

# SHIP ENERGY EFFICIENCY MANAGEMENT PLAN

# SEEMP



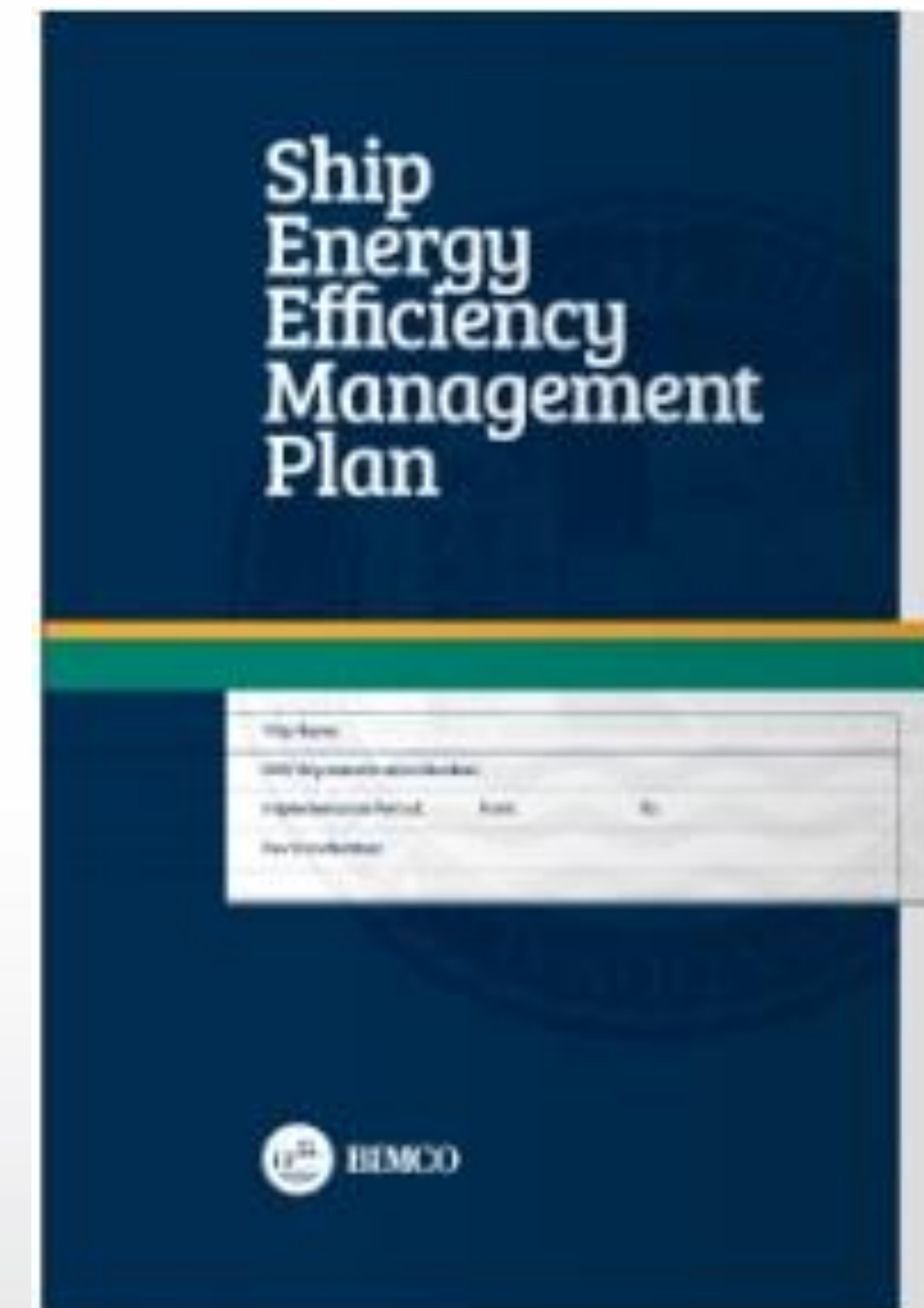
Edilberto Peralta  
Operations Manager  
Central and South America

