



Transport Malta



OPS in Malta

State of play: October 2022



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Transport Malta

Objectives for OPS HVSC



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- Meeting EU & Global Decarbonisation objectives, targets and obligations
- Contributing to Malta's Low Carbon Development Strategy
- The social dimension of environmental projects aimed at improving the quality of life and health of the Maltese community and visitors
- Tap effectively funding opportunities
- Ports competitiveness



OPS Projects in Malta



Provision of High Voltage Shore Connection (HVSC) system using energy efficient equipment, in the Port of Valletta, Grand Harbour Malta

Provision of an Energy Efficient High Voltage Shore Connection (HVSC) System at the Malta Freeport Terminals at the Port of Marsaxlokk

Provision of an HVSC and LVSC Onshore Power Supply (OPS) system in the South Harbour Region and Lascaris Wharf, Grand Harbour, Port of Valletta

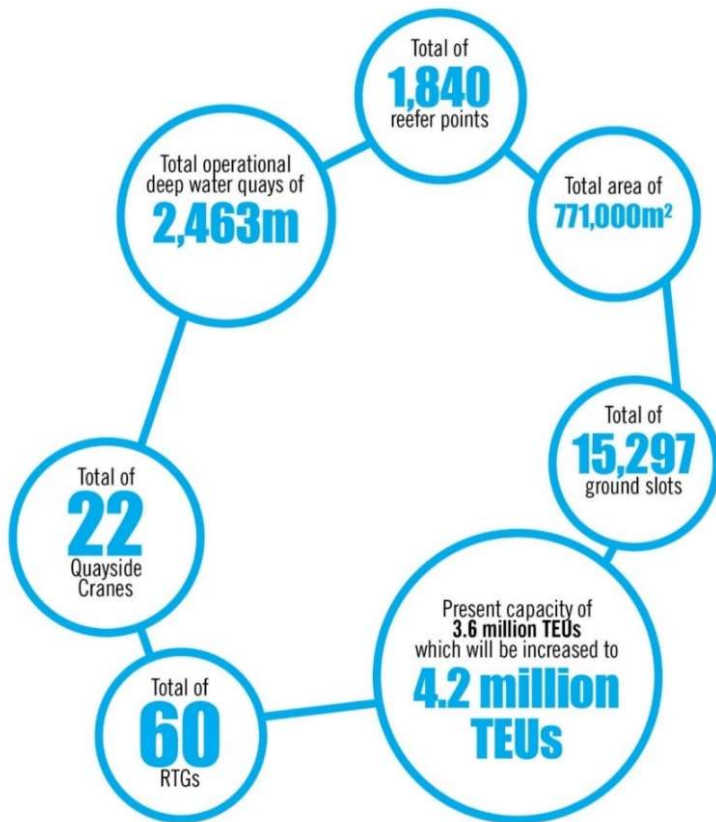
OPS HVSC Malta Freeport Terminals

Dedicated Container Transshipment Hub

Port of Marsaxlokk

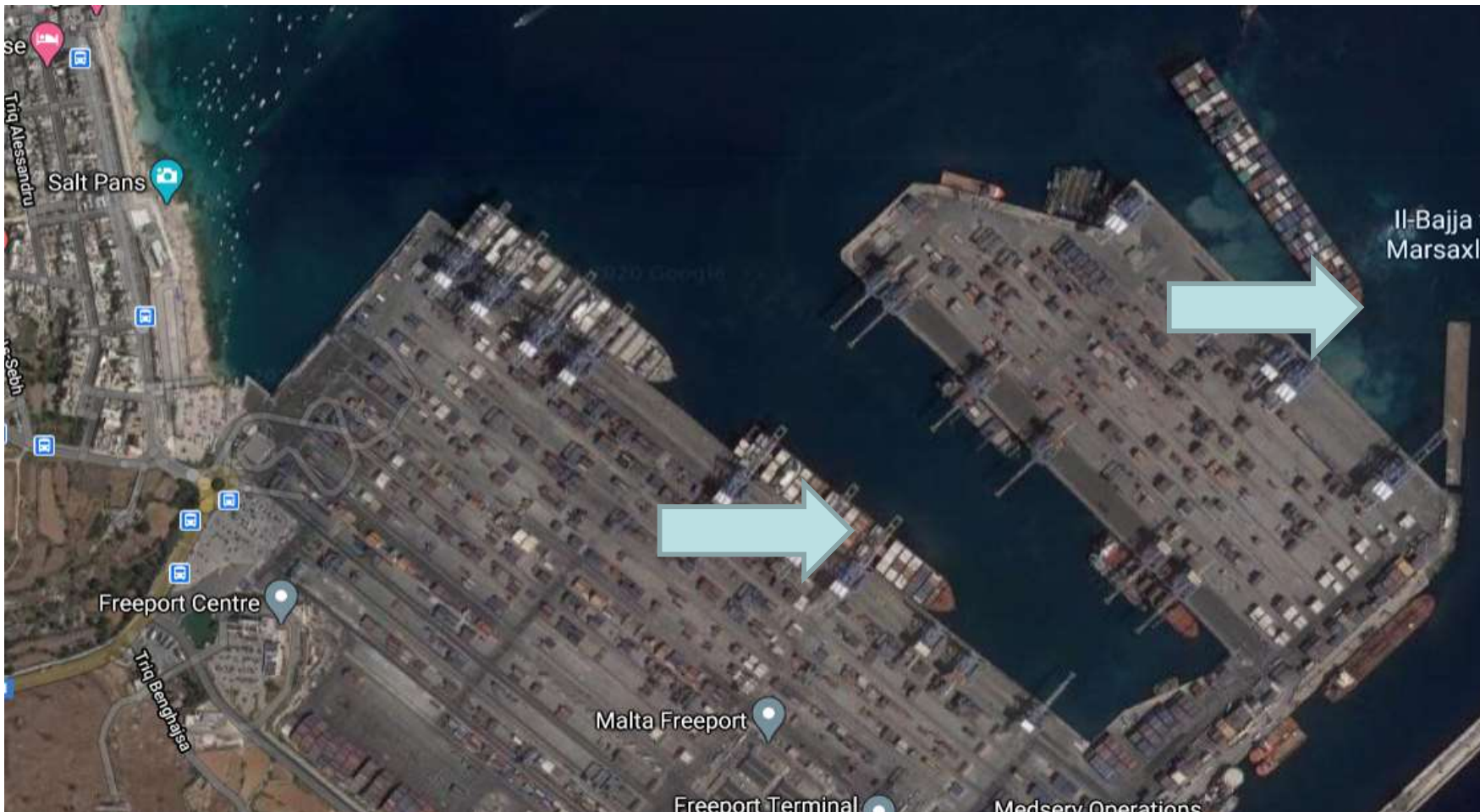


1600 ship
scheduled ship calls
annually



Malta Freeport Terminals: 2 Quays

- North Quay Terminal 1 (NQT1)
- North Quay Terminal 2 (NQT2)



Container Terminal System Overview (1)

- System as per international standard IEC/IEEE 80005-1 Annex D (Container ships)
- Modular to accept future expansion
- One system each for NQT1 and NQT2: Each with capability to deliver 7.5 MVA @6.6kV 60Hz or 50Hz
- NQT1 – ship connection based on fixed connection boxes installed on quay
- NQT2 – a mobile cable management system to cover 200 m of quay.

