Shore power:

The challenge of implementation

June 2024

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Worldwide regulations

Regulations are in place to deploy shore power faster and at scale. But some initiatives are also taken by public and private bodies. Fines are on the way…!

ShipSide

IMO introducing & enforcing diverse schemes for CO2 reduction
CII, EEDI, EEXI.

In Europe, from 2024, passenger and cargo vessels will be in included in the **ETS scheme** and will have to purchase carbon credits for 40% of the emissions (70% in 2025, 100% in 2026).

CALIFORNIA (CARB)

January 1, 2023 – Container vessels, cruise vessels
January 1, 2025 – RoRo vessels
January 1, 2025 – Tanker vessels visiting POLA or Long Beach
January 1, 2027 – All remaining tanker vessels

CARB will be adapted/deployed to the east coast

EUROPE

Directive 2005/33/EC:
Since 2015, all ships in an Emissions Control Areas (ECAs) must use fuel <0,1%S as of 2015.
All passenger ships outside of an ECA must use fuel <1,5% S (<0,5% as of 2020).

Directive 2014/94/EU DAFI Directive – Fit for 55 Package adopted in 2023
Shore power mandatory for cruise, RoRo/Ropax & container Terminals **by 2030.**

INDIA

Shore power infrastructure shall be ready in 2025 for container terminals, bulk terminals, and liquid cargo terminals.

CHINA

Shore Connection should be included in project planification, design and construction for new container, bulk, cruise and ropax terminals from February 1, 2020

New regulation implemented in 2021/2022 mandates container, cruise, RORO and bulk vessels to connect to shore power when docking at shore power capable berths in emission control areas : Bohai Bay, Yangtze River Delta, and Pearl River Delta.

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Let’s pause for a moment to think…

2030

Carbon neutrality: going fast is critical to preserve our climate

But it’s a two speed process:

1. Ships

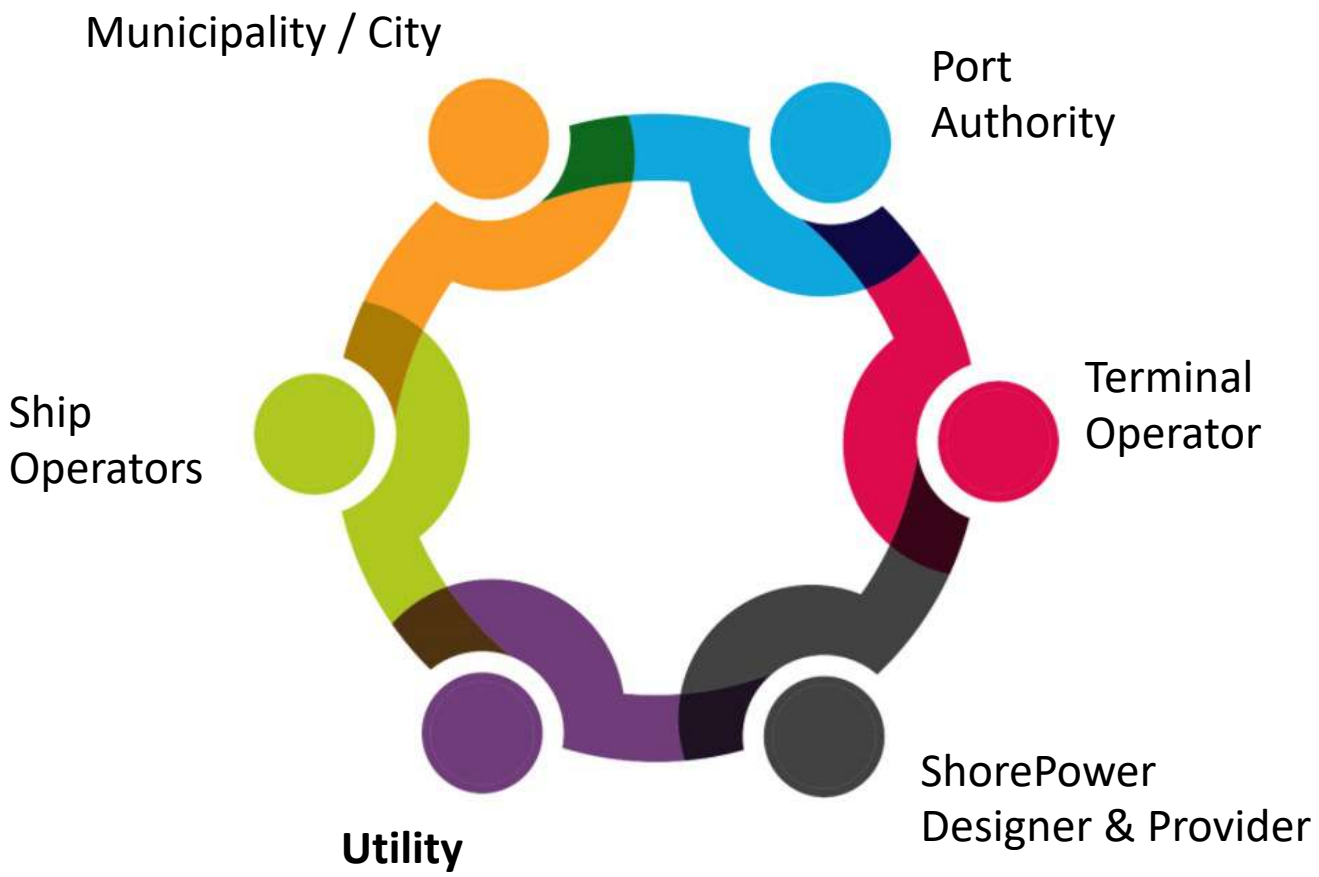
Cavotec estimation:
50% of cruise fleets and
30% of container vessel fleets are ready for shore power.