# SEEMP

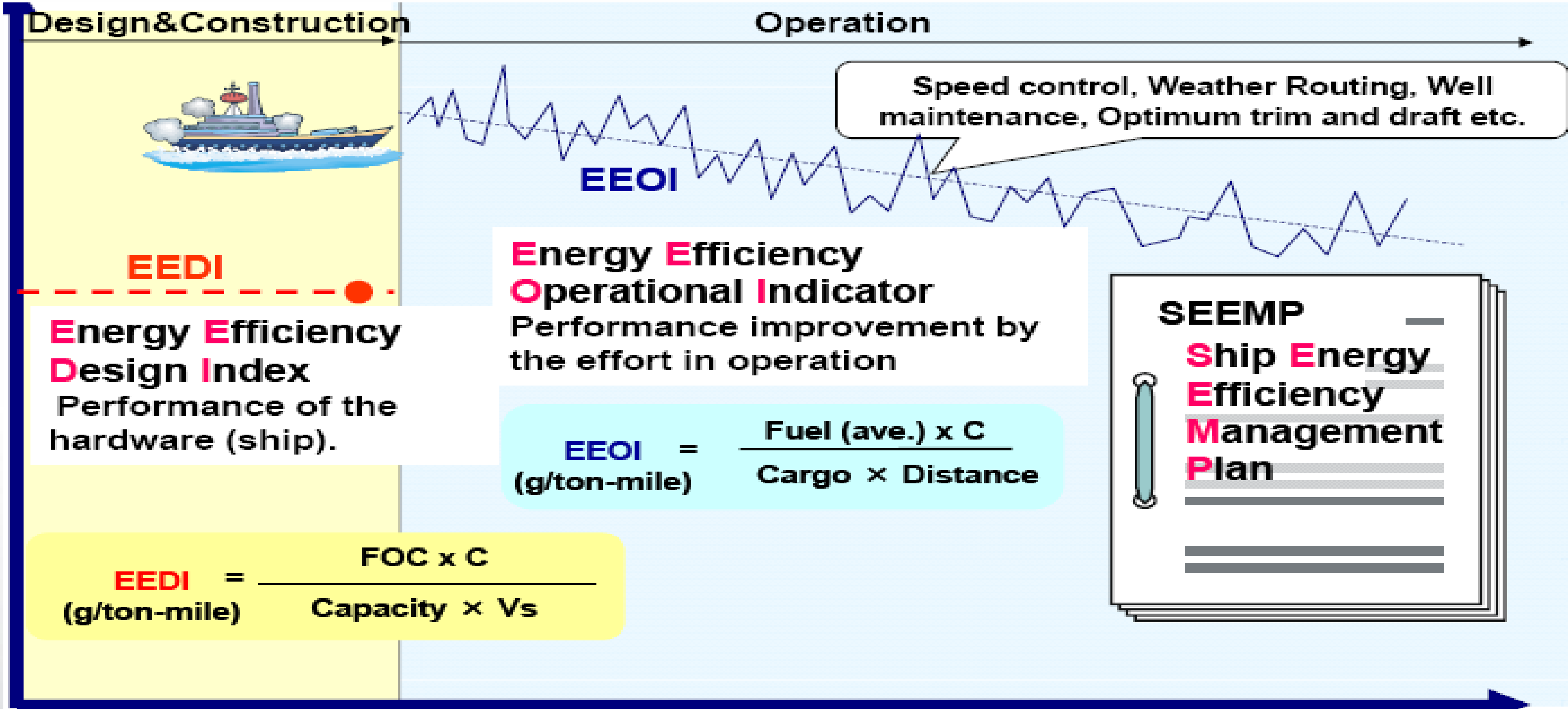
An energy management plan that aims:

- To optimise the ship operational and technical management processes for energy saving.

This is applicable to all ships including existing ones.



