Shore Power Projects

Lessons Learned & the Road Ahead

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TOC Europe

igus® shore power
moving energy solutions

PowerCon

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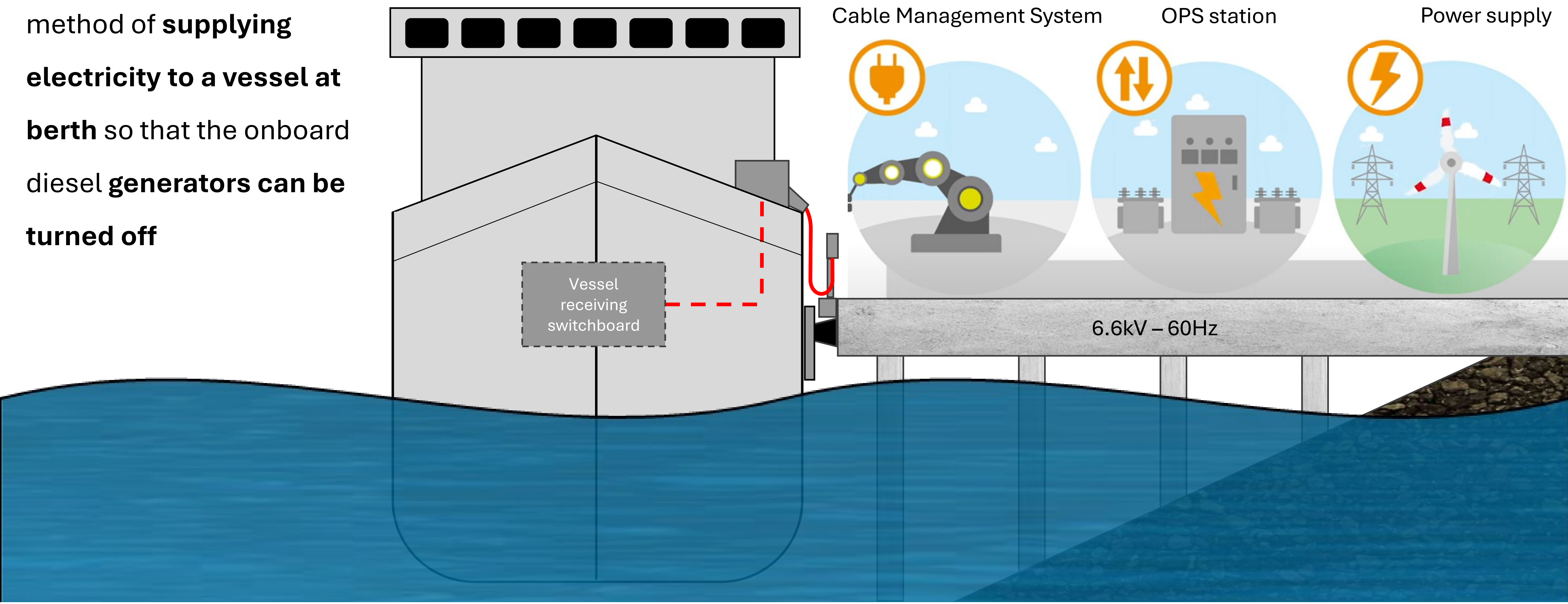
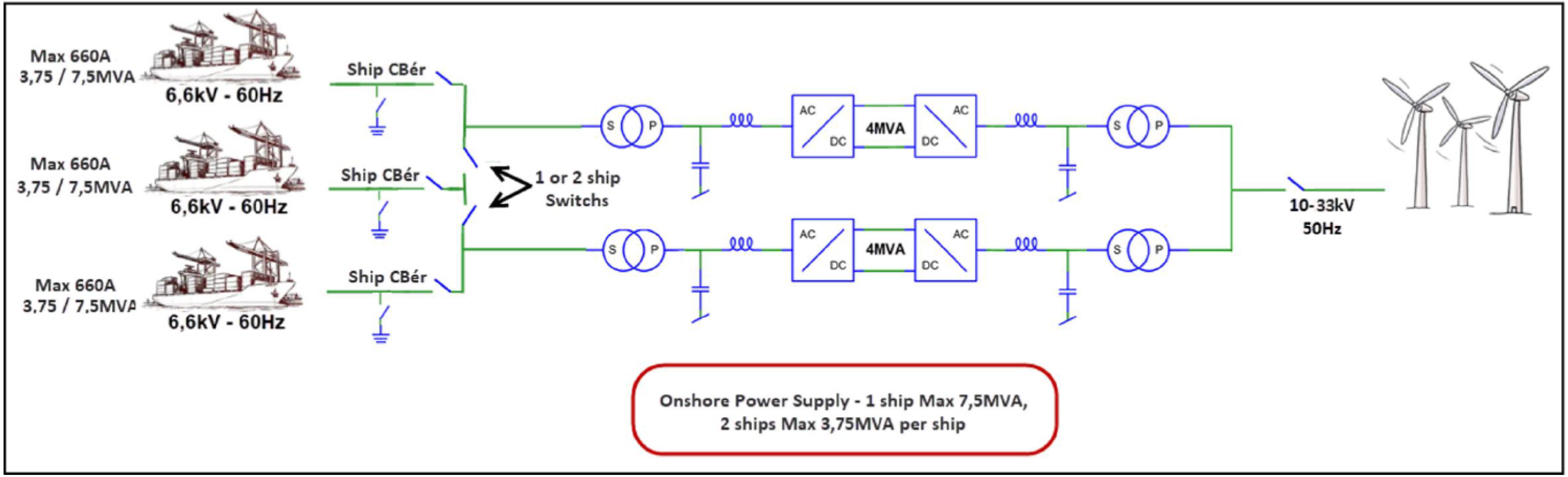
Overview and Definition of Shore Power for Ocean Going Vessels

