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**Bernhard Schulte Fleet**

**Performance Report**

**Q4 2024**

**Fleet Performance Centre**

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# 1. Scope

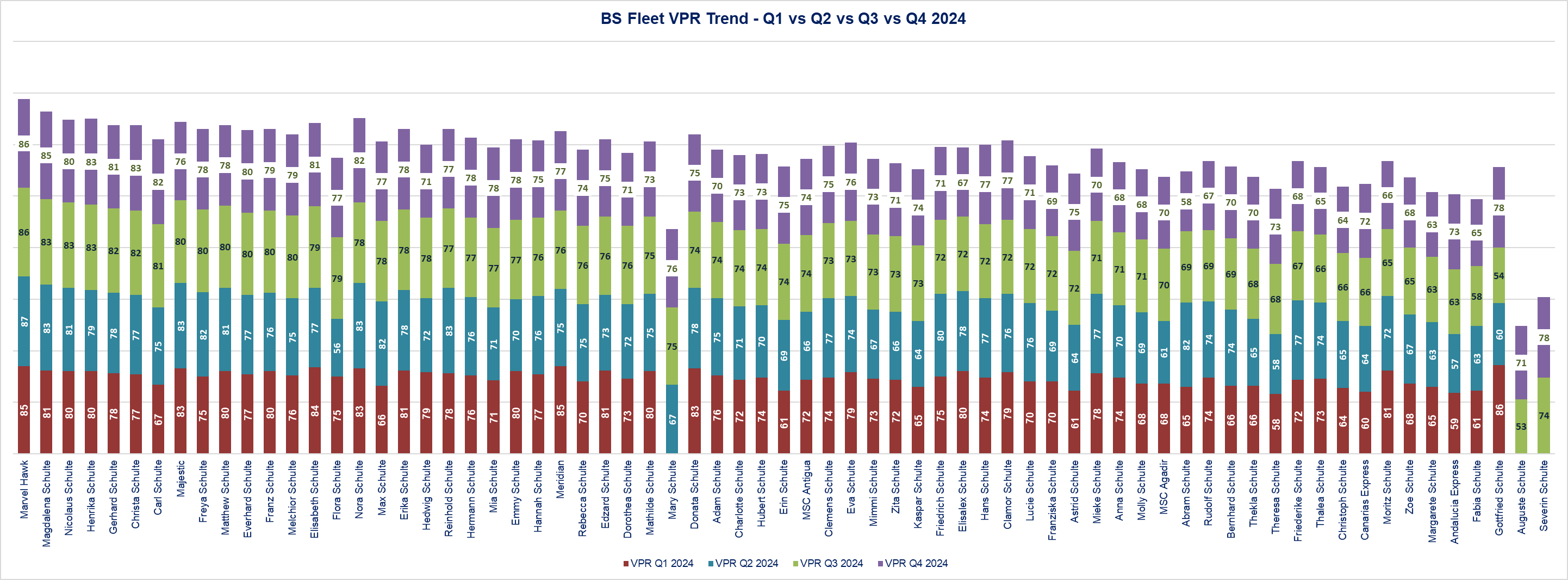
The scope of this report is to provide a performance overview of the Bernhard Schulte owned vessels for Q4/2024. Detailed below is the list of 71 Vessels under the ambit of this report:



# 2. Vessel Performance Rating

The Vessel Performance Rating (VPR) is our holistic KPI to evaluate the improvement in vessel performance as it incorporates all important KPIs of Performance and underscores the reporting quality of vessels. VPR for the BS Fleet in Q4/24 stands at 74.04%.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Quarter** | **VPR** | **Green Zone** | **Orange Zone** | **Red Zone** |
| Q1 2024 | 73.85% | 52 | 17 | 0 |
| Q2 2024 | 73.00% | 49 | 20 | 0 |
| Q3 2024 | 73.36% | 53 | 18 | 0 |
| Q4 2024 | 74.04% | 54 | 15 | 0 |



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| **Note:**   * There will be change in the VPR numbers from Q3 report because of the logic changes and historic re run of the Performance tool. * Kairos VPR page is undergoing revamp to cater the applicable KPIs, thus excluded from this report. * Weser Stahl is not modelled due to lack of necessary drawings for digital twin modelling. |

# 3. CII Rating

The following table provides the 2024 Final Corrected CII ratings of Bernhard Schulte Fleet.



Note: IMO DCS verification is in progress and the ratings are subject to change.

# 4. Main Engine Performance

FPC has identified potential vessels for Main Engine Fuel Optimization. FPC Performance Superintendents also send recommendations for hull cleaning and propeller polishing for the applicable vessels to the fleet teams.

## 4.1 Hull Deterioration Savings Potential

The table below provides the increased consumption of vessels in Q4/24 along with Savings potential due to hull performance.



## 4.2 Main Engine Deterioration Savings Potential

The table below provides the increased consumption of vessels in Q4/24 along with Savings potential due to ME performance.



# 5. Auxiliary Engine Performance

Auxiliary Engine Utilization aims at reducing energy consumption by working towards a more conscious and optimal operation of ship machinery and systems.