# SEEMP

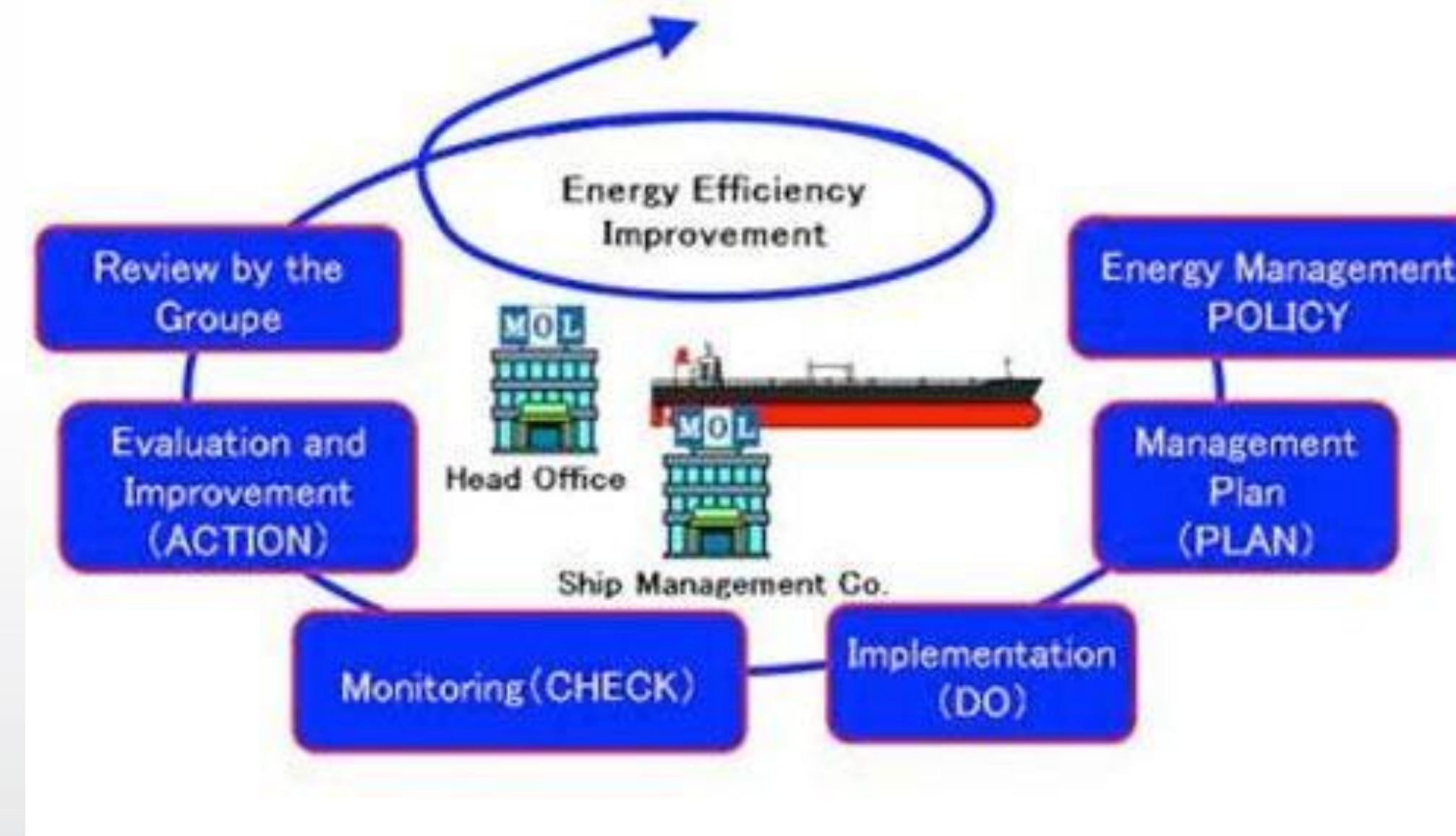


- The SEEMP is primarily intended to be a management tool for ship-board use and aims to improve the energy efficiency of ship operations.
- It is an IMO requirement to have a SEEMP on-board all existing and new applicable ships from 1st January 2013.
- SEEMP should be customised to the characteristics and needs of individual companies and ships; **therefore it is a ship-specific plan.**



- The SEEMP framework is based on a four-step continuous improvement process (cyclical) as shown below:
- **Planning**
- **Implementation**
- **Monitoring**
- **Evaluation**

At the core of the SEEMP development and implementation are the “**energy efficiency measures**” that refer to activities that, if properly implemented, will reduce the ship fuel consumption.