Shore power is the method of **supplying electricity to a vessel at berth** so that the onboard diesel **generators can be turned off**



IEC-Standard (Annex D)

Examples for Container vessels



- The international standard for shore power, high voltage: IEC/IEEE/ISO 80005-1
- Average load for a docked Container ship: **approximate 2 - 2,5MVA**

The Container Concept

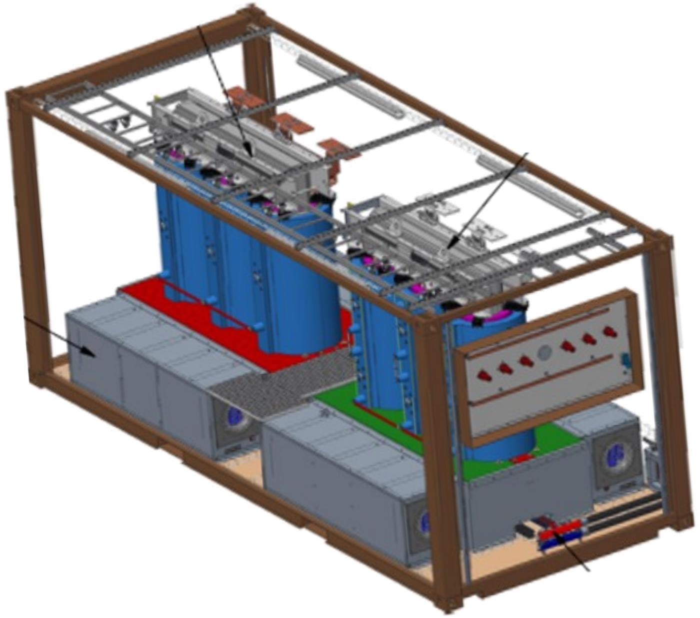
The OPS ambition:

- Modular
- High efficiency
- High quality
- Fast installation
- Improved business case

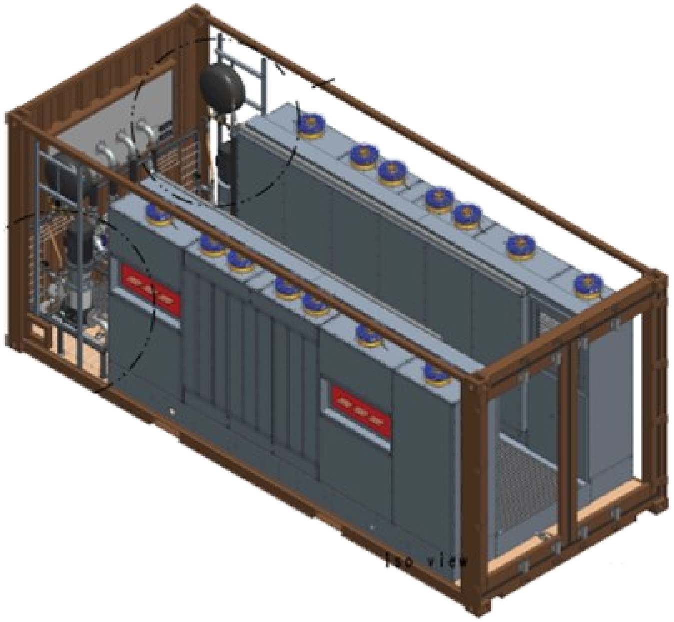
Standard Modules 4MVA

Modular concept using containers with integrated components as building blocks “LEGO system”.

