

A wide-angle aerial photograph of a bustling shipping port at dusk or dawn. The sky is a hazy blue. The water is a deep, dark blue. Numerous ships of various sizes are scattered across the water, some with lights on. In the upper left, a large ship with a tall blue and red lattice boom crane is docked. In the center, a large cargo ship with a blue hull and white superstructure is connected to a shore power system. A long, thin cable extends from the ship across the water to a power barge in the background. The overall scene is one of industrial activity and maritime trade.

Innovative Shore Power Solutions for Tankers

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Taking seamless key

Global Product Manager - Ship Side Shore Connection

17+ years marine experience

- Classification Society
- System design, Project Management and Engineering
- Norway, Korea, Turkey, Canada

- BSc, Electrical & Electronics Eng, Bilkent University - Turkey
- MSc, Electrical Engineering, Dalarna University - Sweden



GLOBAL CLIMATE DEAL POSTPONED

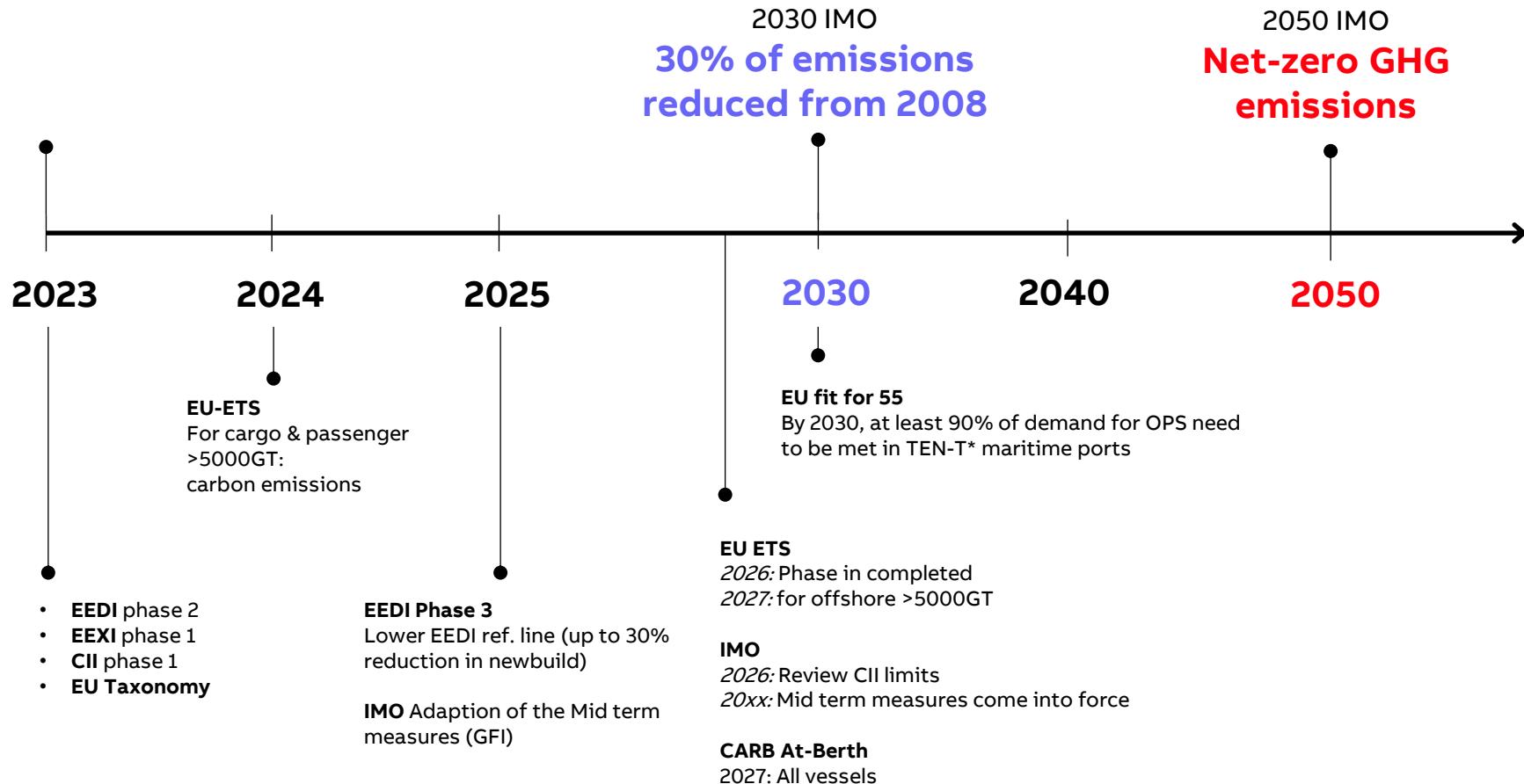
A little laugh!

