



## Design services - EIT

Why Global Maritime Electrical Instrumentation and Telecommunication design?

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# Why Global Maritime EIT design?

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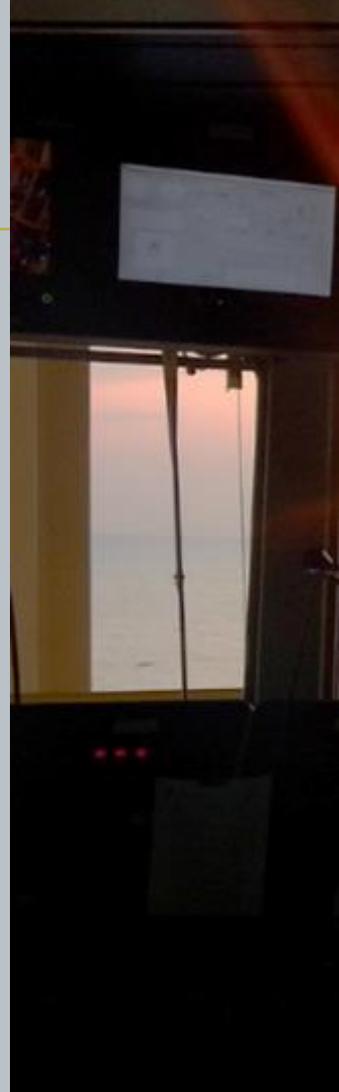
## Why Global Maritime EIT design?

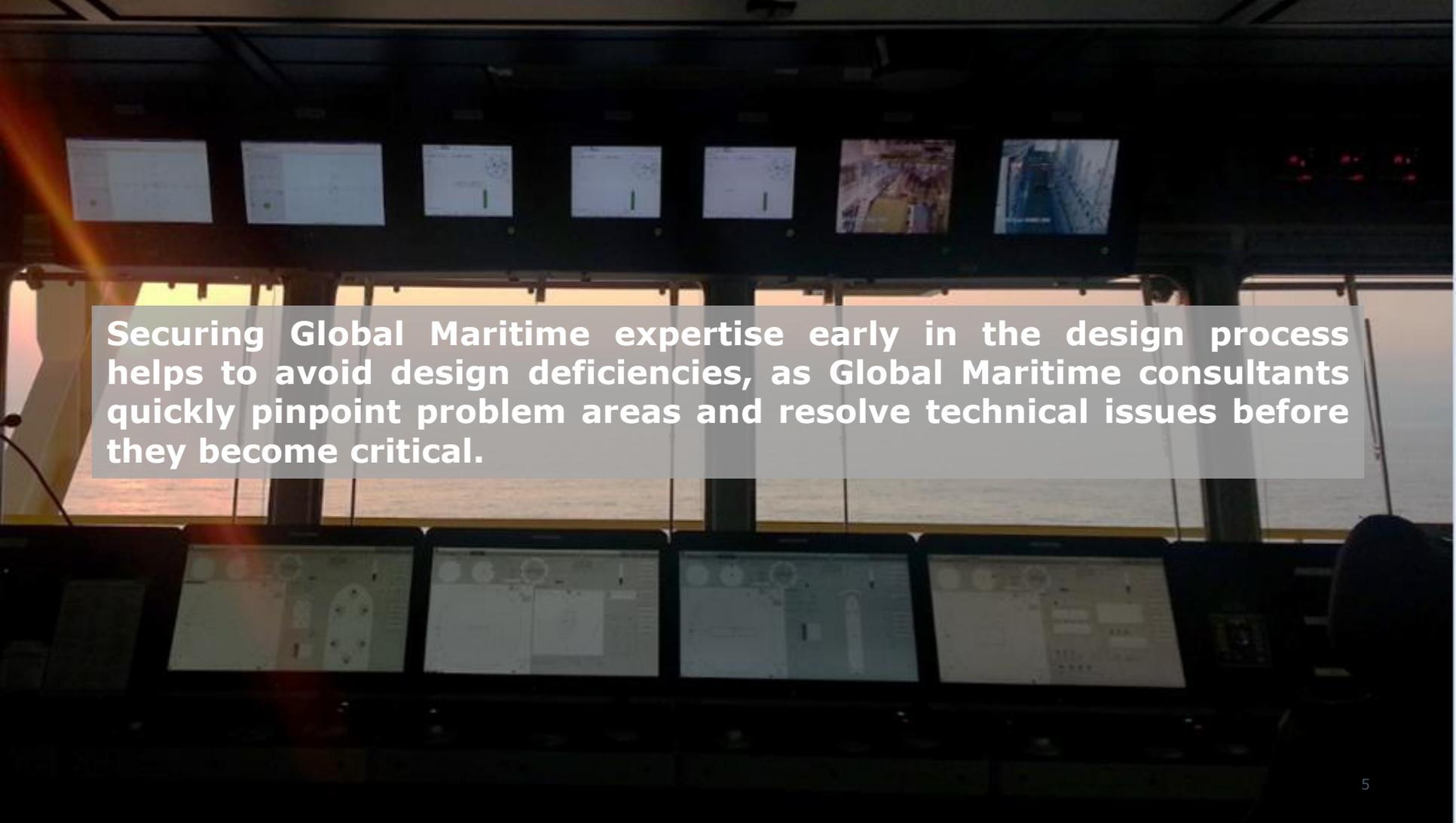
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Global Maritime professional staff provide design services for a wide range of ships and offshore electrical, automation and telecommunication systems.

