

# 14th ASEAN Port & Shipping 13 – 16 July 2016 Bangkok, Thailand



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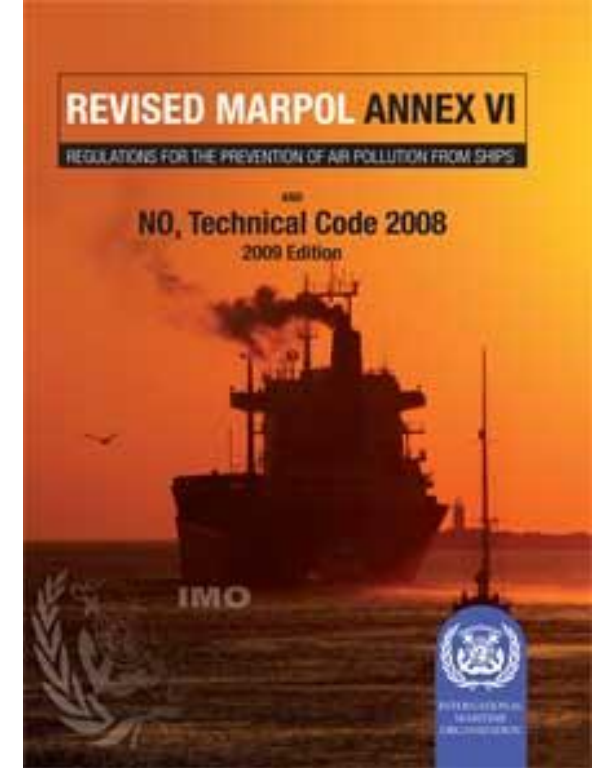
## Accelerated worldwide Shore Connection Deployment up date

# Ports & Ships have to support the International Regulation MARPOL Annex VI

Regulations to limit air pollution from ships including:

- Limitation of NOx and SOx emissions in fuel oil of all ships

Date	SOx Limit in Fuel (% m/m)		Average Nox Limit in Fuel (g/kWh)	
	MARPOL ANNEXE VI		EU maritime fuel sulphur directive (2005/33/EC)	
	High sea & berth	SECA	Berth	High sea & berth
2009	4,5%	1,5%	1,5%	11,8
2010		1,0%	0,1%	
2010, Juny				
2011	1,0%	0,1%		9,6
2012	3,5%		0,1%	2,3
2015	0,1%			
2016	0,5%			
2020				



IMO and EU encourages implementation of new technologies to cut emission: SC viewed as one