2050
IMO Net-zero
GHG emissions



Conscious route to decarbonization

Smart savings and time critical license to operate in a developing regulatory environment



- **New regulation will come**
- **Complexity will increase**
- **Energy efficiency is the key**
- **Knowing your emissions is business critical**

Why Shore Power for Tankers?

Regulatory Momentum



Global and regional regulations are making shore power a necessity.

- CARB: POLA & POLB mandatory since 2025. All tankers visiting California ports mandated by 2027.
- EU Regulations (FuelEU & AFIR): Driving infrastructure development and penalizing noncompliance.
- IMO: Greenhouse gas reduction targets – 40% by 2030, net zero by 2050.
- Port authorities and charters incentivize compliance and readiness.



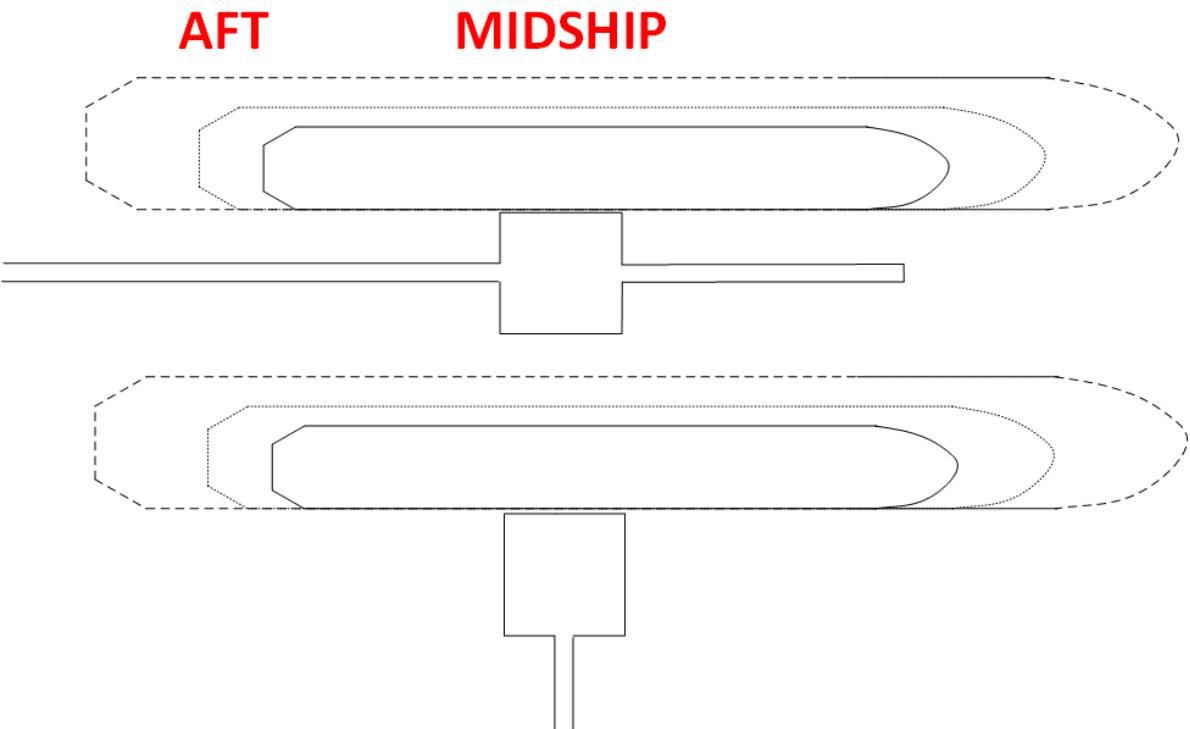
Acting now ensures market access and avoids future penalties.



The push for Shore Power is accelerating.

Shore Power for Tankers

The Challenges



1. Nonhazardous Areas on aft
 - No jetty interface
2. Hazardous Areas at cargo area
 - Requires explosion proof solutions to ensure safety during cargo operations.
3. Complexity in Cable Connection
 - Midship connections are often necessary but difficult to implement safely.
4. Onboard Space & Installation Constraints
 - Bulky equipment & deckhouses with ducting - major challenge for retrofits.

Shore Power on Tankers is Complex.

