics combined with OEM expertise enhance customer value

- **11** Expertise Centres worldwide serving only agreement customers
- **+350** vessels with Expert Insight installed or planned
- **93%** of customers renew their agreement
- **25%** average reduction of unscheduled maintenance
- **90%** of issues solved remotely

### Continuous measurement enables prediction and fast and proactive actions

1) Based on data from 54 LNG Carriers with Expert Insight; 2) SFOC = Specific Fuel Oil Consumption
The share of installations under agreement is expanding faster than the installed base organic growth rate

**Key considerations**

- 29% of our engine installed base is under agreement 2)
- Sales to agreement installations grew by 10% compared to pre-Covid levels
- 27% of sales to installations under agreement in 2022 were linked to guaranteed asset performance agreements
- Agreements are signed across multiple segments; LNG carriers fleet under agreement grew by 28% in past 4 years, while cruise slightly declined due to Covid-driven scrapping and ownership changes

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1) Only 4-stroke service sales to engines under agreement considered, including field services and spare parts out of the agreement scope; ESA = Enhanced support agreement, TMA = Technical management agreement, OMA = Optimised maintenance agreement, GAP = Guaranteed Asset Performance agreement; 2) Defined as Wärtsilä 4-stroke engine MW under agreement
Guaranteed Asset Performance agreements ensure assets’ operational reliability and efficiency; targets are mutually agreed based on customer-specific needs.

- **Response time**
  - Guaranteed response time to emergency support request for 2-stroke main engines
  - 5-year agreement signed for 5 containerships
  - Secured and timely service support

- **Time between overhauls**
  - Guaranteed time between overhauls for 2-stroke main engines
  - 8 to 15-year agreements signed for 12 LNG carriers
  - Predictable and less frequent scheduled maintenance

- **Uptime**
  - Guaranteed power system uptime for 4-stroke main engines
  - 5-year agreement signed for 6 LNG carriers
  - Maximised and guaranteed vessel uptime

- **Fuel savings**
  - Guaranteed fuel consumption vs increasingly stringent targets, bonus-malus model
  - 12-year fleet-wide agreement for 62 ships and 326 engines
  - Optimal upgrade and service path defined for each engine, to achieve the best possible return on investment
  - ~110 000 tons fuel saved, ~340 000 tons CO2 emissions reduction since 2017

Reduced unscheduled maintenance and remote operational support enabled by Expert Insight and Wärtsilä Expertise Centres

1) Agreement duration and scope are vessel specific
Tightening regulations increase demand for decarbonisation- and compliancy-driven retrofits; Wärtsilä is well positioned to capture this business.

- **48%** of the fleet is not CII compliant in 2023, 72% will not be compliant in 2027 if no action is taken\(^1\)
- **30,000** ships need to take action to comply with the EEXI regulation\(^2\)
- **$8-28bn** yearly investments needed on onboard technology to reach net-zero emissions by 2050\(^2\)

**IMO GHG Strategy**

<table>
<thead>
<tr>
<th>Year</th>
<th>Target 1</th>
<th>Target 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td>-40% carbon intensity</td>
<td>-70% carbon intensity &amp; -50% total GHG emissions</td>
</tr>
<tr>
<td>2030</td>
<td>-40% carbon intensity</td>
<td>-70% carbon intensity &amp; -50% total GHG emissions</td>
</tr>
<tr>
<td>2050</td>
<td>-40% carbon intensity</td>
<td>-70% carbon intensity &amp; -50% total GHG emissions</td>
</tr>
</tbody>
</table>

**Regional regulations**

- EU Fit for 55: EU Emissions Trading System (ETS), FuelEU Maritime, Alternative Fuel Infrastructure Regulation, Energy Taxation

**Banks, Cargo Owners, Public opinion**

- Green financing (e.g. Poseidon Principles)
- Green cargo (e.g. Sea Cargo Charter)
- Cargo owner’s own targets and mounting public pressure

**Average vessel lifetime** 25-30 years

Note: EEXI and CII apply to all cargo and passenger ships over 400 GT and 5000 GT, respectively (with some exceptions); 1) Source: Wärtsilä CII tool, correction factors excluded, ships with D or E rating considered as non-compliant; 2) Source: DNV
We are engaging with customers in defining the best-possible upgrade path for their fleets via our Decarbonisation Services

<table>
<thead>
<tr>
<th>Decarb. pathway analysis</th>
<th>2-stroke engine derating</th>
<th>Hybrid retrofit</th>
<th>Shaft generator retrofit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decarbonisation path for ship Regal Princess, as basis for a fleet-wide programme; advanced digital modelling and simulation of operational, environmental and financial impact of new technologies</td>
<td>Retrofit contracted by 2 major container liners for 2-stroke engine derating (<em>Fit4Power</em>)</td>
<td>Hybrid conversion of Platform Supply Vessel Harvey Energy</td>
<td>Industry-first inline shaft generator retrofit for cape-size bulker Berge Toubkal</td>
</tr>
<tr>
<td>Enables customers to make data-led investment decisions</td>
<td>Reduced bore size by 25% and new combustion chamber design, enabling 15%+ lower fuel consumption and emissions, and extended CII compliance by 3–5 years</td>
<td>Zero-emission port operation, enhanced DP capability, 10–20% reduction in fuel consumption and emissions</td>
<td>Shaft generator systems use the main engine to supply auxiliary power, enabling lower fuel consumption and emissions, and improved EEXI</td>
</tr>
<tr>
<td>Unlocks retrofit potential, strengthens our position as business partner and technology leader</td>
<td>Design compatible with Wärtsilä <em>Fit4Fuels</em> for future fuel conversion</td>
<td>After the first successful conversion, the customer decided to upgrade four additional vessels</td>
<td>Opens a new pathway to sell shaft generators, also as retrofit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost</th>
<th>~4-6 MEUR/ship</th>
<th>~1-2 MEUR/ship</th>
<th>~1 MEUR/ship</th>
</tr>
</thead>
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1) Stand-alone value of decarbonisation services, excluding revenues from related retrofit projects