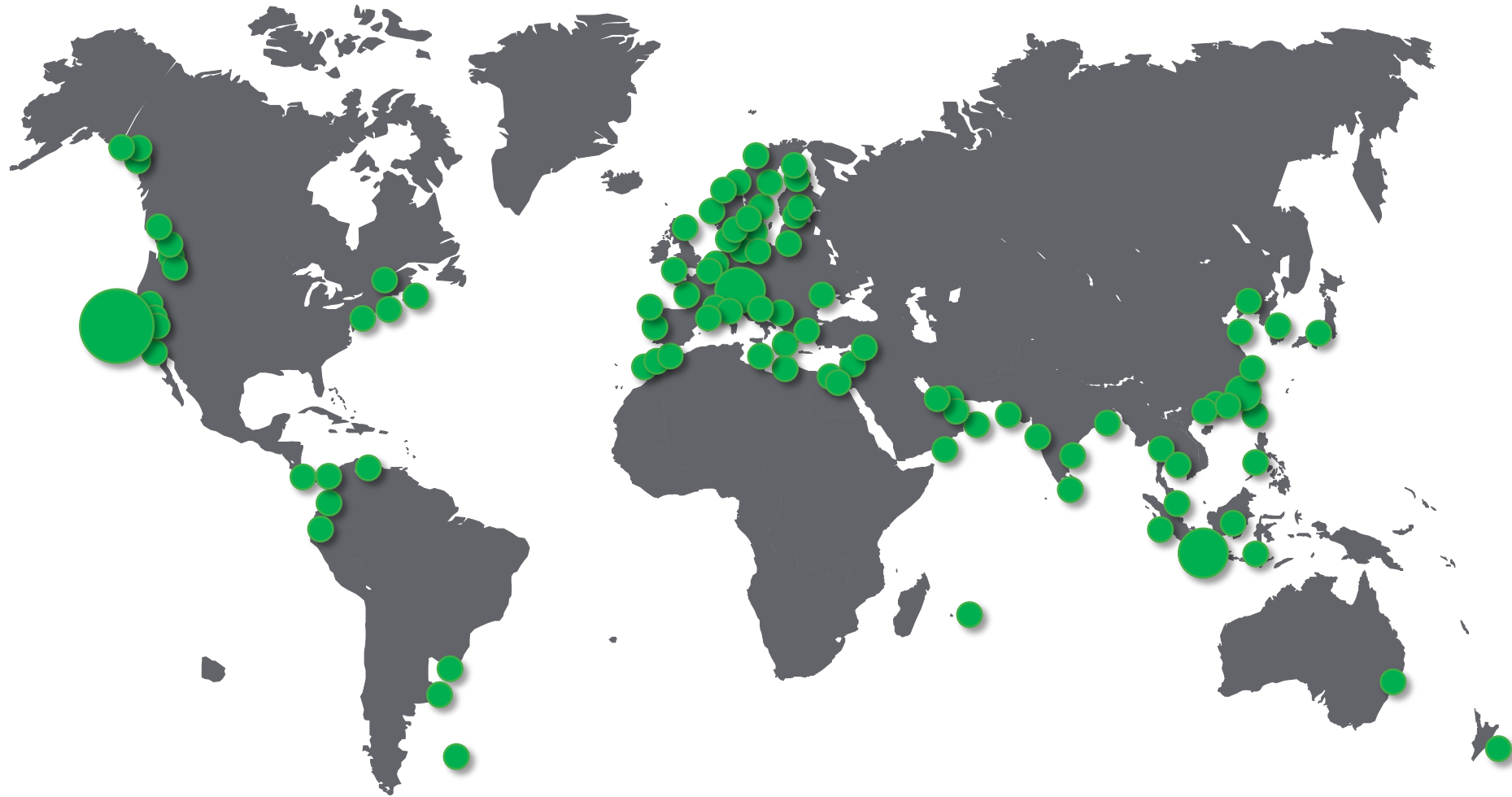
\*SECA = Sulphur Emission Control Area: Baltic Sea + North sea + English Channel