Global Maritime develops Electrical Instrumentation and Telecommunication (EIT) design for all types of vessels and offshore units, in light of Classification Societies and other National and International authorities' rules, meeting at the same time the owner's expectations.

Close collaboration with ship owners, shipyards, operators and equipment manufacturers gives us superior knowledge and expertise in project concept, project management, system integration and on-board solutions.



A control room with multiple monitors displaying various data and charts. The monitors are arranged in two rows, with the top row showing smaller screens and the bottom row showing larger screens. The room is dimly lit, with light coming from the windows in the background.

**Securing Global Maritime expertise early in the design process helps to avoid design deficiencies, as Global Maritime consultants quickly pinpoint problem areas and resolve technical issues before they become critical.**

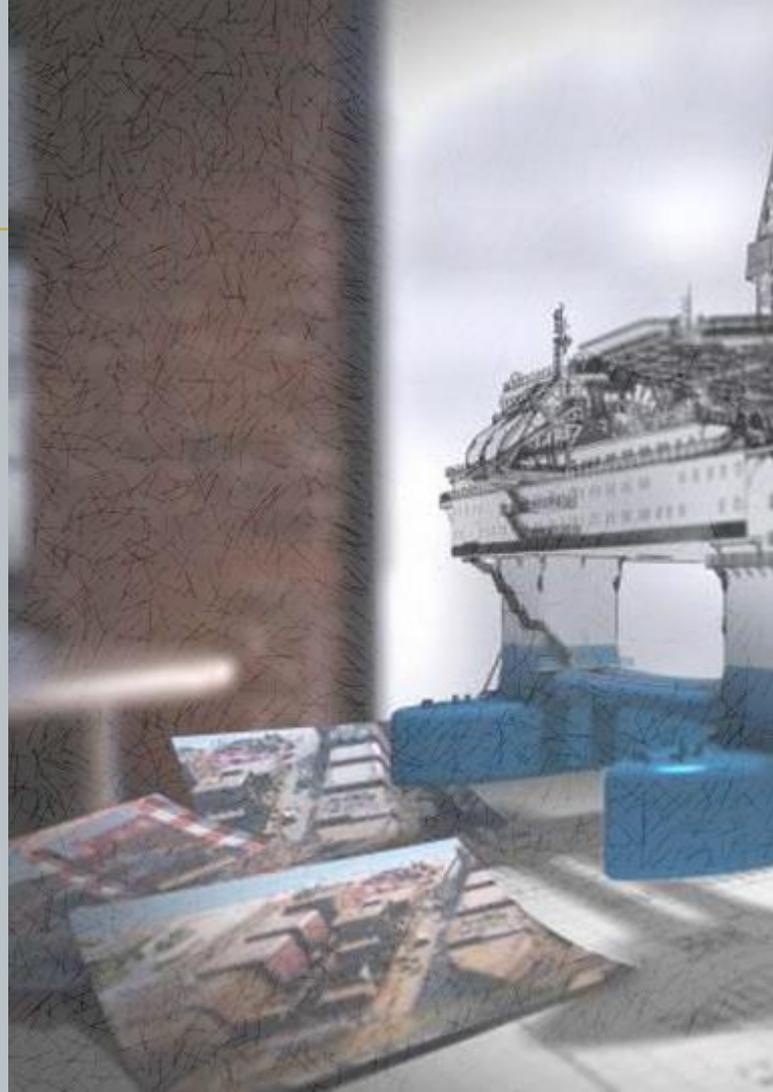
## Electrical system design

Electrical System Design is crucial element of every offshore installation design. Every major or minor system on-board the vessel is electrified and served by a several tens of MW electric system, with redundancies in components and circuits.

The electric power plant of a vessel can be considered as a small-scale, islanded, industrial power system consisting of generator sets, various loads and a distribution cabling system.

Increased electric power demands in modern installations have led to the introduction of high voltage operating levels of 6 and 11 kV; moreover recent developments in power electronics technology and their application in drive and control systems have enabled integrated full electric propulsion.

