

VEEO for Ship Energy Management

Cutting Fuel Costs, emissions & Increase Competitiveness

**TecnoVeritas -
Services of
Engineering &
Systems Technology
Ltd.**

From the Propulsion Plant Performance Specialist a Service to Optimise Fuel Costs, Reduce Emissions & Make Your Company More Competitive. Our Range of Ship Energy Services Objectives is to Increase Your Vessels Fuel Efficiency

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Ship Energy Management

LESS FUEL > LESS EMISSIONS > LESS COSTS

IMO MPEC.1/Cir.684, MARPOL VI Compliant,

Make Your Vessel Greener!



To improve the fuel Efficiency and Environmental Impact of Your Ship Operations

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VEEO “Voyage Energy & Emissions Optimiser” is the latest product of TecnoVeritas aiming the optimisation of energy use on board ships.

With the rapid increase in oil price the fuel costs now account for up to 50 % of the operating costs in some sectors and trades.

Simultaneously shipping industry is becoming under pressure to reduce GHG (Green House Gases) emissions namely CO₂, being already under way a number of mechanisms such as MBI’s (Market Based Instruments) based on Emission Trading Schemes and carbon tax schemes. To meet the challenge, ships need reliable energy monitoring systems like **VEEO**.

VEEO was developed to satisfy the IMO MEPC (Marine Environment Protection Committee) MEPC.1/Circ.684 from 17 August 2009, as well as MARPOL Annex VI ECA requirements.

VEEO is a monitoring and data logging system, it logs HFO, LFO consumptions, Electric energy produced, as well as GPS and Shaft power data. **VEEO** calculates the correct value of **EEOI** (Energy Efficiency Operational Indicator) as set by IMO-MEPC annex.

VEEO minimises the human errors, improving data accuracy and peace of mind.

VEEO is processing constantly a number of other variables, that are valuable indicators for ship management, such as:

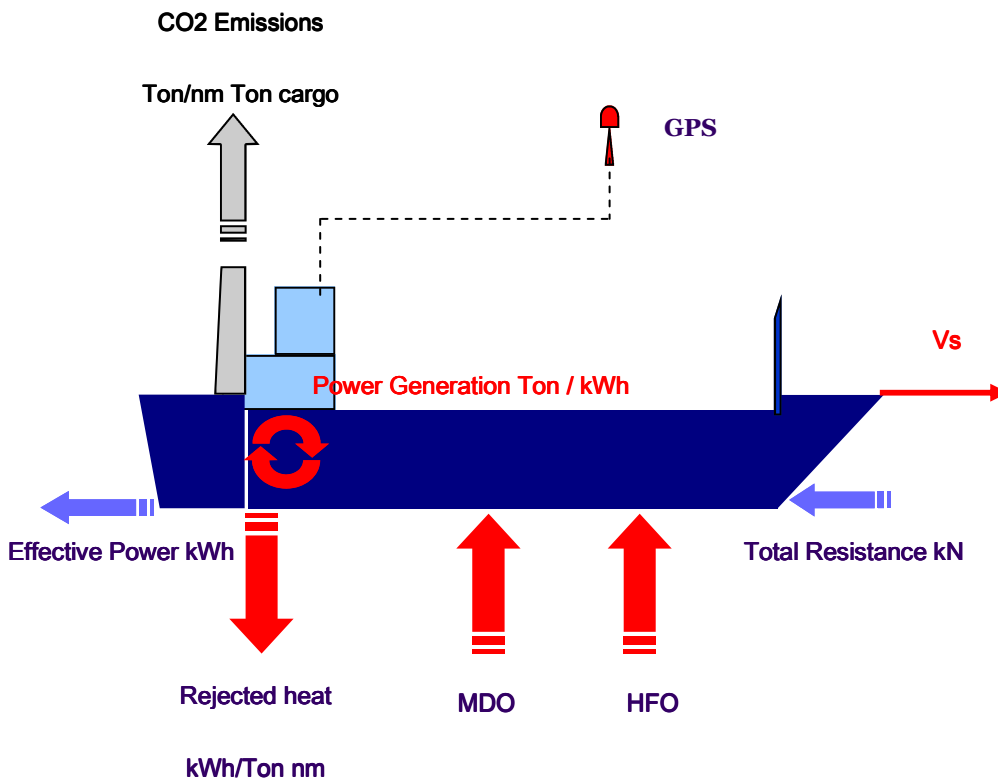
EEOI	Energy Efficiency Operational Index
TonHFO/Ton nm,	Mass of HFO per nautical mile
TonLFO/Ton nm,	Mass of LFO per nautical mile
TonCO ₂ /nm,	CO ₂ per nautical mile
kWh/nm,	Energy used per nautical mile
kWh/Shaft kW,	ME efficiency
kN/kWh;	Vessel total resistance
TonCO ₂ /shaft kWh;	CO ₂ per shaft energy
kn/shaft kWh	Velocity per shaft energy
Ton CO ₂ / kWh	Generators emissions
G _{Effi} .	% Generator and efficiency
Ton CO ₂ / kWh	Boiler emissions
% Boiler	Boiler efficiency
CO ₂	Incinerator emissions