Non-essential machinery and equipment that do not affect the ship and personnel safety can be stopped while in port and at sea to reduce the load on the diesel generators.

FPC shared a guideline for the best practices that can be followed on board, both At Sea and In Port to reduce the fuel consumptions on AE and Boiler.

The Auxiliary Engine baseline has been established based on the below mentioned conditions.

* At Sea - Accounting for power requirements necessary for safe operations of the Vessel at sea (no cargo related operations in progress)
* At Port - Accounting for Power requirements necessary for safe operations at Anchorage or port in idle conditions (no cargo related operations in progress)

The baseline values have been derived using the Electrical Load Analysis manual of the vessels. Baseloads are calculated using the running hours of various consumers and using the SFOC values from the Electrical Load Analysis, baseline consumptions in MT are derived.

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| **Filtration criteria for AE @ Sea:**  Noon at Sea, EOSP logs which fall under below criteria will be filtered out:   * ME load at Sea < 37% MCR * Log duration < 8 hours. * For Oil/Chem Tanker vessels, if Boiler cons at sea >1.0 MT/day – as this would suggest that some cargo operation (cargo heating/tank cleaning) is in progress. * IGG consumption >0.5 MT/day. * For all Vessels, if reported consumption is more than 1.0 MT from baseline consumption. * Consumptions are converted to 24 hours to compare with MT/Day Baseline * The difference between Main Engine Running hours and Log duration is more than 1 hour. * For Container Vessels, Reefer Consumption is calculated by considering 2.75 kW Load per reefer & converted to 24 hours. The Reefer consumption is deducted from total AE Consumption for comparing with the Baseline (MT/Day).   **Filtration criteria for AE @ Port:**  Noon at Port, STBY (Container Vessels only) logs which fall under below criteria will be filtered out:   * Log duration < 8 hours. * Logs with Main Engine Running hours are not considered. * For all Vessels except Container, if reported consumption is more than 1.0 MT from baseline consumption. * For Oil/Chem Tankers, Logs with Tank cleaning are not considered. * Consumptions are converted to 24 hours to compare with MT/Day Baseline * For Container Vessels, Reefer Consumption is calculated by considering 2.75 kW Load per reefer & converted to 24 hours. The Reefer consumption is deducted from total AE Consumption for comparing with the Baseline (MT/Day). |

## 5.1 AE at Port/Idle - Fuel Consumption Trend

Below table provides Average AE Consumption at Port for the BS Fleet in Q1, Q2, Q3 & Q4 along with the Savings potential:



## 5.2 AE at Sea - Fuel Consumption Trend

Below table provides Average AE Consumption at Sea for the BS Fleet in Q1, Q2, Q3 & Q4 along with the Savings potential:



# 6. Boiler Performance

Boiler Fuel Optimization on Vessels improves the performance and efficiency of boilers and their associated steam distribution systems. It can reduce running costs and improve performance. Boiler optimization can involve various aspects such as:

* Operating the boiler at the optimal pressure and temperature to maximize the heat transfer and minimize heat losses.
* Maintaining the boiler water quality to prevent corrosion and scale formation, which can affect the heat transfer and cause boiler failure.
* Implementing proper control and monitoring systems to regulate the boiler operation and detect any faults or anomalies.
* Performing regular inspection and maintenance to ensure the boiler is in good condition and meets safety standards.
* FPC has acquired the boiler data from all the BS vessels and consumption base lines have been made for specific Vessel for both at Sea and at Port, considering the minimum firing load of the boiler. FPC shared a guideline of best practices to follow on board both At Sea and In Port to minimize the operations/consumptions to optimize fuel consumption on AE & Boiler.

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| **Filtration criteria for Boiler @ Sea:**  Noon at Sea, EOSP logs which fall under below criteria will be filtered out:   * ME load at Sea < 37% MCR * Log duration < 8 hours. * For tanker vessels, if Boiler consumption at sea >1.0 MT/day – as this would suggest that some cargo operation (cargo heating/tank cleaning) is in progress.   **Filtration criteria for Boiler @ Port:**  Noon at Port logs which fall under below criteria will be filtered out:   * Logs with Main Engine Running hours are not considered. * For Oil/Chem Tankers, Logs with Tank cleaning are not considered. * Log duration < 8 hours. |

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## 6.1 Boiler at Port/Idle – Fuel Consumption Trend

Below table provides Average Boiler Consumption at Port for the BS Fleet in Q1, Q2, Q3 & Q4 along with the Savings potential:



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## 6.2 Boiler at Sea – Fuel Consumption Trend

Below table provides Average Boiler Consumption at Sea for the BS Fleet in Q1, Q2, Q3 & Q4 along with the Savings potential:



# 7. Conclusions

**CII Ratings**

Following Vessels are rated E post corrections, comments are provided for the primary reason of inferior rating:

* **Weser Stahl**: Low sailing activity of 33% in 2024. For reaching D, Biofuel as well as operational measures has been proposed. Based on our recommendation vessel had bunkered B30 MGO.
* **Gottfried Schulte**: Very low sailing activity of 39% due to very short voyages.
* **MSC Agadir**: Sailing activity of 46%. FPC recommended usage of Biofuel, Hull cleaning & Speed optimization for improving the CII rating in 2024. Hull cleaning & Propeller polishing has been done in Q3 to improve the rating.
* **MSC Antigua**: Low Sea activity until Q2 due to short voyages, high operating speed near the design speed and increased FOC due to hull deterioration have resulted in an inferior CII rating. For 2024, speed optimization and Hull cleaning recommendations were given. CII improvement measures have been shared with the fleet teams for 2025.
* **Kairos**: Inferior CII rating is due to trading pattern and Vessel type.