2. Ports

Cavotec estimation:
only 15% of ports are shore power ready, and the percentage is expected to rise 30% in the next two year.

There needs to be an official and reliable database…

Port Infrastructure development involves many stakeholders



So many stakeholders, so many potential delays…

Power is THE problem….

A floating city needs a city worth of power

When at berth, the port must provide **20 MVA** of power for 1 cruise or for 3 Containerships...equivalent to the average daily power requirement of about **3300 European citizens**

- Huge demand on local energy infrastructure
- Planning, development and implementation of new structure a LONG process

Fund the project

The financial challenge – Time is of the essence

EU global financing programs

- The EU Green Deal program
- EU Horizon 2020
- TEN-T program
- Italian PNRR

Local financing programs

- Country or region or city wide programs e.g: Enova SF and NOx Fund in Norway

Private financing solutions:

- Financial institutions
- Private companies with business plan based on sales of services/energy or CO2 credits.

Planning for shore power in port

Key elements to consider:

2030

Project	Tender	Implementation
Technical project	Participant due diligence	Nomination
Stakeholder Reviews	Technical Compliance	Component supply
Planning permission	Commercial proposals	Civil works
Funding agreement	Verification & Decision	Electrical infrastructure
		Delivery

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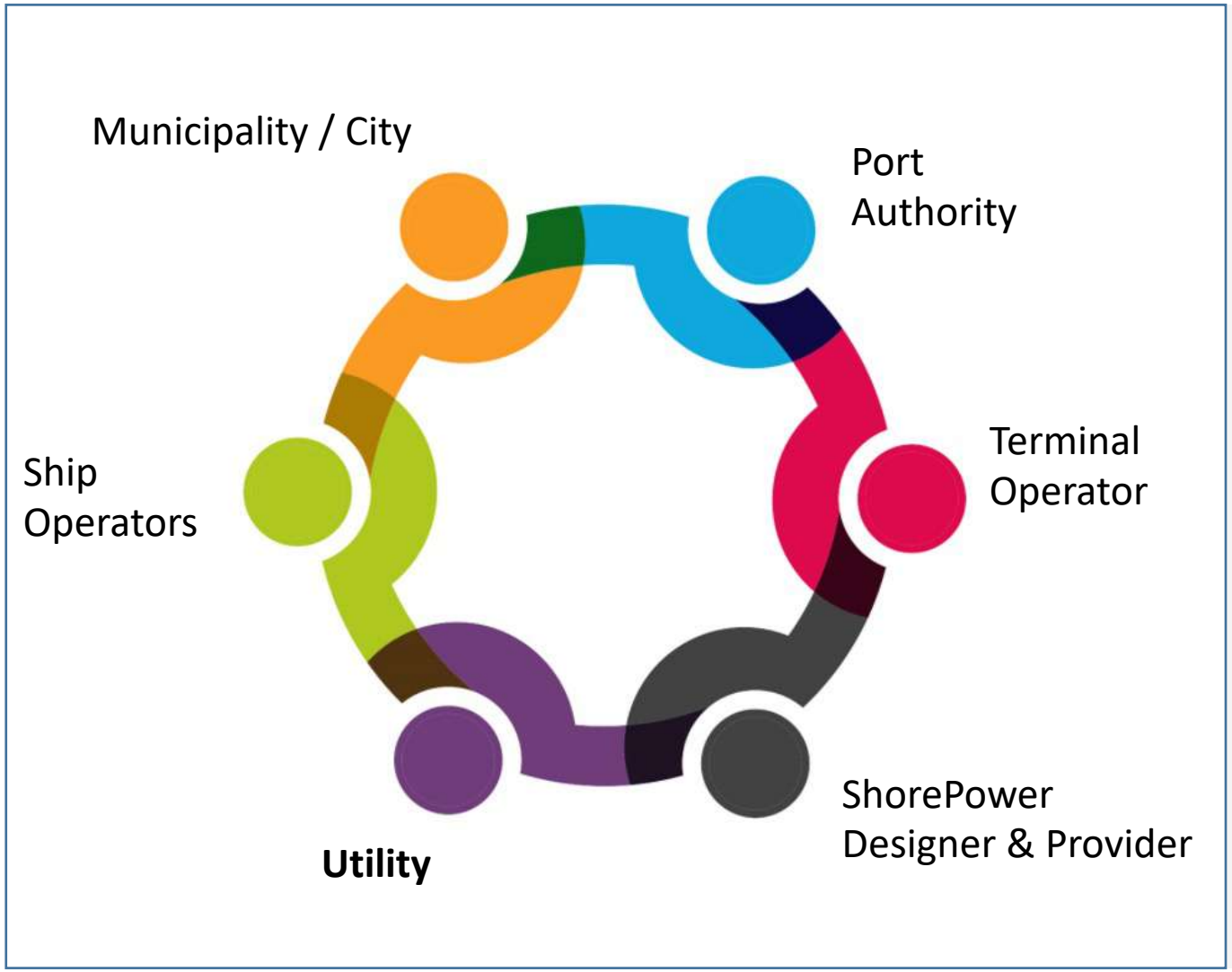