VEEO Takes the Ship as a whole Energetic System!



VEEO Concept overview

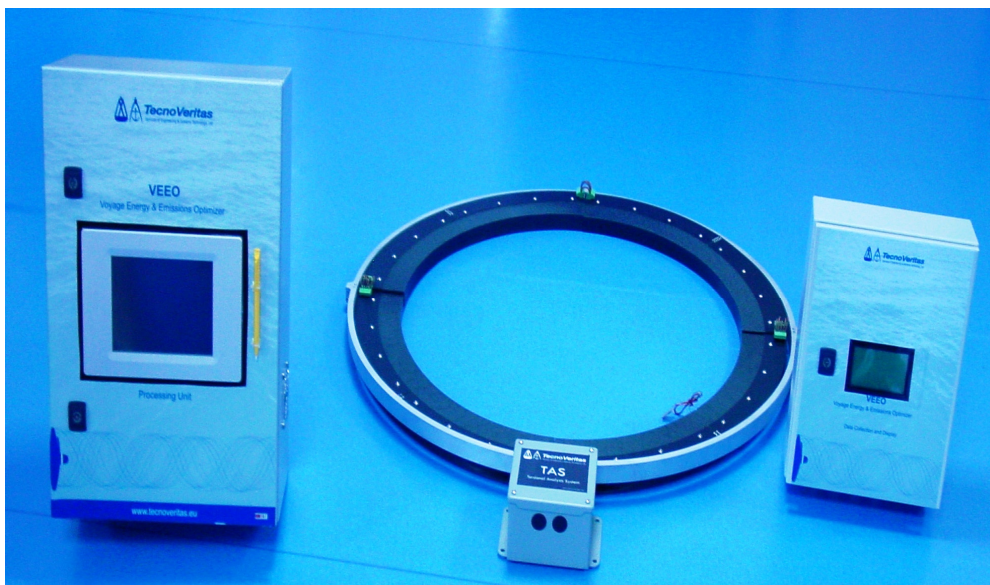
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If you do not measure it, you have only a vague idea !

Total energy monitoring, allowing ship energy optimisation and lean energy operation management;

Automatic CO₂ Totaliser for Fuel Change Over from Non ECA to ECA (Emissions Control Areas)



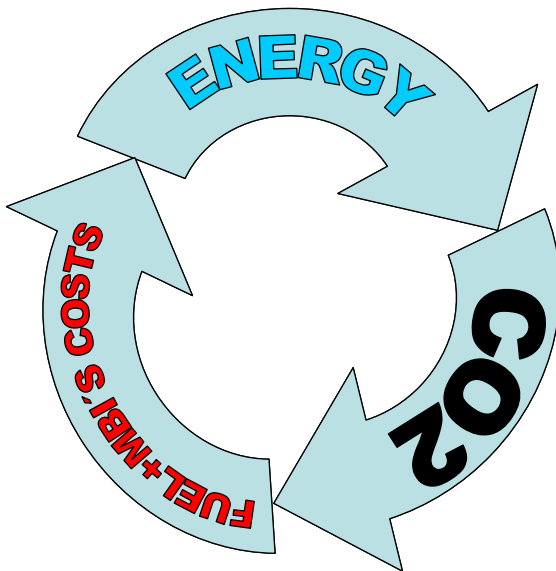
VEEO cabinets and TAS Torquemeter



Ship owners need accurate measurements to know how to make their vessels more energy efficient thus reducing fuel costs, and future emissions costs. **VEEO** allows an accurate holistic approach to ship energy management.

By implementing a **VEEO** “Voyage Energy & Emissions Optimizer” you will know where and how to optimize energy, making your ship operation leaner, and environmentally friendly while saving money.

TecnoVeritas offers also a range of ship energy services such as **Energy Assessments** specifically aimed at helping ship owners to improve their vessels energy efficiency, resulting typically in **savings ranging from 5% to 30% of fuel costs a year.**



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