Shore Connection Ship Side

Tanker Solutions

Suitable Solution for Different Connection Points

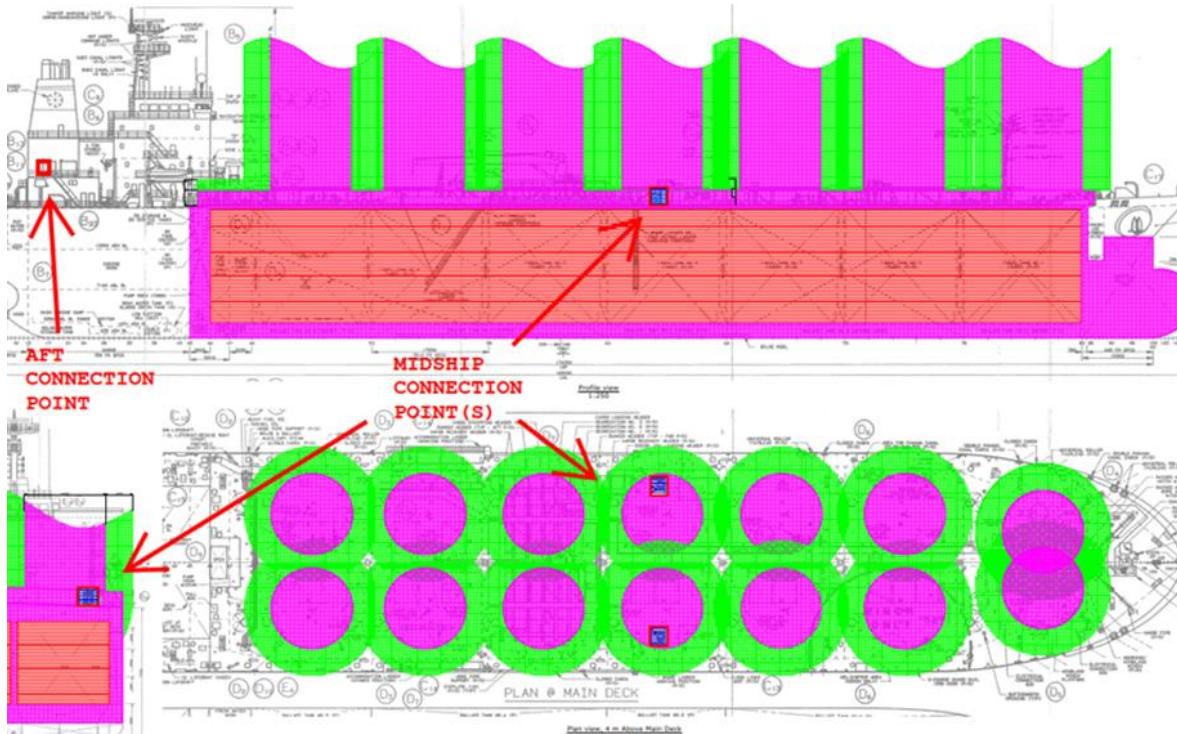


ABB solutions for aft and midship

- Designed per IEC/IEEE 80005 and OCIMF OPS Guidelines.
- Aft solution is operational on ships visiting Long Beach.
- Midship solution analyzed with ABS in a HAZID workshop.
- Approval in Principle (AIP) by ABS.
- ABB IP Rights – Utility Model application filed.