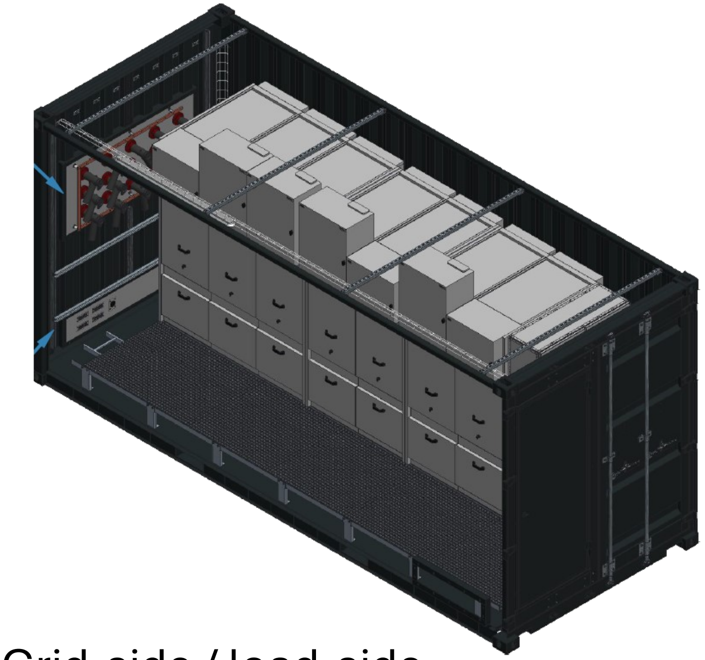
- Modular – easy to upgrade
- Flexible – one or more ships



2x4MVA Transformers
(step-down and step-up)