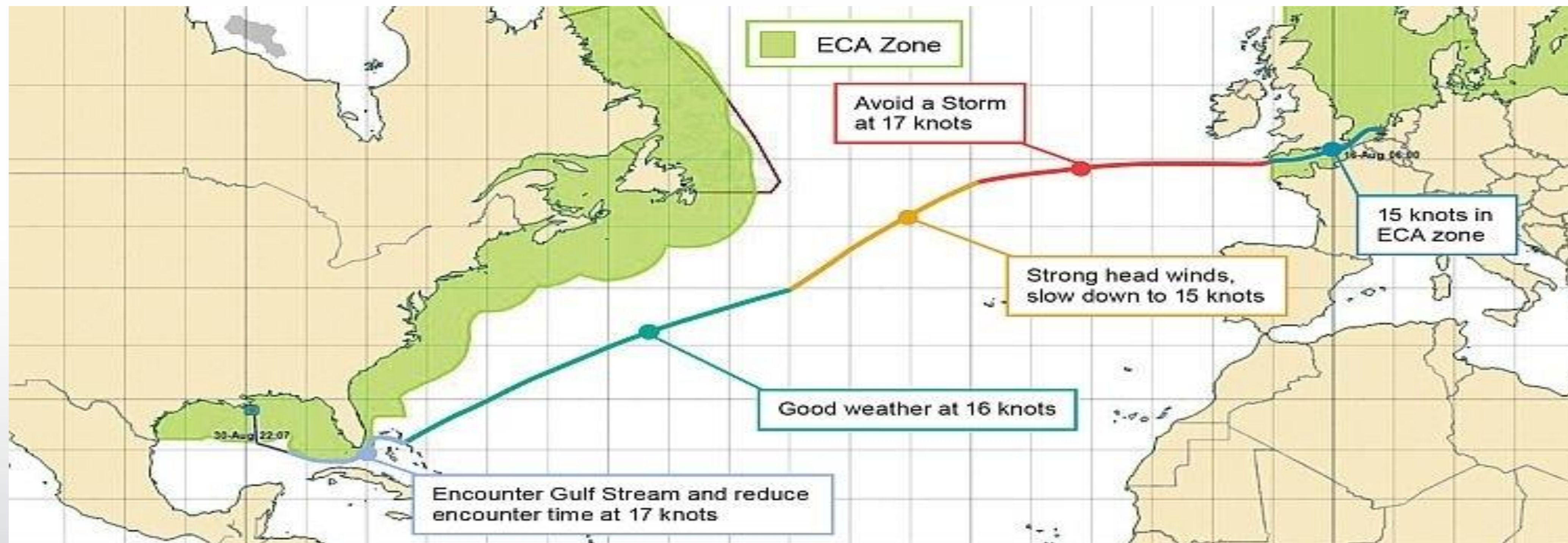
## SEEMP Related Measures

No.	Energy Efficiency Measure	Remark
1	Engine tuning and monitoring	Engine operational performance and condition optimisation.
2	Hull condition	Hull operational fouling and damage avoidance.
3	Propeller condition	Propeller operational fouling and damage avoidance.
4	Reduced auxiliary power	Reducing the electrical load via machinery operation and power management.
5	Speed reduction (operation)	Operational slow steaming.
6	Trim/draft	Trim and draft monitoring and optimisation.
7	Voyage execution	Reducing port times, waiting times, etc. and increasing the passage time, just in time arrival.
8	Weather routing	Use of weather routing services to avoid rough seas and head currents, to optimize voyage efficiency.
9	Advanced hull coating	Re-paint using advanced paints.
10	Propeller upgrade and aft body flow devices	Propeller and after-body retrofit for optimisation. Also, addition of flow improving devices (e.g. duct and fins).



## “Energy Efficiency Measures” Operational measures

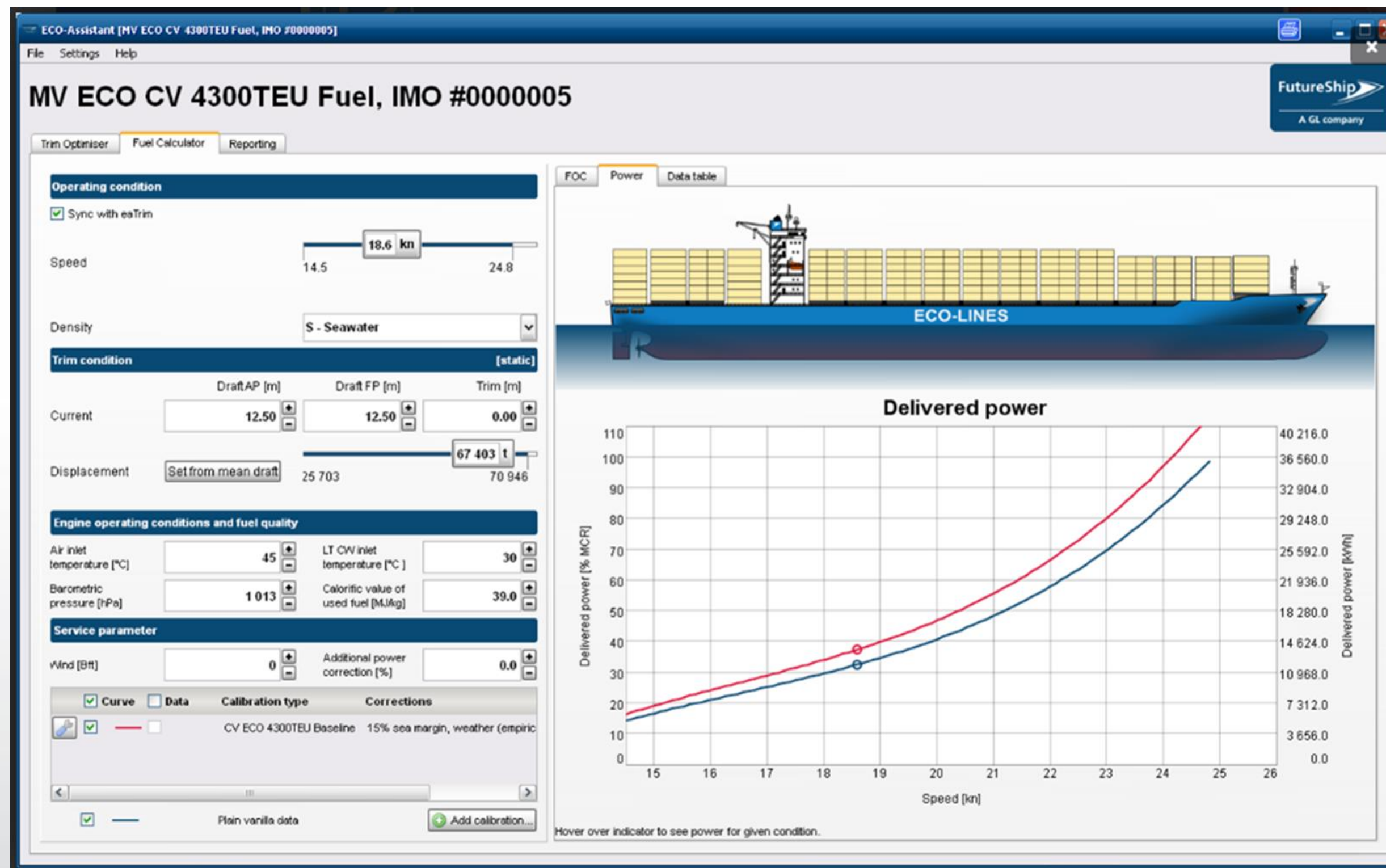
- Enhanced weather routing.