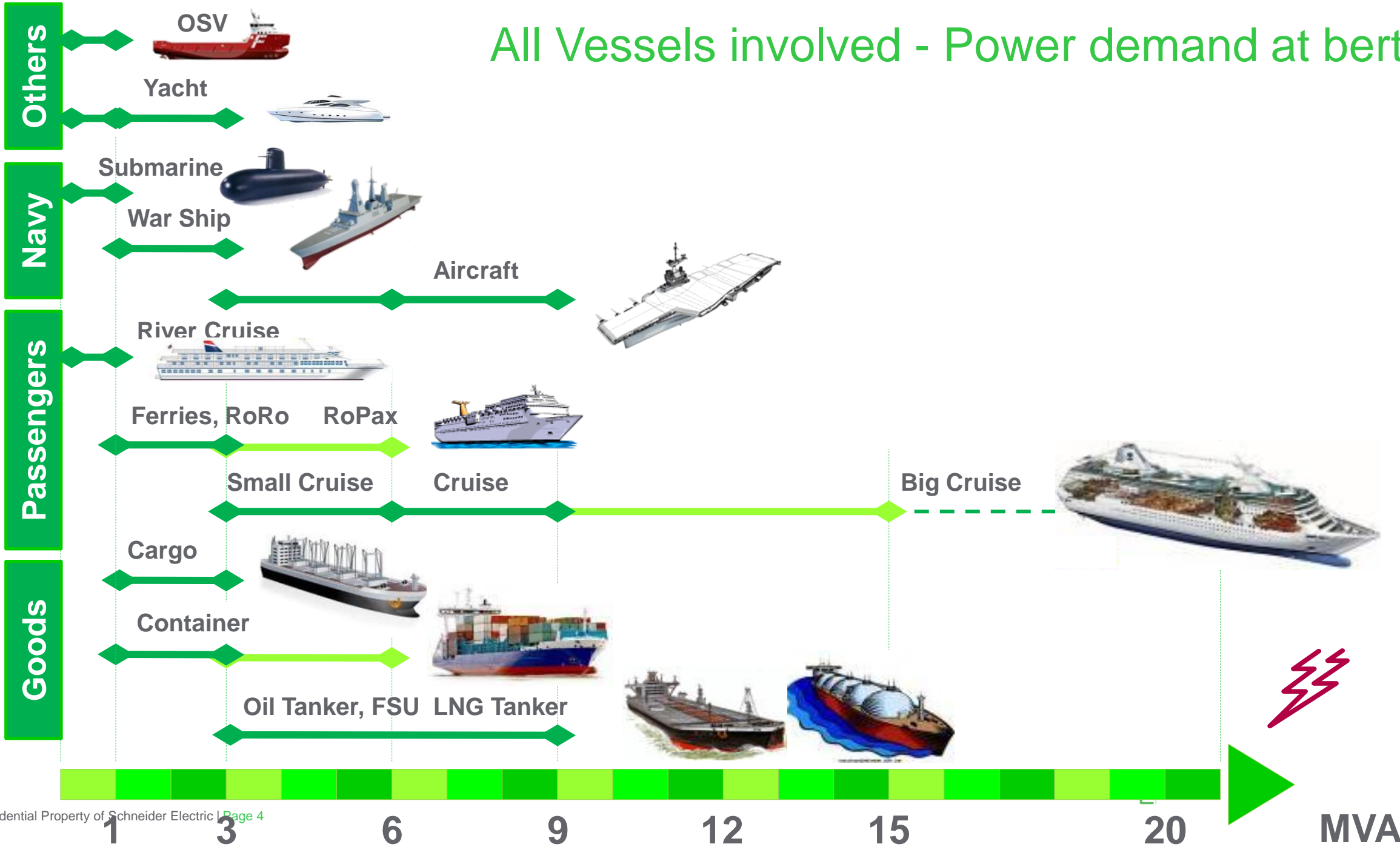
Life Is On

**Schneider**  
Electric

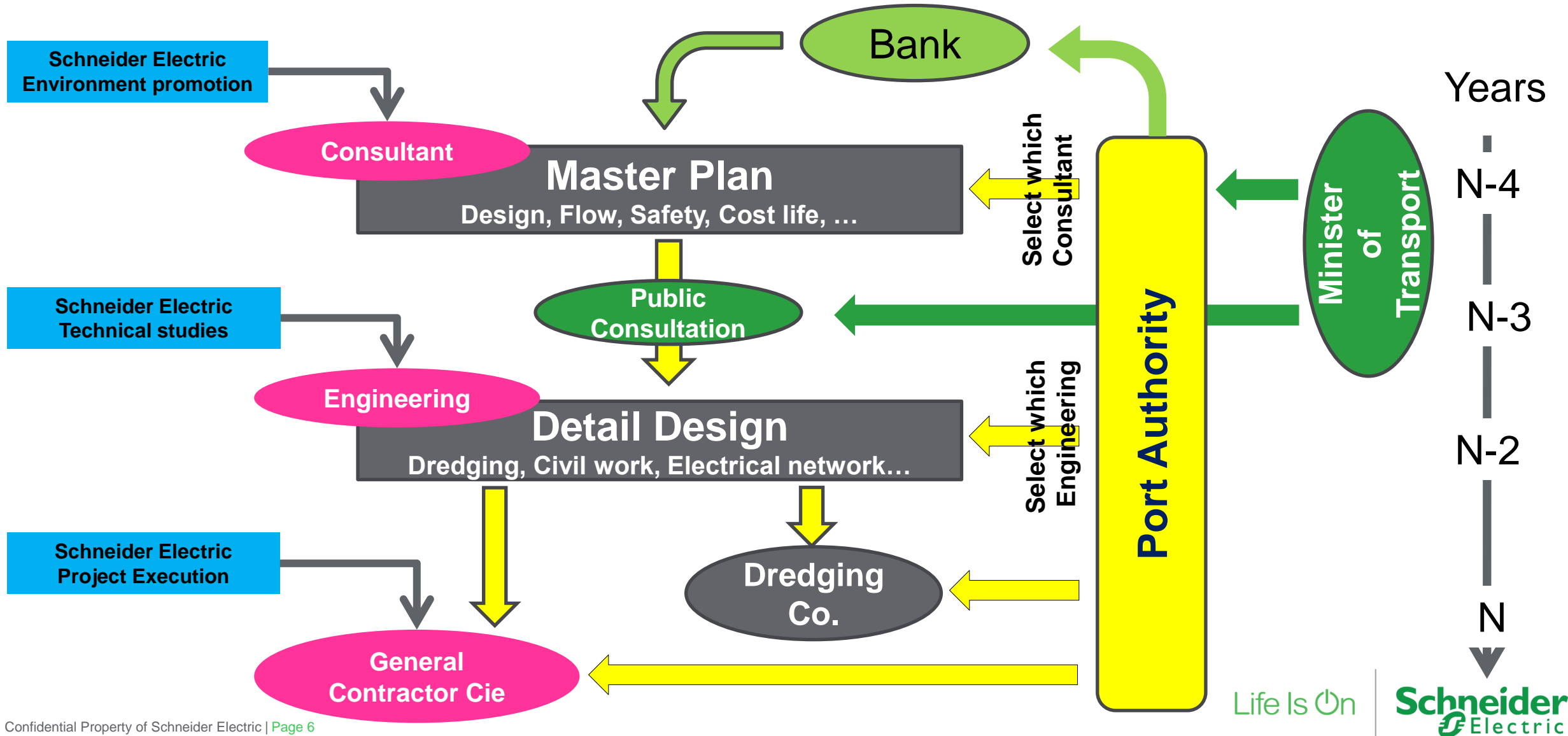
# Many Shore Connection applications worldwide has been done & planned



# All Vessels involved - Power demand at berth



# Schneider Electric provide knowledge & support at each stage of the decision process to be WW compliant





# ShipYard at Port of Ancona in Italy, ShoreBoX 2MVA



**Schneider Electric Italy has successfully installed and commissioned a 2-MVA ShoreBoX™ to power the Viking Sea cruise ship during its construction period in Fincantieri Ancona shipyard.**



# OSV connection at Port of Bergen





# Strategic USA's largest container port

The California-based port is the 3rd largest in the world



## Project location

- USA
- Port of Los Angeles
- Container vessel
- Access covers, AMP Fix, AMP Mobile, AMP Container



## Site pictures



## Project definition

### Introduction

- **2004:** In June, **Berth 100** was the first berth in **the world container terminal using AMP** (Port of LA & China Shipping Container), while in August the Port welcomed the world's first container vessel to be built with AMP specifications
- 2006: Yusen Terminal at berth 214
- 2010: Evergreen's Sea Side Terminal at berth 230
- 2011: Cruise Terminal at berths 92 and 93A

### Port's strategy

- **The California Air Resources Board (CARB)** adopted a regulation in December **2007** to **reduce emissions** from diesel auxiliary engines on ships while at-berth for container, cruise and reefer vessels.
- The regulation **requires** that **auxiliary diesel engines be shut down** (i.e., use grid-based power) for specified percentages of fleet visits.
- By **2014**, vessel operators relying on shore power are required to shut down their auxiliary engines at-berth for **50 %** of the fleet's vessel visits and also reduce their on-board auxiliary engine power generation **50% by 2014, 70% by 2017 and 80% by 2020.**