Container Terminal OPS System Overview (2)

- Sourced from Enemalta Freeport Distribution Centre (at 33KV@50Hz)
- The system will permit container ships to also export power to the national grid and capable to handle an aggregate total power of 7.5MVA
- Expected date in service: 2024
- Budget 13M



Grand Harbour Clean Air Project



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Grand Harbour Clean Air Project

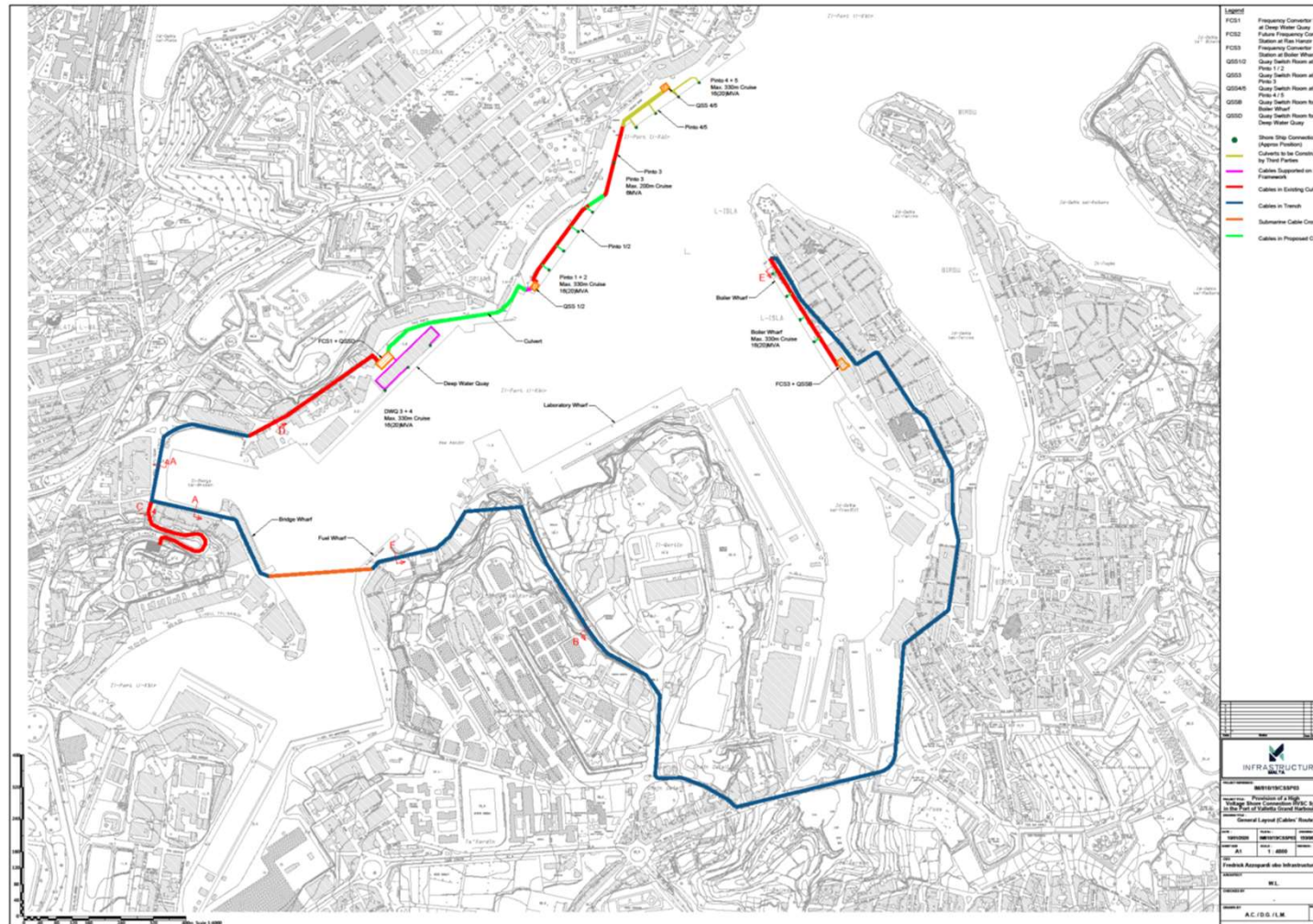


- Caters for Cruise Liner Berths
- Pinto Wharf (3 berths)
- Deep Water Quay (1 berth)
- Boiler Wharf (1 Berth)
- Project cost € 33.2M of which € 25.77M CEF co-financing of 85%
- Includes 22km of underground & subsea cable network
- Two Frequency converter stations
- Mobile Alternative Maritime Power (AMP) Mobile Units
- Projected to reduce NOx by 27%
- Expect to have the first OPS Cruise Liner station operational by mid 2023