## “Energy Efficiency Measures”

- Optimized trim and ballasting.



## “Energy Efficiency Measures”

- Hull and propeller cleaning.





## “Energy Efficiency Measures”

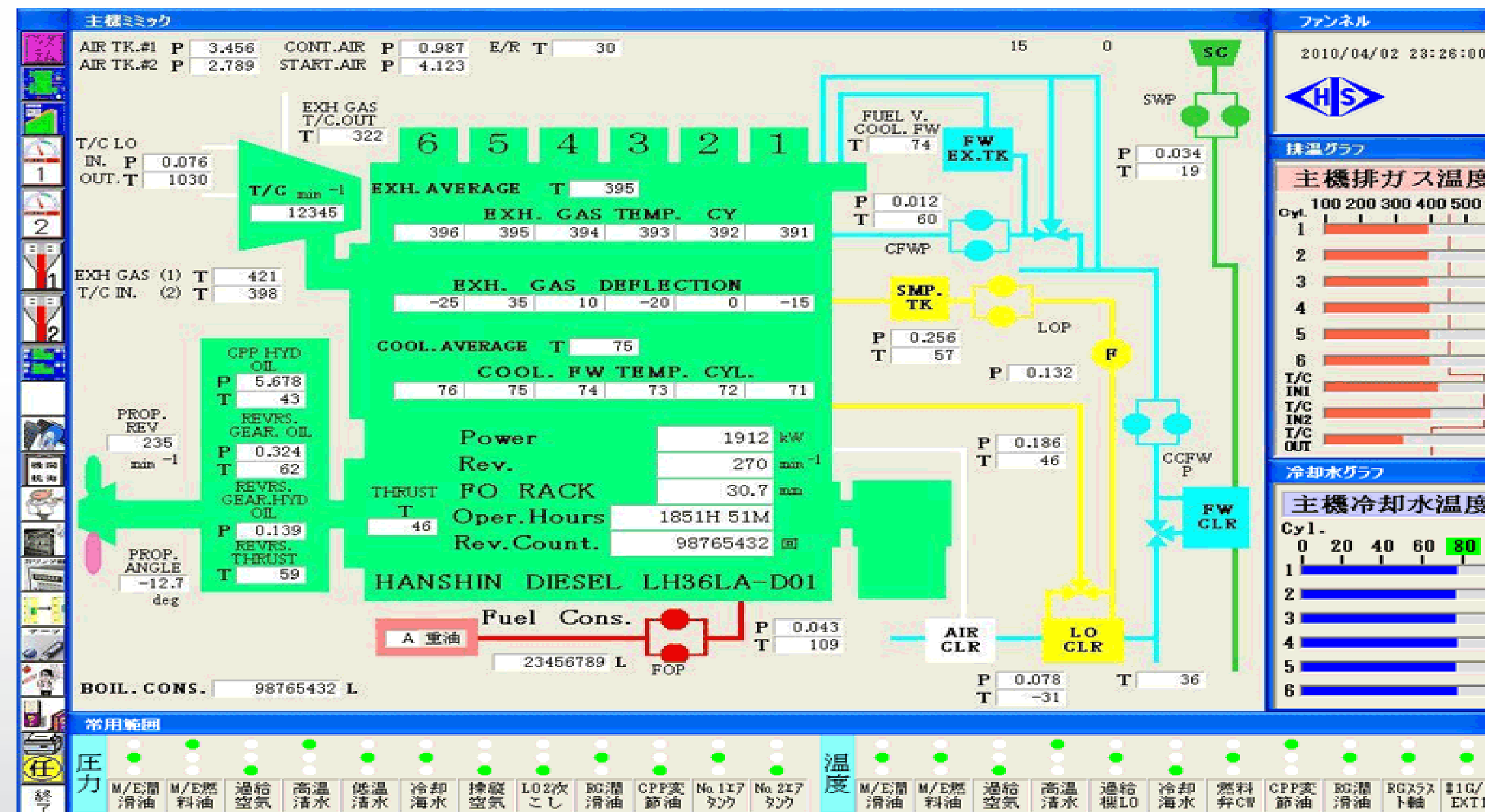
Better main and auxiliary engine maintenance and tuning.