### Solutions

- Schneider Electric's shore connection systems
- Cavotec's equipment for connection points





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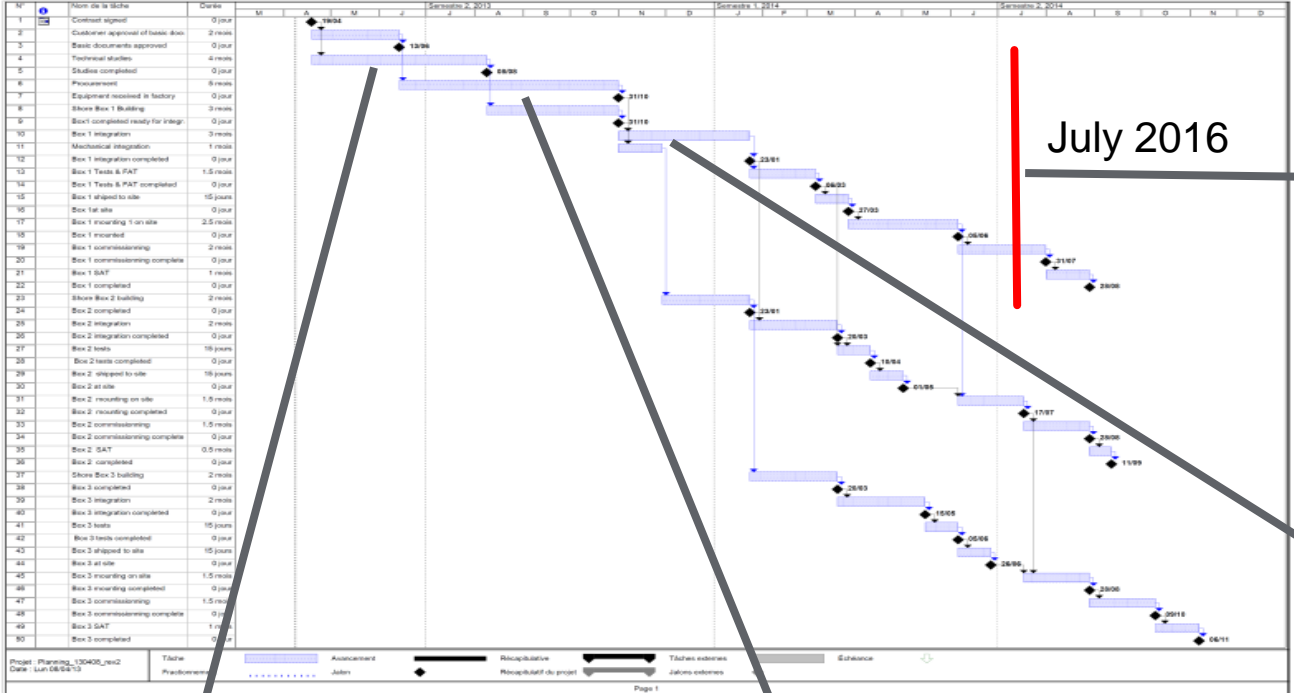
# Future Kalibaru Container Terminal April 2016