Grand Harbour HVSC Cable Routes



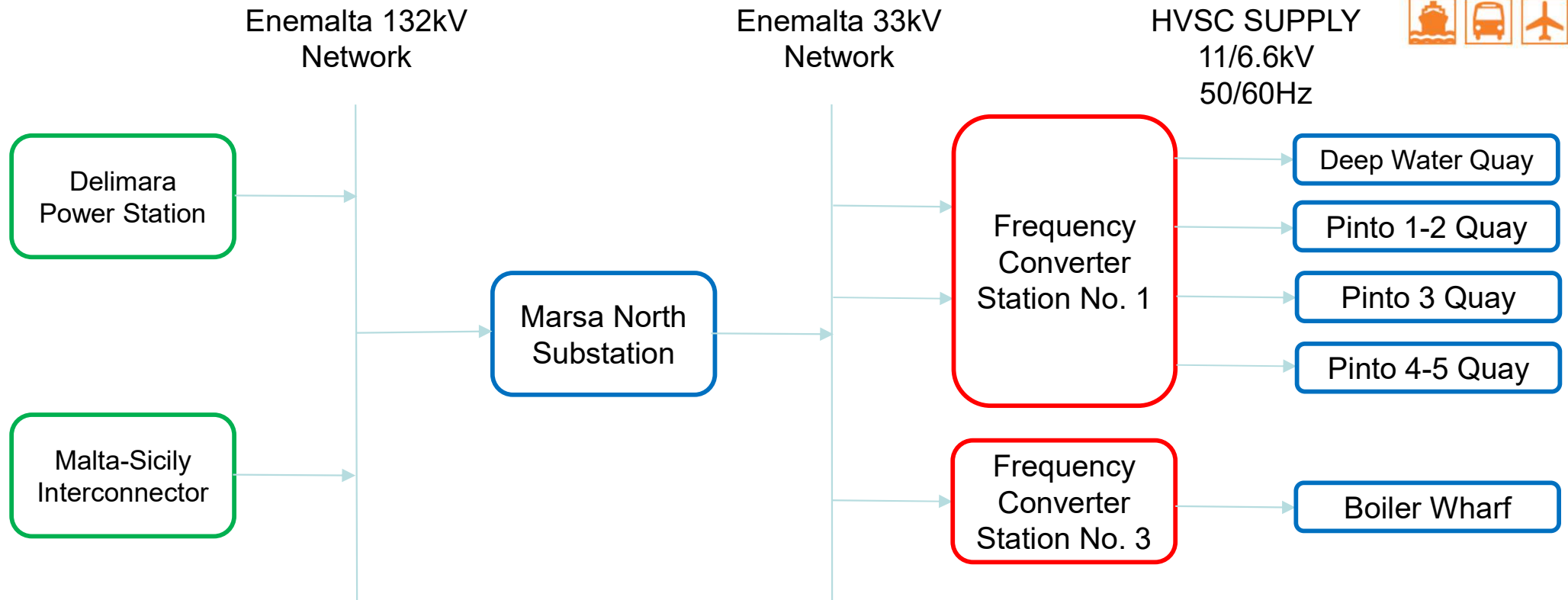
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OPS Network basic schematic



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Some key figures.....



