

# Ship Energy Assessment System

Ship Energy Assessment System (SEAS) and Ship Energy Assessment, Condition Optimisation and Routing Enhancement System (SEA-CORES) form part of a suite of systems which integrate energy consumption and performance data, condition based monitoring, weather routing, vibration analysis, equipment power signature and prime mover management systems to determine the optimal operating state for the whole platform.

## Features

Available in standalone or integrated into a Platform Management System

Single page view of fuel consumption

Visual impact analysis of changes to operating profile

Intuitive graphical tasking interface

Shore and ship side specific views

Performance trending to predict and manage fuel consumption

## Benefits

Up to 28% fuel saving demonstrated on a Royal Navy platform

Increased capability for same cost

Reduce emissions

Optimal fuel usage for Just In Time arrival

Rapid decision aid

Intuitive to use and act on information

Investment in one tool with multiple modes

Optimal use of prime movers can reduce maintenance cost

SEAS monitors the changing performance of a ship, using smart algorithms to track and trend fuel and energy performance to develop a model of ship performance.

SEAS is available in two modes:

**Standalone** – suitable for non-complex engine configurations, or where speed of deployment is key. It does not require direct connection to a ship Integrated Platform Management System (IPMS). SEAS Standalone acquires data from an initial vessel performance characterisation process, refreshed periodically, minimising changes to the ship and keeping installation costs to a minimum.

**Fully integrated** – this mode uses a data stream from data loggers or an IPMS, to track the latest ship performance. Fully integrated mode also reports sensor 'health' and fuel status and enables the crew to deliver a live passage plan, based on the current actual speed through water; making live updates.

Instant view of:

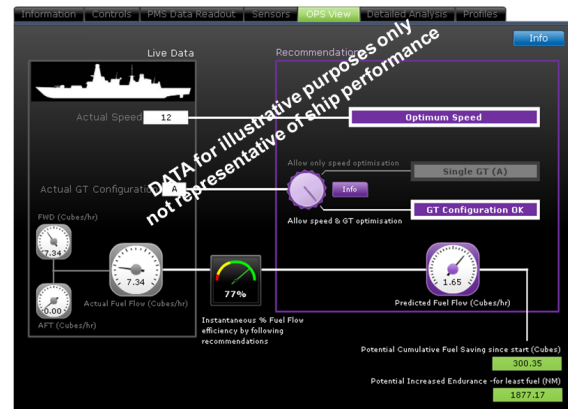
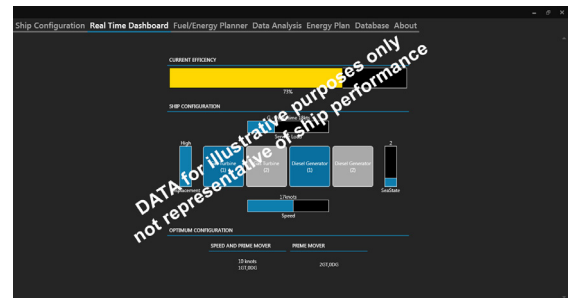
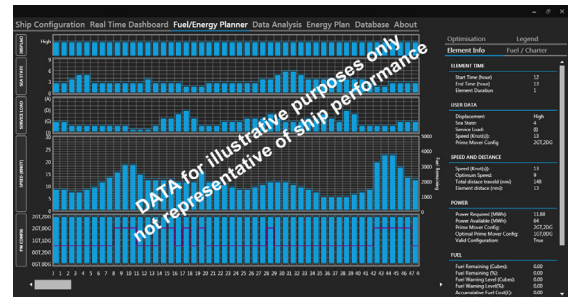
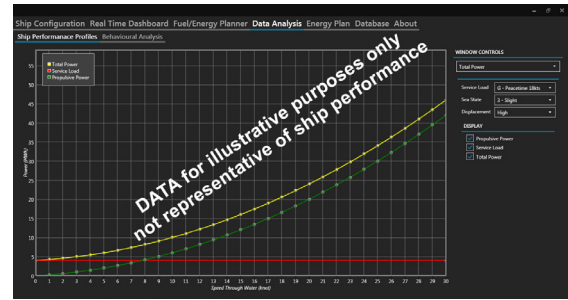
- Ship power / fuel efficiency curves
- Ship prime mover operating profiles
- Ship fuel efficiency per nautical mile
- How to improve fuel efficiency through speed profile adjustments
- How to increase endurance and reduce fuel consumption
- Savings that could be achieved – cost, nautical miles and CO<sub>2</sub>

**On-board planning aid:** Powerful feature for masters/navigators to select speed and service load profiles and assess the impact on fuel consumption, cost and endurance and plan ahead for the next bunkering activity.

**On-board/off-board fleet planning:** Provides fleet operations with an up to date view on current vessel performance, improved fuel logistics and endurance, to support future passage plan decisions.

**Record and replay on/off board:** Time spent at each steady state speed and sensor input is recorded, allowing maintainers to replay the passage and sensor status, to assess how close the ship is operated against the optimum operating envelope – important in maintenance and availability decisions.

**Real time display and diagnostics:** When SEAS is fully integrated with an IPMS, it assesses the health of connected sensors from real time data. SEAS uses only valid sensor data to derive the current energy and fuel performance of the ship in real time. This enables SEAS to report the dynamic state of the ship and track trends in performance.



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