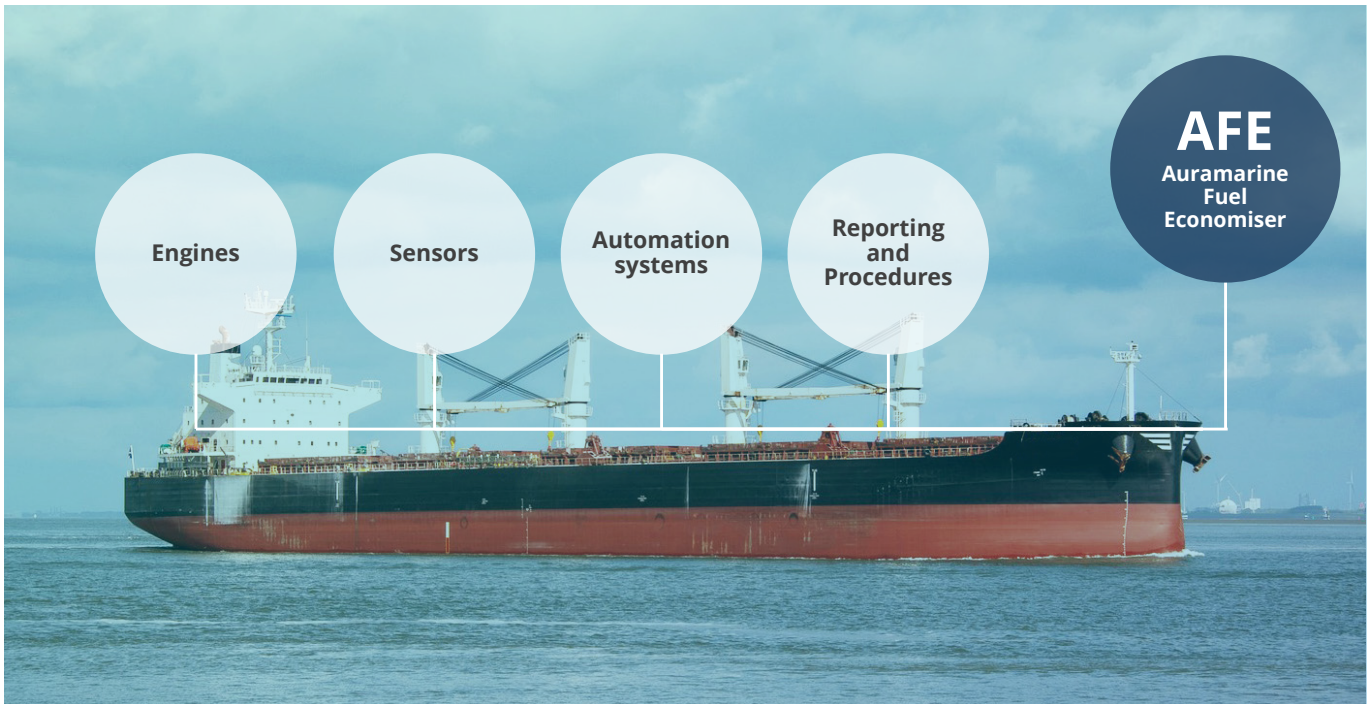
AFE
Auramarine Fuel Economiser

Data collection system for reduction of fuel consumption and CO_2 emissions



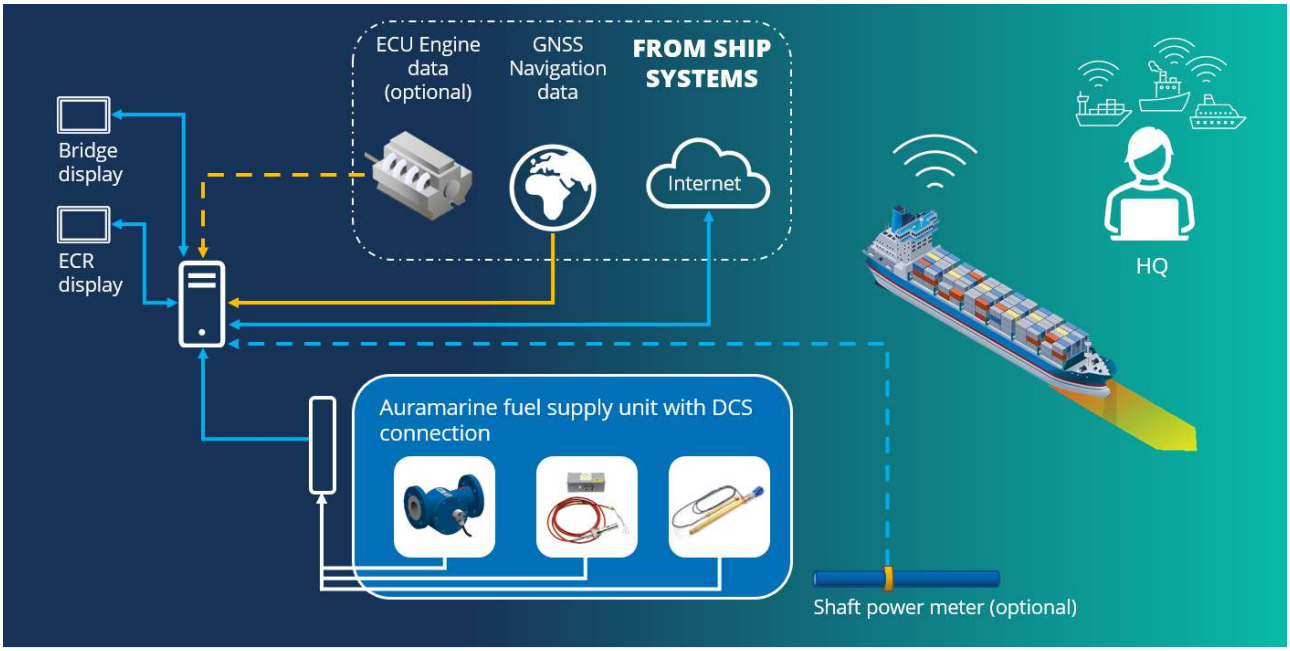
Easy and actionable reporting

Achieving the International Maritime Organization's (IMO) and regional goals to reduce Greenhouse Gas emissions from ships will require a combination of technical and operational solutions. The differences in data collection requirements - for example, between EU Monitoring, Reporting and Verification (MRV) and IMO Data Collection System (DCS) - set new challenges for the people who handle reporting onboard vessels and on land. The Auramarine Fuel Economiser (AFE) system emerges from this need to scrutinise all aspects of a ship's fuel system and turn the data into an actionable form that is also suitable for various reporting needs.

AFE supports a ship's fuel economy by providing data in a consistent, automated and reliable way. The system can collect data to serve the vessel's all fuel-related reporting needs. For ship owners and operators, the system produces actionable information, which shows where fuel consumption and CO2 emissions can be reduced.

The data collection plan supported by AFE can be included in the ship's safety management system. Further benefits for the ship's personnel are automated data transfer and utilisation of data from existing records, and the ability to choose the required reporting frequency (noon report or higher frequency).