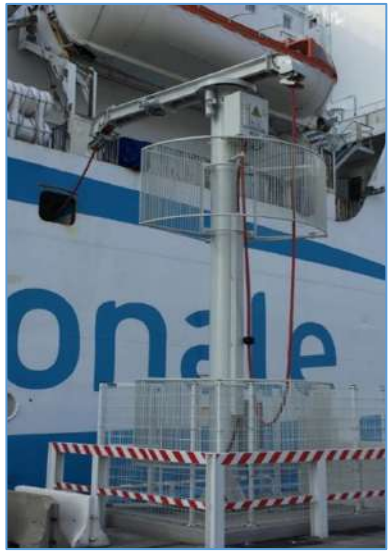


One example....

Remember: For the client the CMS system IS the shorepower system

Safety, reliability, cost and the VISUALS

Cruise Terminals	Container Terminals	RoRo/RoPax PCC Terminals	Tanker/O&G Terminals	Special Vessels OSV/Yacht/Navy	Shortsea ferry Workboats
					
					
					

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The clock is running even with the CMS system….

Each terminal is unique, specifying the critical requirements is key to get a fully operational system at the right cost.

Port

- Quay Dimensions and quay constraints (bollard, fenders, PBB, fire hydrant, etc...)
- Civil work constraints (trench/no trench, weight limitation)
- Fenders dimensions (compressed or not)
- Water level vs quay
- Constraints on the path of the Mobile CMS (obstacle/slope/bridge)

Environment

- Temperature
- Tide
- Wind
- Special event (Flooding/Storm...)
- Special Zone (environmental, urbanism, hazardous,...)

Vessel

- Hatch Position vs quay level (or vs Floating line)
- Typical position of the Hatch along the quay (berthing study)
- Dimensions of hatches
- Length of cable needed inside the vessel

Operations

- Level of automation/manual work
- Time or manpower constraints for operations and maintenance
- Accessibility to the public
- Particular Safety requirements
- Operational requirement
  - Day/night
  - Before/during/after other operations

Decision & process.....

Many thanks for your attention – now let’s work quickly TOGETHER!

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