- **19 transformers, four frequency converters (17.6MW each), approximately 40,000m of Medium Voltage circuits (120km of cable), 93 medium voltage cubicles/panels**
- **SCADA and other key components**
 - **10,000m of Fibre Optic Cable**
 - **90,000m of Control and Data cable**
 - **3,100 Signals for SCADA**
 - **14 SCADA Cubicles**
 - **2 control rooms**
- **Safety and firefighting equipment permanently installed**
 - **Foam system covering the entire building and permanent reservoirs for storage of hydrant**

FCS Buildings



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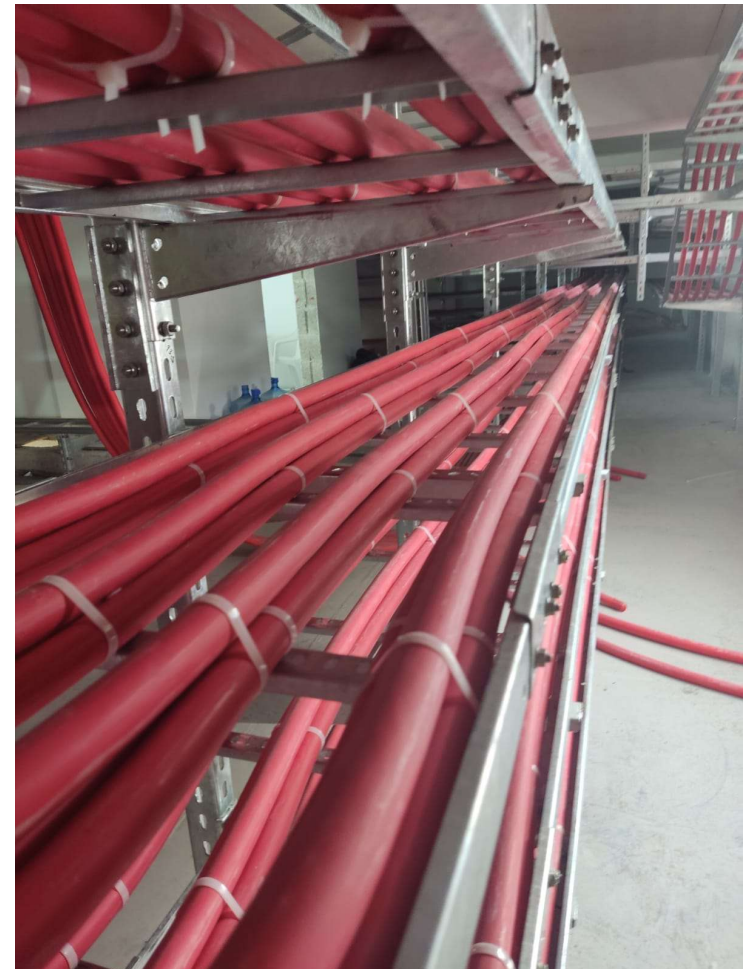
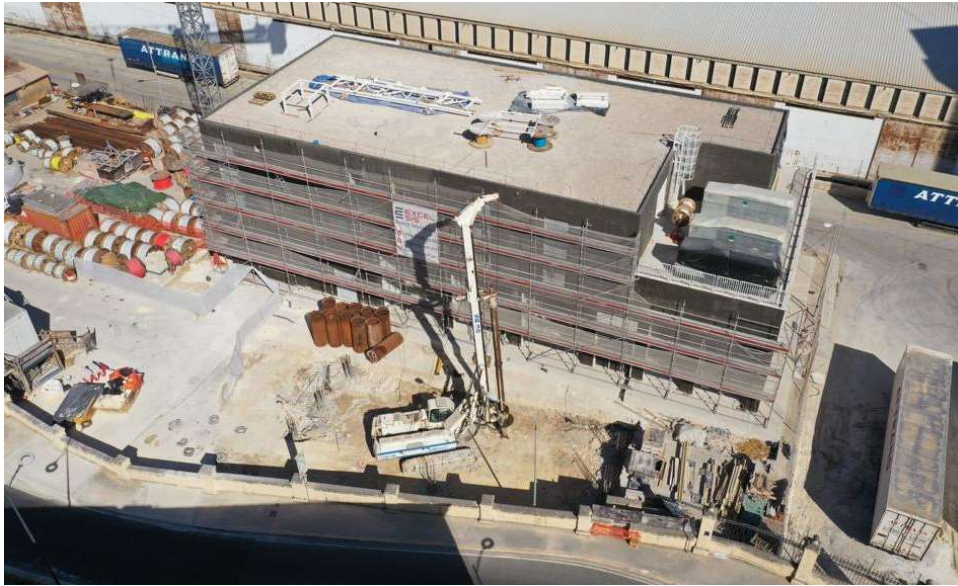
Works underway FCS1