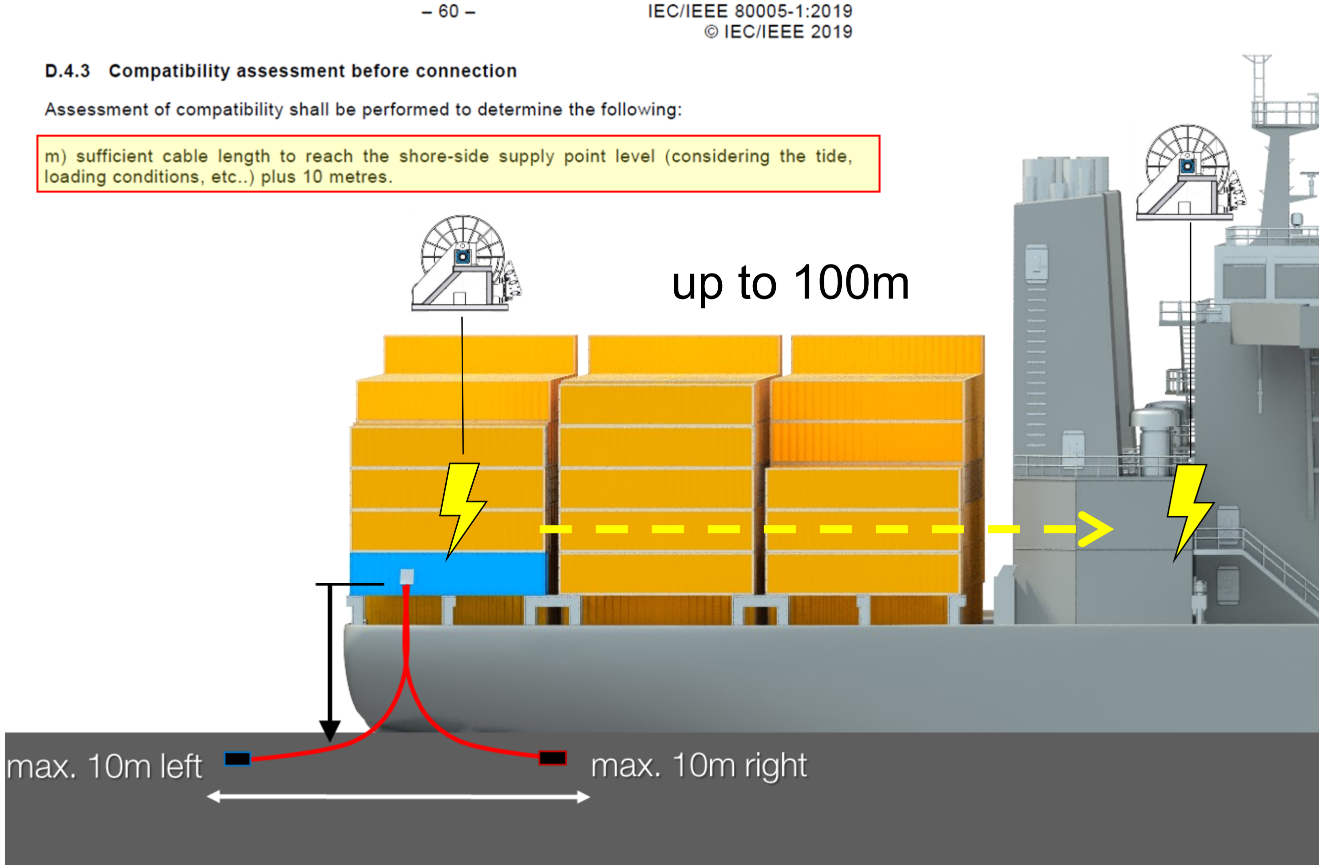


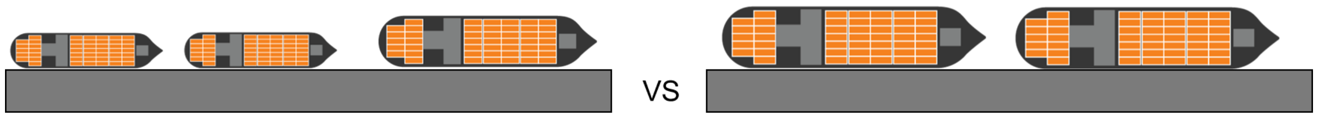
2x4MVA
Converter, AFE

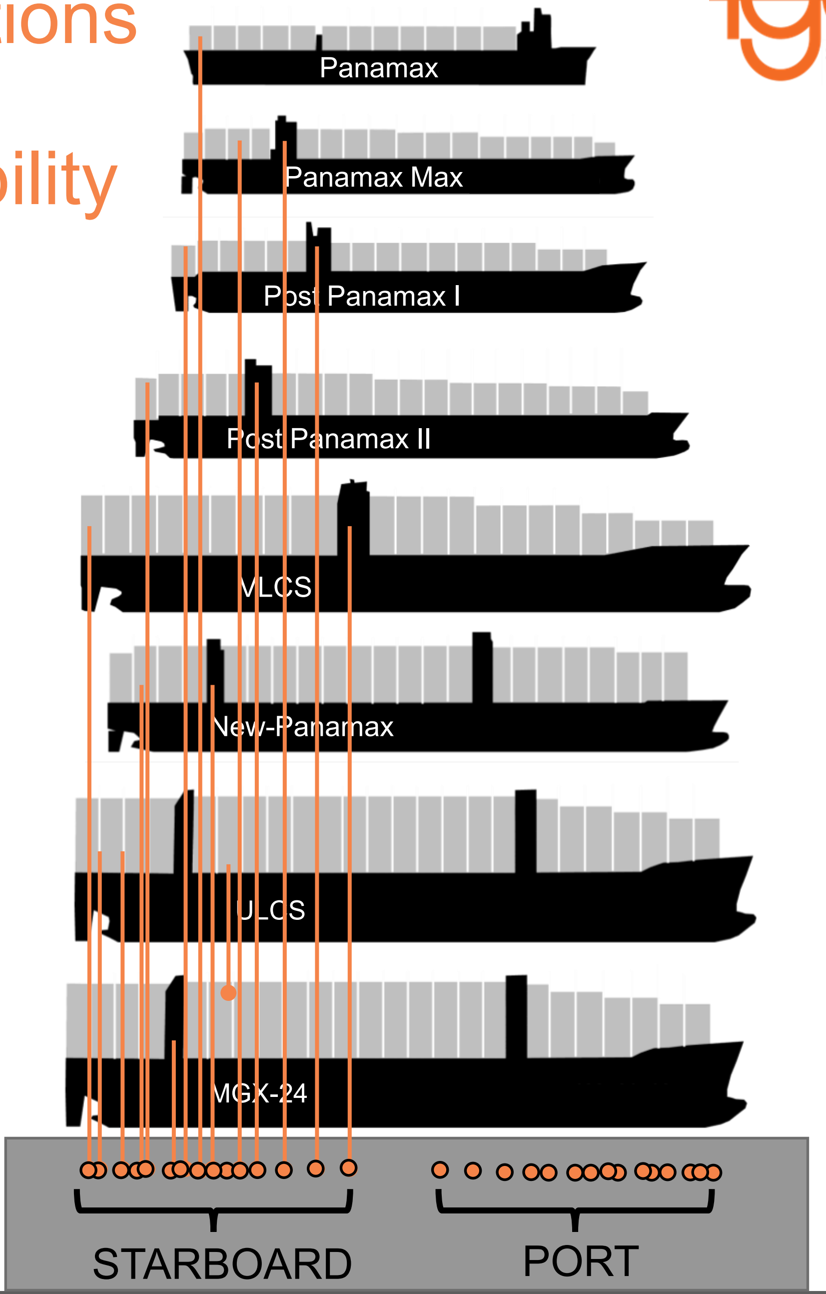


Grid-side / load-side
switch gear

Challenge #1 variance of cable reel locations
#2 onboard CMS Limitations
#3 berthing arrangement flexibility







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igus Shore Power References

17x iMSPO finished:

- 3x Hamburg CTA (100 - 400m)
- 3x Hamburg CTB (100m)
- 3x Hamburg CTH (110 -300 m)
- 1x Hamburg CTT e-chain reel (1x100m)
- 1x Rotterdam Demo (1x 20m)
- 1x Rotterdam Cruise (1x 220m)
- 5x Copenhagen Cruise (300 - 360m)

14x Dispenser:

- 4x Türkiye
- 6x Canada
- 2x Germany
- 1x US
- 1x Singapore

16x Shore Power e-loop :

- 1x Ghana (ELP.300)
- 2x Netherlands (ELP.430)
- 1x Germany (ELP.220)
- 1x Singapore (ELP.430)
- 1x Bahrain (Offshore Chain)
- 8x Malaysia FSRU 33kV (ELP.300)

21x iMSPO ongoing:

- 2x Gioia Tauro Container
- 1x Trieste Container
- 2x Valencia Container
- 1x Antwerp Container
- 4x Aarhus Container

- 1x Sydney Cruise
- 2x Palermo Cruise