This has introduced a new set of complexities, strictly related to power and control engineering expertise.



A typical electrical system design package offered by Global Maritime may consist of:

- Electrical system philosophy,
- Overall single line diagram,
- Cable selection philosophy and routing sketch,
- Electrical power consumption balance,
- Earthing Philosophy,
- One line diagrams,
- Electrical layouts,
- Electrical FMEA Report,
- Power system analysis,
- Electrical equipment technical and purchasing specification,
- Hazardous areas arrangement,
- Ex- table register,
- Lighting system philosophy,
- HVAC system block diagrams,
- Bilge system block diagrams,
- Diesel oil block diagram,
- FW block diagrams.
- Sea water block diagrams,
- Other systems block diagram,
- Electromagnetic compatibility (EMC) philosophy,

# Power System Analysis

The power system analysis performed by Global Maritime apply to a broad range of maritime and O&G electrical power systems. Most of these systems consume large amounts of electricity. Improper power quality can lead to expensive or even catastrophic interruptions.

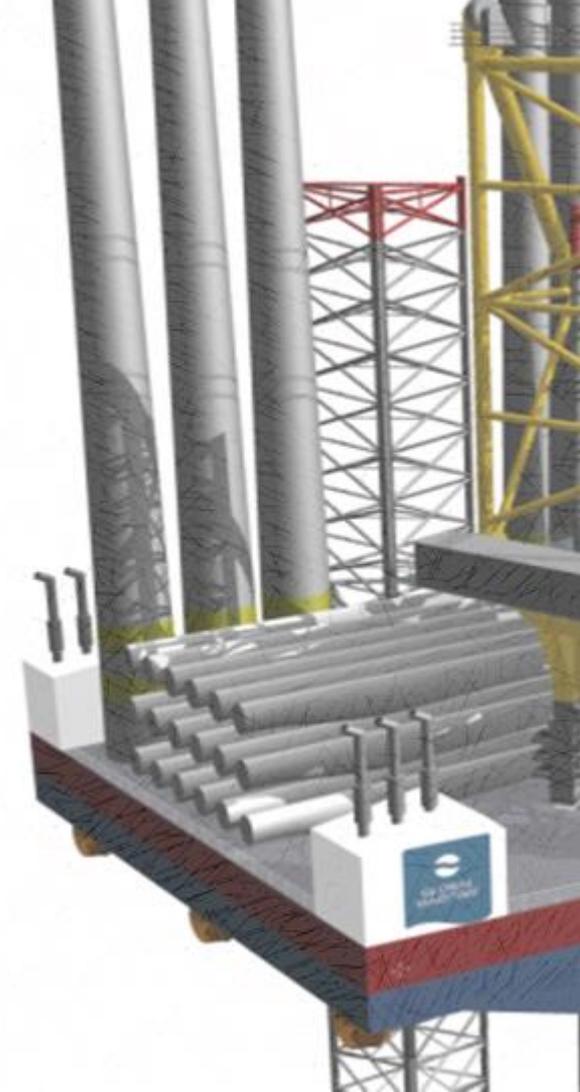
Global Maritime offers numerous system studies to optimize the design, maximize power quality, improve system reliability, performance and define worst-case failures effects within the power system.