## “Energy Efficiency Measures”

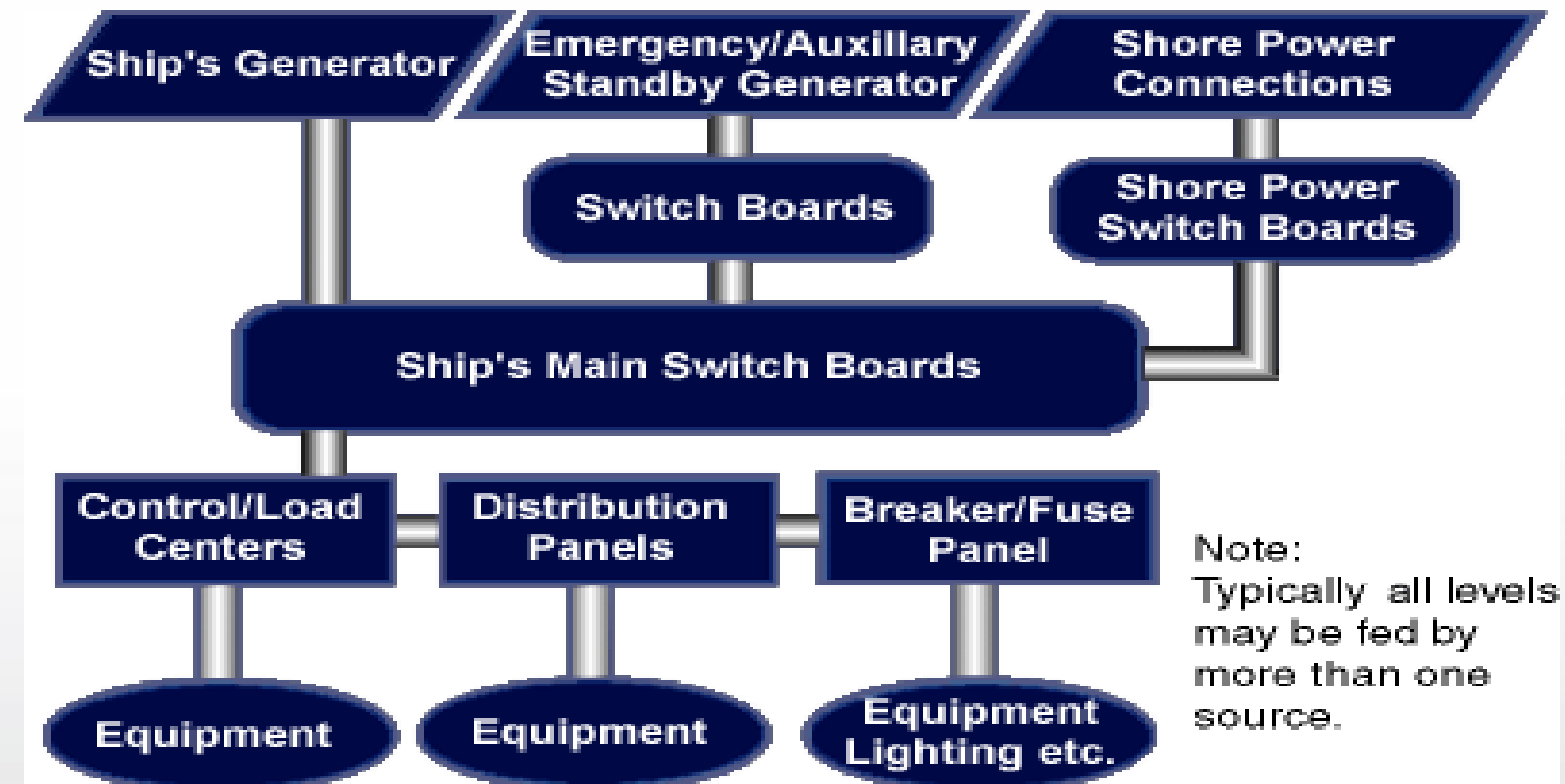
- Monitoring and reporting.