Works in progress FCS3



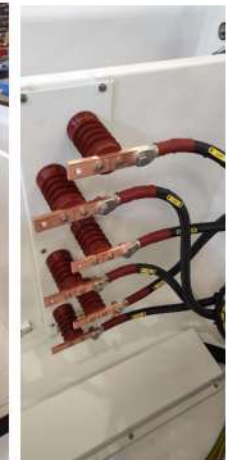
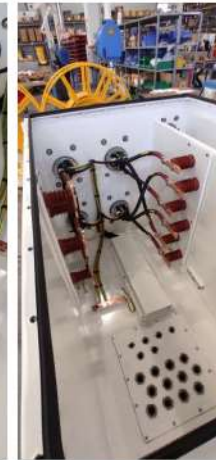
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Shore connection units



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CAVOTEC

Alternative Maritime Power (AMP) Mobile Units



HVSC & LVSC Project for South Harbour & other berths



- To extend OPS to other berths that cater for ro-ro vessels, break-bulk
- Ship Repair Facilities with particular attention to the requirements of cruise liners
- Cruise Liner spill over berths
- To also provide low-voltage ops for flexibility
- Rationale being to think long term and to offer such services in future



What it includes...

- Shipyard-Repair facility
 - HVSC for Cruise 11kv/6.6kv
 - HVSC for Container Ship 6.6kv
 - LVSC 345kVA 400V/440V/690V
 - Mobile cable management cruise ship
 - Mobile cable management container ship
 - Mobile FC Units



The challenges...