# Kalibaru update of the execution

## ShoreBoX™ Implementation



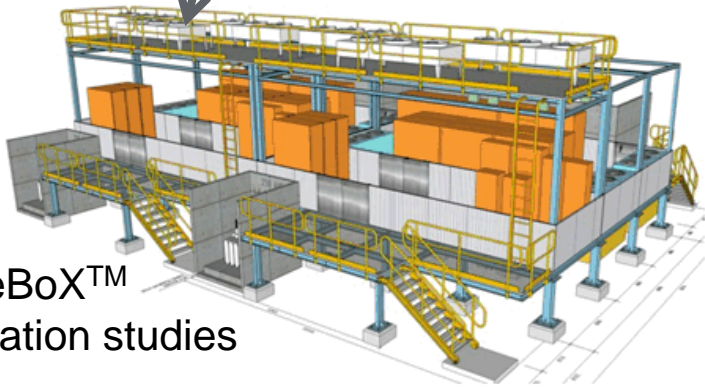
July 2016



Cable System installation



ShoreBoX™ adaptation studies



ShoreBoX™ production



# Moroccan Navy Port



The ShoreBoX leaving the factory beginning of January 2014

During the commissioning, end of January 2014



FREMM French Frigate

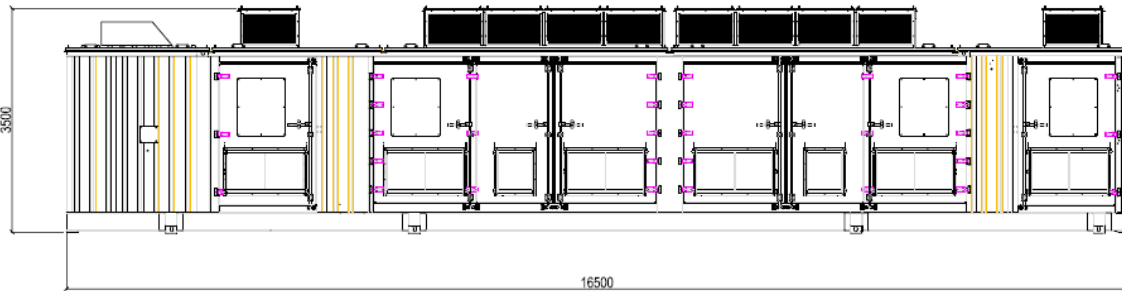


**The 2 ShoreBoX 2MVA installed and fully operational**

The customer has passed another order for an equivalent system for another Moroccan Navy Port



# Navy ship connection Port of Toulon



Facility to provide 60hz to the base network, First installation to be operational in 2015.

2x ShoreBoX MV-> MV 4MVA with frequency conversion 2 types of ships connected , BPC 2,2MVA & FREMM 1,2MVA



ShoreBoX™ Life Is On





# Shore Connection Ship & Shore Side retrofit

## Example of realization – France - Marseille

- Shipowner: CMN (Compagnie Méridionale de Navigation)
- Port : GPMM (Grand Port Marseille Méditerranée),
- Ship type: Ferries operating between France & Corsica island.
- Scope: 3 ships (Piana, Girolata, Kaliste) + 3 berths (Poste 68, 70 & 71)
- Model: SE in partnership with STX Service.
- Port Voltage: 20kV in substation
- Ship Power: 1,8MVA, 11kV, 50hz (no frequency conversion)
- **Ships modification First quarter 2015, Port modification Last quarter 2015**



**Piana**



**Girolata**



**Kalliste**

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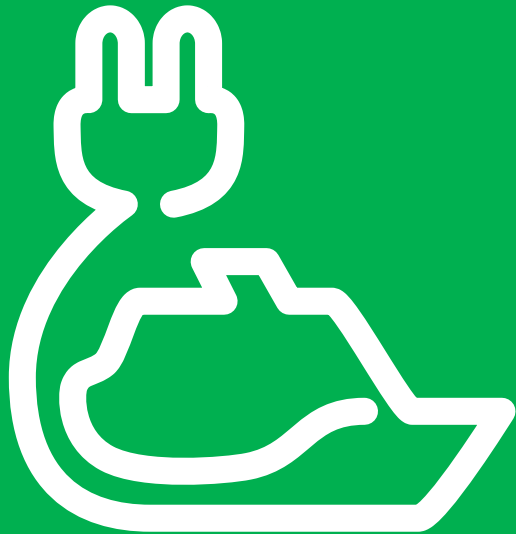
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# Plug in to Green Power

Shore Connection Solution



# Thank you for your attention

At your disposal

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