Typical system setup



Data collection

A ship's fuel oil consumption includes but is not limited to the consumption of each fuel oil type, regardless of if the vessel is under way or not. Typical consumers to be monitored are main engines, auxiliary engines, gas turbines, boilers and inert gas generator.

The following data is collected:

- Used fuel oil type
- Fuel oil consumption, volume or mass
- Viscosity
- Fuel change over time and viscosity and temperature behaviour
- Fuel oil filter flush counter (time, pressure or manually triggered)
- Fuel pump runtimes and fault indication
- Fuel oil cooling and heating valve position or electric heating stage (energy used to preheat fuel oil)
- All I/O data collected
- Optional: Shaft power meter, Engine data

As part of your system, AFE supports and complements your full CII calculation and real-time energy efficiency indication, depending on your system setup.

The system utilises the fuel supply system sensors and other data that is available from the ship's systems. It enables cloud-based utilisation of the data available from the fuel supply system.

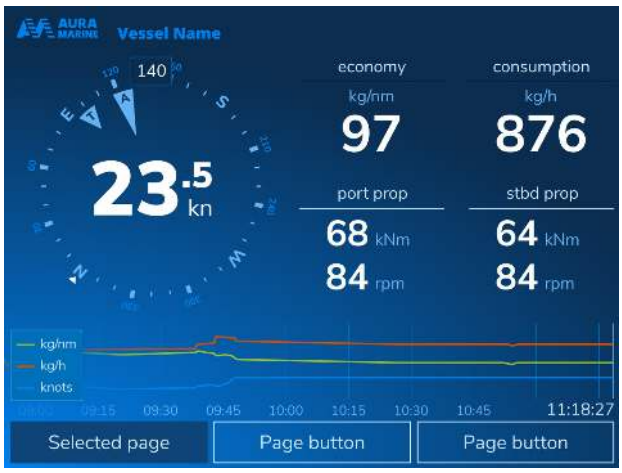
The AFE system is applicable for a single ship or for the benefit of entire fleets.