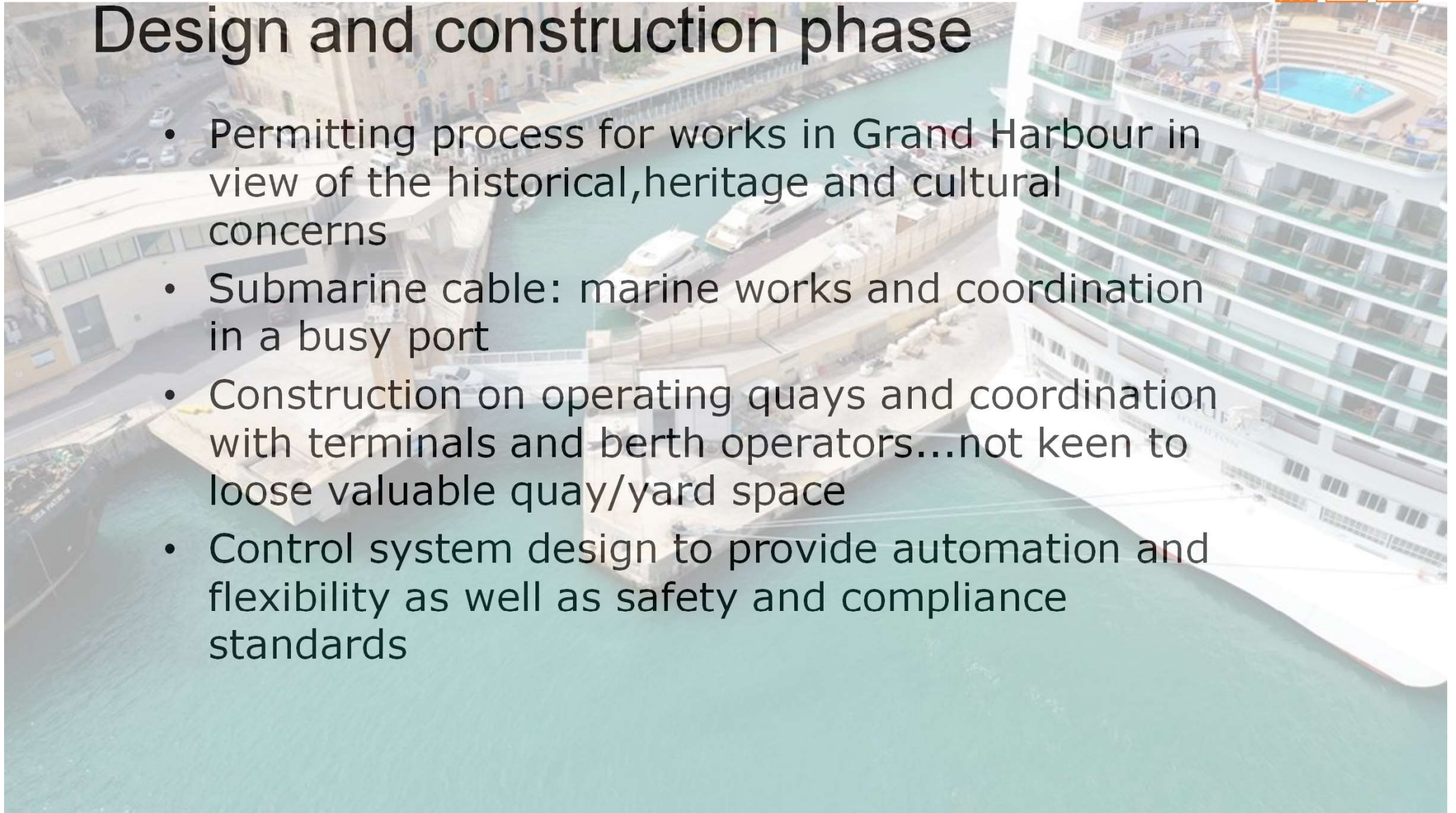


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Design and construction phase

- Permitting process for works in Grand Harbour in view of the historical, heritage and cultural concerns
- Submarine cable: marine works and coordination in a busy port
- Construction on operating quays and coordination with terminals and berth operators...not keen to lose valuable quay/yard space
- Control system design to provide automation and flexibility as well as safety and compliance standards



The challenges...

Operational phase

- Setting up berthing plans to accommodate HVSC and coordination with the terminal/berth
- Obtaining technical data from shipping lines to carry out the necessary preparatory analysis for the compatibility test/trial
- To achieve and gain the expertise to expedite connection/disconnection to maximise time on the OPS

The lessons learnt....

You need identify the right contact for a particular shipping line and maintain dialogue. Usually, the right person to deal with is extremely busy and globe trotting!

Although there is lack of harmonisation (positioning of shell doors and ship's side etc) there are technical solutions to mitigate and to give operational flexibility, but this comes at a cost

Shipping lines are taking decarbonisation very seriously and keen to cooperate



The lessons learnt

A compatibility commissioning test must be carried out for each specific ship, and this is not straight forward. The commissioning and acceptance can take several ship calls.

Retrofitting for OPS is on the agenda of several cruise shipping lines but implementation will take time since this will have to coincide with a particular drydocking anniversary and costs around Euro1M.



The way forward...

Maintain dialogue with all stakeholders

Provide shipping lines with all the information and technical data available

It is a learning curve, but flexibility and practicability is key

and of course...I look forward to hooking up the first cruise liner!



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Thank you!

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