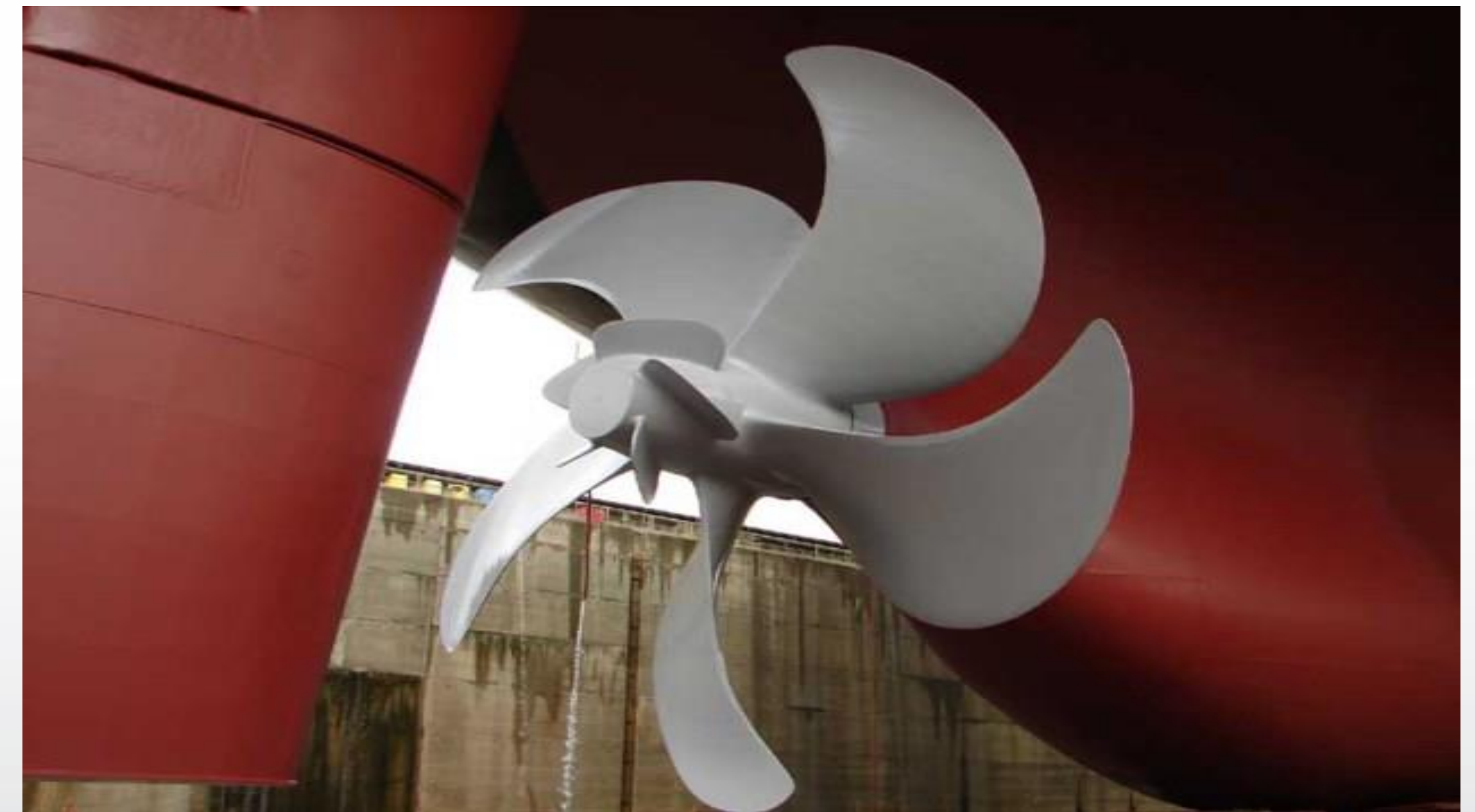
## “Energy Efficiency Measures”

- Efficient operation of major electrical consumers.



## “Energy Efficiency Measures”

- Deployment of cost effective propulsion, engines and auxiliary technology upgrades.





## “Energy Efficiency Measures”

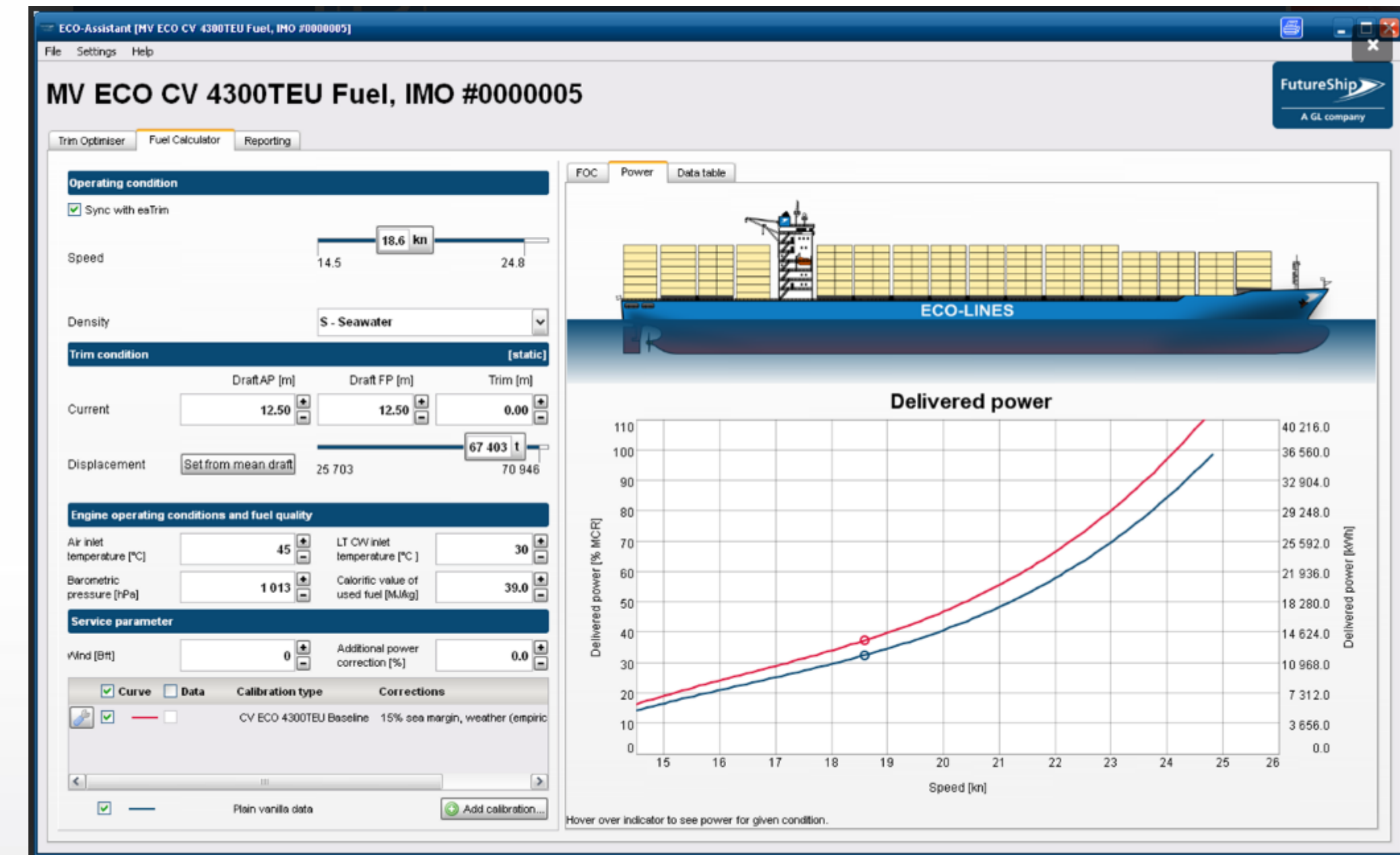
### Enhanced logistics and fleet planning:

- Combining cargoes, where possible, to achieve a higher utilisation rate.
- Use of combination carriers’ (to reduce ballast voyages).
- Optimisation of logistic chains.
- Enhanced routeing and itinerary.
- Fewer/shorter ballast legs.
- Larger cargo batches (better ship load factor).
- Just in time operation and slow steaming.

# Fuel Oil Consumption Data Collection System

IMO resolution MEPC.278(70) amends MARPOL Annex VI, on 1 March 2018, to introduce a new Regulation 22A which includes a requirement for ships to record and report fuel oil consumption data.

Fuel oil is defined by Annex VI as any fuel delivered to and intended for combustion purposes for propulsion or operation on board a ship, including gas, distillate and residual fuels.





## Fuel Oil Consumption Data Collection System

IMO has also published Resolution MEPC.282(70) ‘Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP)’ which includes:

- the pre-existing guidance on developing a ship management plan to improve energy efficiency - now known as **SEEMP Part I**;
- guidance on developing a fuel oil consumption data collection plan, i.e. **SEEMP Part II**.

The amended MARPOL Annex VI requires the following:

- **A new ship energy efficiency management plan (SEEMP) Part II, approved by the TSO or Flag;**
- *Data (e.g. fuel consumption, distance travelled, hours underway) to be collected on a calendar year basis;*
- **Data from the previous calendar year to be reported to the Flag/RO during the first 3 months of the following year;**
- *Data from the previous calendar year to be verified by the Flag/RO during the first 5 months of the following year and then the TSO or Flag is to issue a ‘Statement of Compliance – Fuel Oil Consumption Reporting’.*



## **These new requirements only apply to ships of 5,000gt and above.**

As per Regulation VI/19, these new requirements do not apply to the following:

- domestic ships;
- ships not propelled by mechanical means;
- platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion.

*By 31 December 2018, at the latest, the ship's SEEMP shall be updated to include a description of the methodology that will be used to collect the data and the processes that will be used to report the data to the Flag/RO (i.e. SEEMP Part II).*

**From January 2019 onwards, each ship shall collect the fuel oil consumption data for that year, according to the methodology included in the SEEMP Part II**

**In the first 5 months of 2020, the data is to be reported, for the first time, to the Flag/RO which will then verify the data and issue a ‘Statement of Compliance – Fuel Oil Consumption Reporting’ to the ship.**



## CONCLUSIONS

### **Proper implementation of SEEMP will make a difference**

Your company's environmental performance can be a differentiator and help you gain competitive advantage in challenging market conditions.

### **New ways to operate**

People and ships working in harmony. However, environmental challenges mean that ships are becoming increasingly complex to operate, which means that ships will be more expensive to build as well.

## CONCLUSIONS

### Significant actions

Environmental challenges require significant actions, resources and investment decisions. Compliance with future and emerging environmental regulation is one of the biggest challenges the marine industry faces.

### Training challenges

You would not put a novice driver behind the wheel of a Formula One car and nor would you put people without the right experience on board your ships.