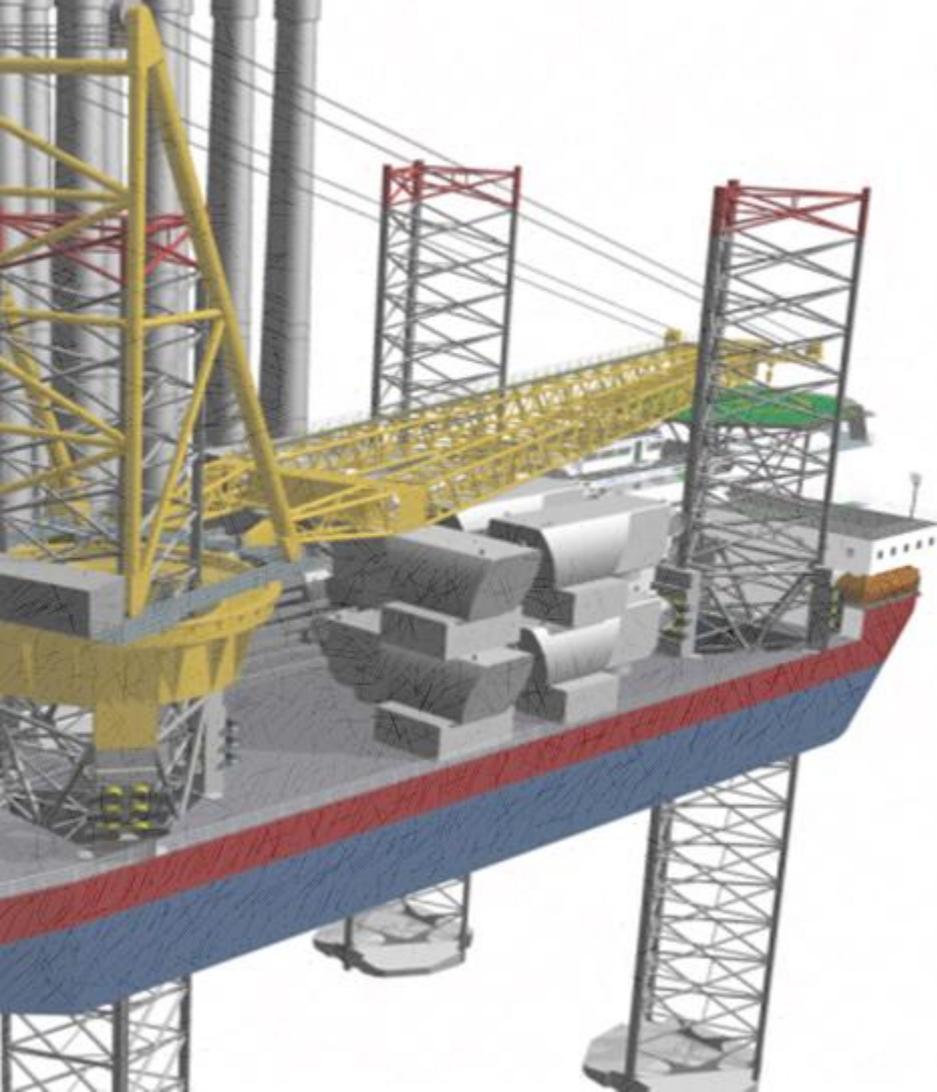
This includes dedicated power system studies for special applications, as DP closed bus bar operations, as required by Classification Societies and International Associations.

The analysis work is carried out using tried and proven computer programs.

Our team of engineers includes experienced analysts who blend equipment expertise with in-depth electrical power systems knowledge.

Power system studies provide the basis for reducing costs, improving efficiency and increasing reliability





A typical power system analysis package offered by Global Maritime may consist of:

- Load flow study,
- Short circuit study,
- Protection devices setting,
- Protection devices coordination study,
- Cable sizing study,
- Harmonic analysis,
- Transient stability analysis,
- Earthing system study,
- Voltage drop analysis,
- Motor starting study,
- Impact load analysis.

# Automation System Design

The vessel Integrated Automation System (IAS), also known as Vessel Management System (VMS), comprises “the brain center and the nervous system” of a vessel: it controls the vessel main and auxiliary functions, and defines both behavior and performance, interacting with the outside world.

Modern vessels typically comprise many thousands of sensors, of different types: simple buttons or limit switches, thermometers, speed and position transducers etc. Each physical quantity, such as pressure or temperature, is turned into information which is transmitted by means of electrical, optical or radio signals to the processing unit, the CPU.

The CPU responds by automatically generating commands for the machinery installed.

The vessel automation system must also provide operators with all the interfaces and information necessary as light panels, synoptic panels, touch screen panels - all report real-time system status and details of the process in hand.

Global Maritime extensive experience in the provision of instrumentation control and automation engineering solutions ensure that our clients have the support required for today’s engineering challenges.



A typical power system analysis package offered by Global Maritime may consist of:

- Vessel Management System philosophy,
- Power Management System philosophy,
- Principal cable routing sketch,
- List of control and monitoring points,
- Instruments layouts,
- Instruments typical loops diagram,
- Instrument list,
- Instrument specifications,
- Control and monitoring maintenance manuals,
- DP system philosophy,
- DP cables routing philosophy,
- ESD System Philosophy,
- ESD single line diagrams,
- ESD hierarchy diagram,
- ESD cause and effect charts,
- F&G detection philosophy,
- F&G detectors system layout,
- F&G detectors system block diagram,
- F&G cause and effect charts.

# Telecommunications system design

Safety has always been the major objective of ship communication systems. Nowadays vessels and offshore structures are becoming more and more dependent on digital communication to operate efficiently and to assure the crew welfare.

A clear and well-planned basic design is a key component to any telecommunication system. Our focus on designing telecommunication systems tailored specifically for the project not only meets, but surpasses the needs and requirements of our clients. By forming strong partnering relationships with our clients, we work with them in developing of each system, which enhances the project, adds value and reduces risk.



A typical telecommunication system design package offered by Global Maritime may consist of:

- Functional description,
- Block diagram,
- Antenna arrangement plan,
- Principal cable routing sketch,
- Telecom overall block diagram,
- Internal communication design philosophy,
- Internal communication arrangement plan.





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