



Faiveley *Stemmann-Technik*
A **Wabtec** Company

/// Strategies for Going Green

Georg Matzku

Head of Sales Industry Europe, Stemmann-Technik

/// It's not easy being green

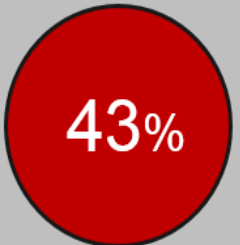


/// It's not easy being green

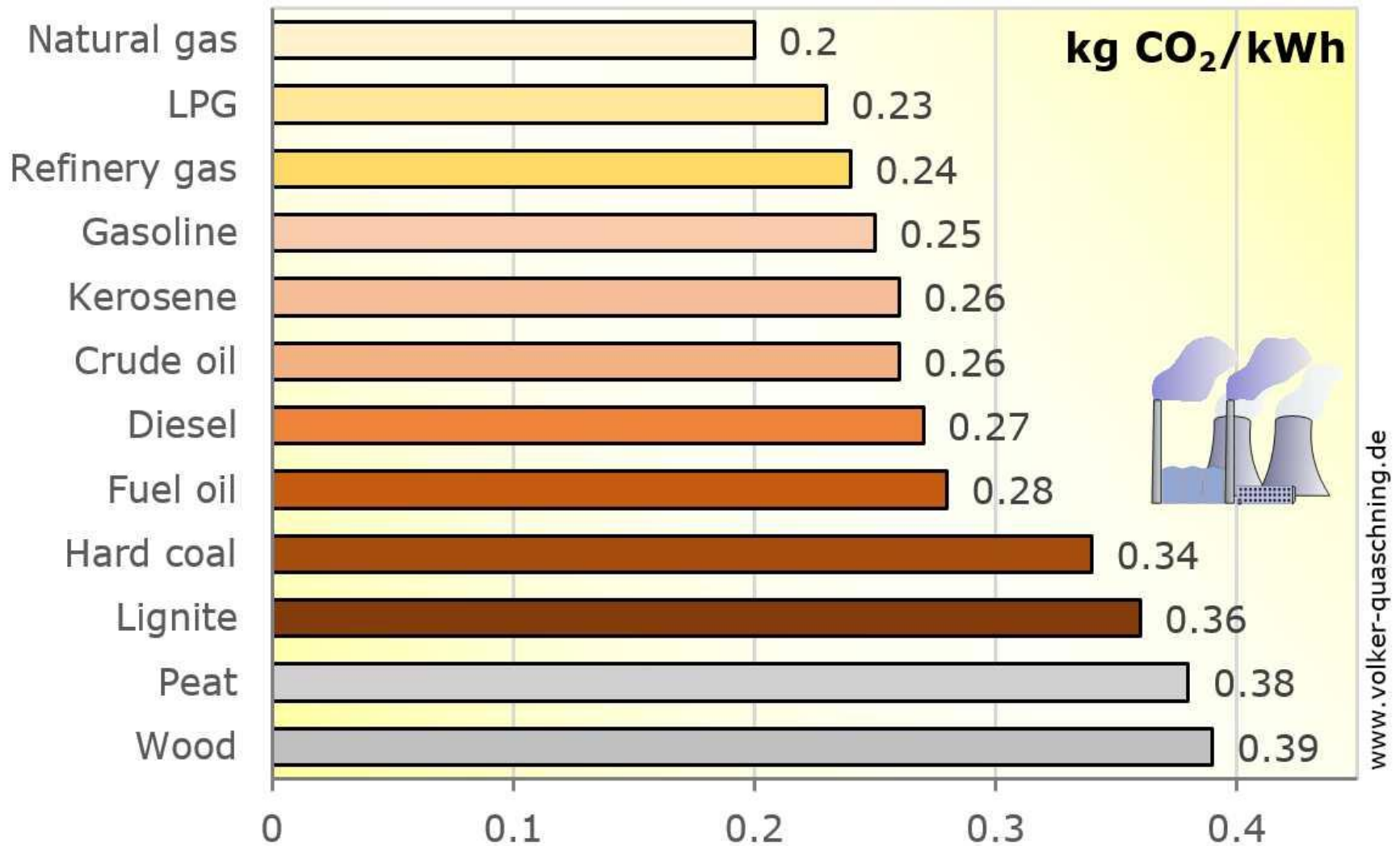
- Nitrous Oxide (NO_x) – acid rain, loungs
- Particulate Matter (PM_{10}) –
<10 micormeter: loungs & blood
- Carbon Dioxide (CO_2) –
Greenhouse Gas – global warming

