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Shore Power Capabilities (Cold Ironing) for Ports

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Overview

QinetiQ's Maritime Electrical Systems Team (MEST), part of the Maritime Systems operation based at Haslar Marine Technology Park in Gosport, assists the global marine industry (both commercial and naval) in providing expert resources and experienced in the provision of high voltage shore connections (HVSC) or marine Shore-Side Electricity (SSE) power resources, to support the development of 'Cold Ironing' projects in ports and shore installations. Recent updates to the International Maritime Organisations (IMO) greenhouse gas (GHG) emissions regulations will see reduction levels set for 2030 and 2050 requirements with new 70% reduction levels introduced for 2040. This has focussed many vessel operators to review how they are able to increase electrification on board to reduce energy consumption, as well as connecting to local shore power when in port. Likewise, many ports are now seeking to improve air quality in the port area and reduce their own energy consumption, whilst also seeking to enable shore connections to ships in port to reduce GHG emissions whilst alongside.

Capabilities

With experience of various ships power systems, including major installations on Cruise and ROPAX vessels using many MW's of harbour load at 11kV and 6.6kV (both at 50Hz and 60Hz), as well as large military platforms, QinetiQ can advise on critical aspects of supply characteristics that need to be reviewed to ensure vessels connect safely with the shore supply systems and do not adversely impact the ports power quality (PQ). By reviewing the ability of a port or shore installation to provide power to a vessel during its time alongside, QinetiQ's team of experts can provide relevant advice and guidance on existing resources to enable HVSC's (also known as Cold Ironing), as well as identifying any capacity issues when assessing power requirements and providing project oversight on new projects to manage tenders. In addition, they also develop acceptance criteria for the critical HV supply.

With extensive experience of designing and operating large vessel power systems, QinetiQ's team of experts can identify key areas and challenges that port operators need to be taken into consideration.

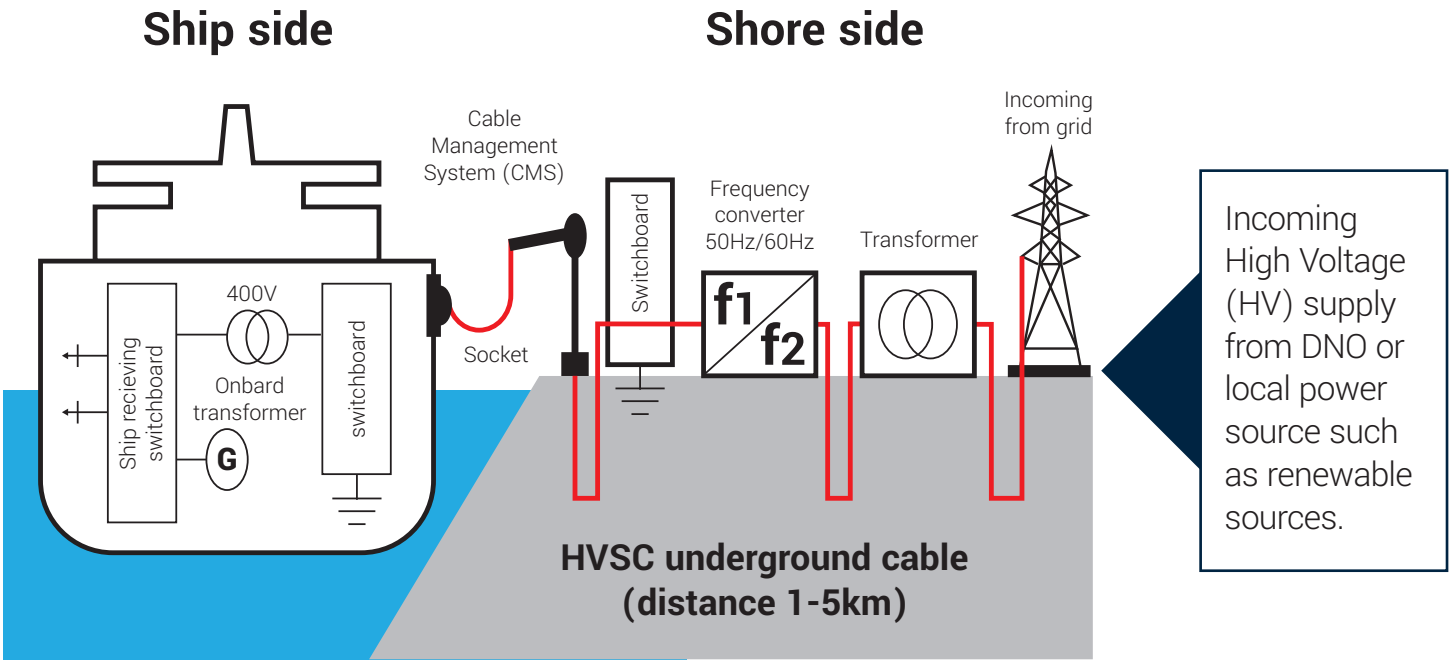
Typical projects feature energy saving surveys to meet IMO, EU and Fit for 55 targets with work projects established to manage electrification project support tasks, as well as assessment of compatibility of vessels to 'connect' to a shore supply and avoid risk of damage to the shore power systems.

Featuring a team of marine electrical subject matter experts (SME) with significant experience of maritime electrification projects, QinetiQ can act as your SMEs able to support end users with focussed expertise in various areas of ports electrification.

Some of the expertise includes:

- Excellent knowledge of maritime platform systems and equipment's with experience of installing and operating high voltage shore connections on vessels (E.G. IEC 80005-1).
- Strong relationships with Electrical Power and Propulsion OEM's with extensive operational experience of various plant configurations, including 'HV Cold Ironing' and 'Battery Systems'.
- Understanding and experience of introducing decarbonisation initiatives including aspects of damaging harmonics from power electronics that need to be carefully assessed to avoid THD.
- Excellent commercial Cruise, ROPAX and MoD maritime domain expertise.
- The ability to examine systems and identify vulnerabilities and deviations from supply authority requirements including power quality and harmonics issues.
- Assessment of cost effective solutions and project oversight to port shore supply projects.

Specific support can also be provided during project planning, tender assessment and project start up phases, as well as with project oversight by our team of high voltage and marine electrical engineers.



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