**ME Fuel Consumption:**

The following vessels have completed UW cleaning based on recommendations shared by FPC to the fleet teams in Q4/24:

* + **Hubert Schulte:** Hull cleaning and Propeller polishing completed on 01st Dec 2024
  + **Margarete Schulte:** UWI/PP carried out on 28th Oct 2024 as per FPC recommendation in Q2 2024. UWC to be carried out in Q1 2025.

FPC has also shared UW cleaning recommendations for the following Vessels in Q4/24 for which Fleet teams are awaiting suitable Port call for cleaning/inspections:

* + **Molly Schulte**
  + **Max Schulte**
  + **Christoph Schulte**
  + **Thalea Schulte**

Summary of existing issues with ME Flowmeter and Shaft Power meter:

* **Edzard Schulte:** Dynamic calibration to be carried out with precise environmental factors to mitigate the issue in measurement of shaft power meter.
* **Rudolf Schulte:** Defective PCB of the Shaft power meter was replaced by the maker however readings are not being displayed yet. Service attendance is needed based on the convenient port.
* **Everhard Schulte:** Shaft power meter is out of order and the measurement unit was replaced. Awaiting the vessel to carry out dynamic calibration so that accurate measurement expected.
* **Elisabeth Schulte:** Deviation of 500kW observed in SPM measurement when compared to the power estimated from turbocharger data and Diesel doctor values, issue being checked by the maker, Datum.
* **Friedrich Schulte:** Flowmeter measured Value shown on AMS is not correct. New flowmeter installed onboard. Data check awaited.
* **Margarete Schulte:** Emerson Mass flowmeters onboard shows reading even when the ME not in operation. Issue raised with maker, and it requires SE attendance. It is being planned as of now.

**AE Fuel Consumption:**

* **Max Schulte**: AE Consumption at port and sea has significantly improved in Q4 when compared to Q3 through the optimization measures suggested.
* **Henrika Schulte, Anna Schulte & Carl Schulte**: AE Consumption has significantly improved in Q4 when compared to Q2 & Q3 through the optimization measures suggested.
* **Clemens Schulte**: AE consumption has significantly improved in Q4 when compared to Q2 and are below baseline by following the optimization measures and action points discussed with the Chief Engineer. The higher consumption in Q2 was due to the vessel trading in tropical regions where two air conditioning units and two seawater pumps were in continuous operation.
* **Hubert Schulte**: AE Consumption has been consistently improving from Q2 through the optimization measures suggested.
* **Hermann Schulte**: AE port consumption has improved in Q4 when compared to Q2 & Q3, by following the implementation of the suggested optimization measures. The higher consumption in Q2 was due to the operation of the larger starting air compressor in place of the service air compressor, which was out of order.

**Boiler Fuel Consumption:**

* **E-Class vessels:** The rise in boiler consumption during Q4 is primarily attributed to the vessel operating in cold regions and carrying heated cargo. Ongoing discussions are in place to optimize boiler consumption for these vessels.
* **Zita Schulte:** The increased consumption in Q4 is a result of two key factors: malfunctioning of HFO pressure regulating valve and the need to heat VLSFO in storage tanks to prevent sediment formation, clogging of purifiers and filters, and to maintain viscosity at 12-13 CST. Discussions are ongoing to optimize boiler consumption for these vessels.
* **Mia Schulte:** Boiler consumption has significantly improved in Q4 compared to Q3 & Q2. The vessel was advised to use AE#2 instead of AE#3 in Q2 2024 to take benefits of the waste heat recovery system installed on AE#2 while in port/idling. This recommendation was implemented leading to a significant improvement in boiler consumption.
* **Melchior Schulte**: Boiler port consumption has significantly improved in Q4 compared to Q3 & Q2 through the continuous follow up with vessel and optimization measures suggested.
* **Lucie Schulte**: The increased consumption of Boiler at Port in Q4/24 when compared to Q3/24 is due to the combination of reasons including the following:
  + Steam leakages through gaskets, traces etc.
  + Steam valves were damaged.

Following actions are planned by C/E as per the communication with TSI:

* Set point of Aux Boiler reduced from 5.8 bar to 4.8 bar.
* The steam leakages through gaskets, traces, etc., were inspected and eliminated, in order to save the steam pressure.
* The steam valves, which are damaged were renewed, in order to save the steam pressure.
* The tank heating was reduced to required minimum, in order to save the steam pressure.

**-------------------------------------------End of Report-------------------------------------------------**