- 2x Venice Cruise
- 1x Barcelona Cruise

- 1x Bremerhaven RoRo
- 1x Gioia Tauro RoRo
- 3x Palermo RoRo

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OPS for container ships

Port of Kristiansand	8MVA/2 ships
Hamburg (Eurogate)	8MVA/2 ships
Port of Barcelona	8MVA/2 ships
Hamburg (Altenwerder)	8MVA/2 ships
Bremen Ports (MSC+NTB)	*16MVA/4 ships*
Port of Aarhus	*16MVA/4 ships*
PSA – Antwerp	*8MVA/1 ship*

Special solutions

Eemshaven (FSRU Golar Igloo)	24MVA/1ship
Eemshaven (FSRU Eemshaven LNG)	16MVA/1ship

OPS for cruise ships

Port of Kristiansand	16MVA
Rostock Port	32MVA
Port of Bergen – Plug Norway	48MVA
ABP Southampton	16MVA
Port of Aarhus	16MVA
Hamburg (CC3 Steinwerder)	16MVA
PortMiami	80MVA
Port of Oslo	16MVA
Port of Rotterdam	16MVA
Port of Amsterdam	16MVA
Bremen Ports	16MVA
Copenhagen Malmö Port	64MVA
Port of Kiel	*16MVA*
Hamburg (CC1 HafenCity)	*16MVA*
Port Authority of NSW (Sydney)	*16MVA*
Narvik – Plug Norway	*12MVA*
Port of Barcelona	*16MVA*

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See the
iMSPO at
Stand D54!!

Thank you!