Shore Connection Ship Side

Tanker Solutions

Ex-Proof Shore Connection Deckhouse - Midship

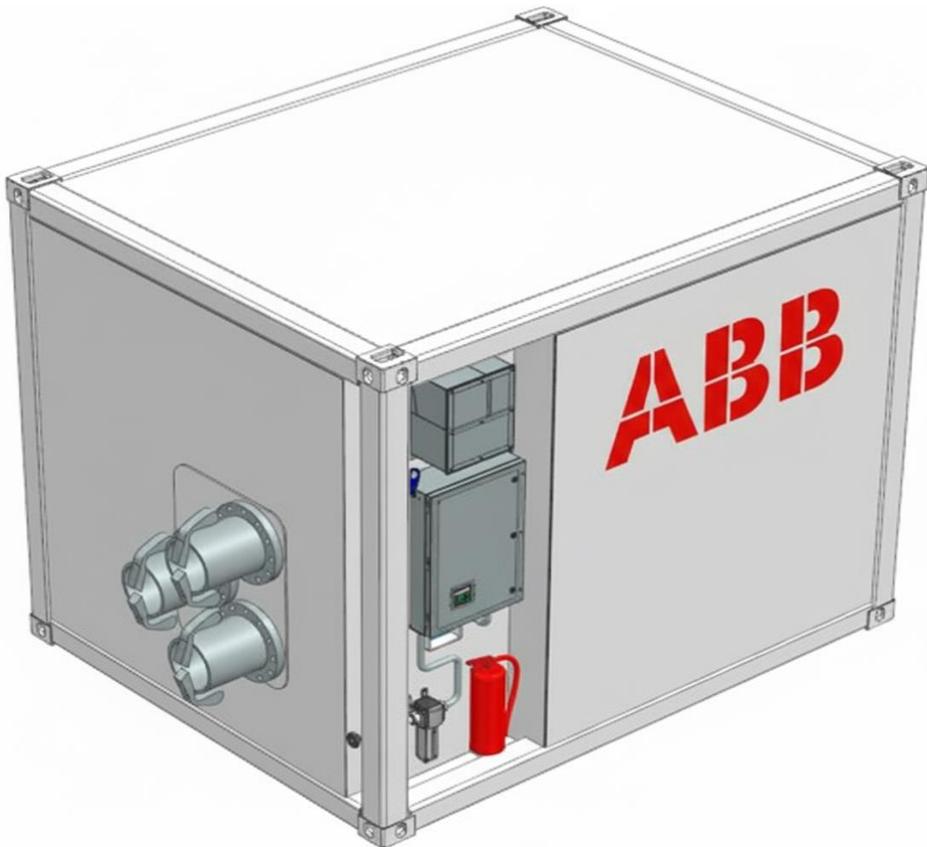


ABB innovation

1. **Gastight Deckhouse Technology:** Zone 1 certified shore connection
 - Sealed enclosure with overpressure maintenance and gas detection
2. **UFES (Ultra-Fast Earthing Switch) – 4ms arc quenching technology**
 - Eliminates need for external arc ducting
 - Prevents damage and reduces downtime
3. **Structural Resilience –** Engineered to withstand arc pressure forces
 - Designed for worst-case scenarios
4. **Filtered Compressed Air System –** No ventilation ducting required
 - Uses ship's compressed air with advanced filtration for HSE-compliant breathing air and oil vapors

Vessel Integration

Retrofit made easy



Connection Points:

- Aft Connection
- Midship Connection
- Aft and Midship Connection

New Equipment:

- Shore Connection (Deckhouse)
- 6.6kV HVSC Switchboard
- Stepdown Transformer

Ship Interfaces:

- Deckhouse installed on deck
- Emergency Light and Fire Detection loops
- Integration with vessel automation
- Compressed air system modification
- Main switchboard integration
- Power Management for seamless load transfer

ABB Shore Connection

Tanker Solutions

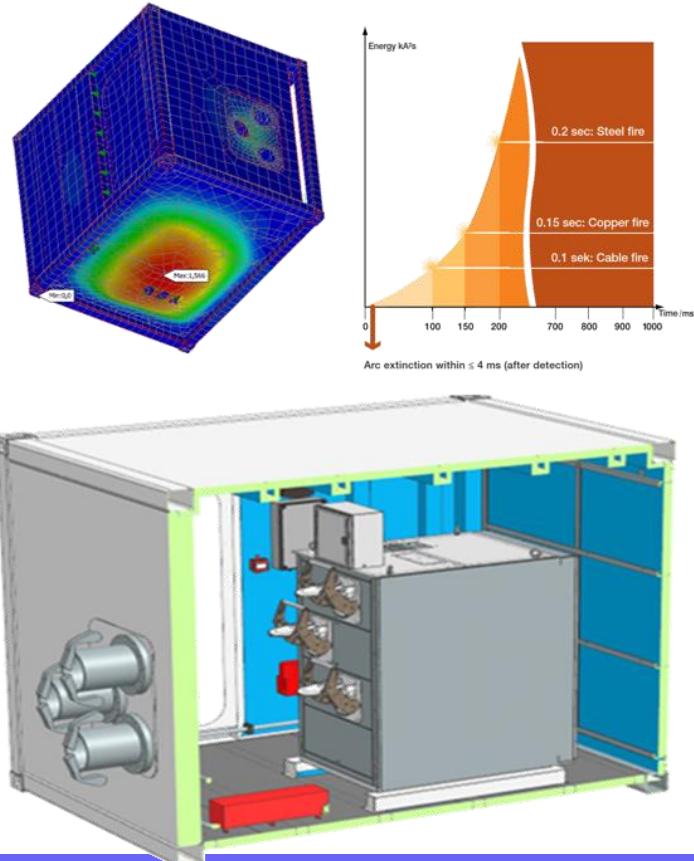


ABB offers a smooth path to regulatory compliance:

- ✓ Designed with class involvement from the beginning
- ✓ Retrofit made easy through seamless vessel integration
- ✓ Flexible solutions for entire fleet (aft & midship, retrofit /NB)
- ✓ Lower installation cost by simplified innovative design
- ✓ Lifecycle support with global service network

Easy to retrofit ABB shore connection solutions with high operational safety and efficiency.

Tanker Solutions

Let us know how we can help?

Shore Power Solutions Tankers



ABB