An independent system

AFE is an independent system and can be applied regardless of engine manufacturer or fuel supply system manufacturers.

It can be integrated to most available onboard systems. Ship-specific interfaces, such as engines, sensors, protocols and automation systems are defined case by case.

It can be installed as a retrofit in a couple of days, depending on delivery scope (even during ship operation). Contact Auramarine to find the best scope for your ship.



A clear display with essential information at glance

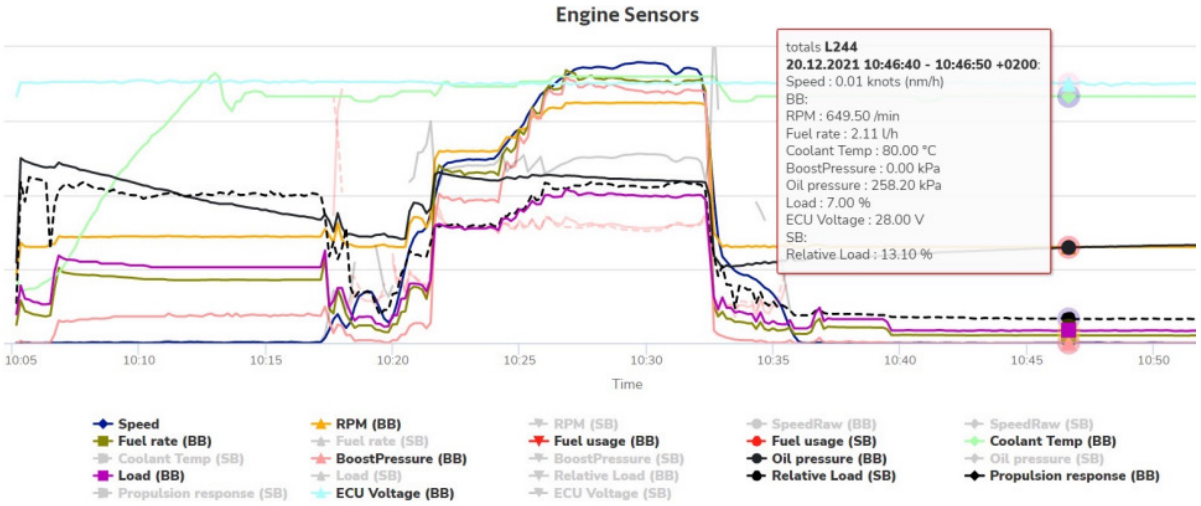
Key benefits

- Reveals fuel savings potential by providing fuel economy transparency
- Enables easy and accurate reporting and automated data flows
- Enables optimisation of operations by analysing fuel profiles and fleet utilisation
- Reviews operations for safety, efficiency and professional development
- Prevents unnecessary wear by providing operation style control
- Analyses onboard Auramarine equipment data for planned and preventative maintenance
- Brings in situational awareness (nearby traffic, AIS information)

Regulatory and operational considerations

Auramarine AFE can support your operations with the following:

- Reporting according to regulations such as EEXI, CII
- Fuel consumption per nautical mile
- Fuel consumption vs. distance travelled
- Operational cost awareness
- Reporting to bridge/control room
- Signal to enable remote reporting to shore
- Engine health monitoring



Detailed review of all historical data and events (example)

Whole package from Auramarine

Auramarine provides users with the required software, the necessary sensors and components such as flowmeters and viscometers, as well as experienced installation services. Our support continues with consultations based on the collected data. Later on, in case changes are made to the onboard fuel supply system – for example when new fuels are introduced - we can carry out the necessary updates, additions or system modifications.

Differences of EU MRV Regulation and IMO Data Collection Scheme (DCS)

EU MRV	IMO DCS
Data publicised with ships identified along with their data.	Data will be anonymised before it is made public by IMO.
Requires reporting of actual cargo carried.	Uses ship DWT as a proxy for cargo.
Requires that data is verified by an EU accredited verifier, not by the ships Flag Administration. This verifier which is EU accredited by a national body (which may also be a class society or may be another verification body with the appropriate accreditation).	Requires that data is verified by the Flag Administration or one of their Recognised Organisations.
Applies to voyages to, within and from a port of call under the jurisdiction of an EU Member State.	Applicable to all voyages.
Provides requirements for monitoring plans including their format.	Requires that this forms Part II of the SEEMP, named Ship Fuel Oil Consumption Data Collection Plan with its own format.
Applies to ships carrying passengers or cargo for commercial purposes and excludes several voyage categories, such as those undertaken by offshore vessels and dredgers.	Does not offer exclusions. All vessels have to report their fuel use.

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Get further information or request a meeting:

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