/// What About Pollutants – Nitrogen Oxid & Particular Matter

Contributions of various related sources tototal Nitrogen Oxide (NO_x) and Particulate Matter (PM₁₀)

	 Operational & Employee Vehicles	 Trains	 Cargo Handling Equipment	 Heavy Trucks	 Marine Vessels
% No _x Emissions	 1%	 4%	 23%	 40%	 32%
% PM ₁₀ Emission	 <1%	 2%	 24%	 31%	 43%

/// CO2 Emissions – Greenhouse Effect





Decarbonising Maritime Transport

Pathways to zero-carbon shipping by 2035

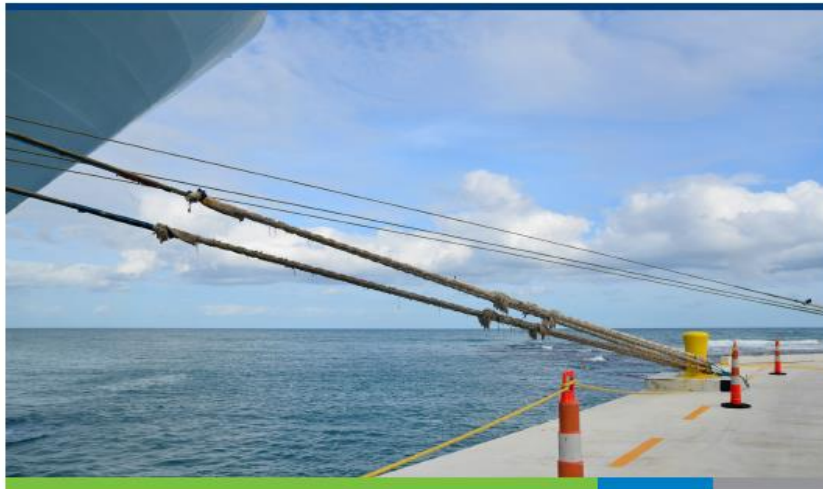


Case-Specific Policy Analysis



OECD

Organisation for Economic Co-operation and Development:
Pathways to zero-carbon shipping by 2035



Reducing Shipping Greenhouse Gas Emissions

Lessons From Port-Based Incentives



Case-Specific Policy Analysis

OECD

Organisation for
Economic Co-
operation and
Development:
Reducing Shipping
Greenhouse Gas
Emissions



Environment

Carbon emissions from global shipping to be halved by 2050, says IMO

'The world's shipping industry has now, for the first time, defined its commitment to tackle climate change'

Josh Gabbatiss Science Correspondent | @josh_gabbatiss | 2 days ago | 



Announcement calls for greenhouse gas emissions to be slashed by 'at least' 50 per cent – meaning cuts could go much further *Reuters*

IMO
(International Maritime Organization):
Carbon emissions from global shipping to be halved by 2050

/// Is There Any Good Reasons to Get Shore Power?

- Must:
 - Defined by law (f.e. California, Brussels, IMO)
- Should:
 - Pressure from local city / politics / NGO's
- Want:
 - Corporate target: going green
 - Cheaper than diesel (taxes, port fees)
 - Practical advantage (24h work)

/// Average Power Requirements

...for various vessels types, LVSC/HVSC, according to IEC Standard



Container Ship	up to 7 MW
----------------	------------

Cruise Ship	up to 20 MW
-------------	-------------

Reefer	up to 8 MW
--------	------------

Ro-Ro, Ferry	up to 8 kW
--------------	------------

Tanker	up to 6 MW
--------	------------

Bulk general cargo ship	up to 4 MW
----------------------------	------------

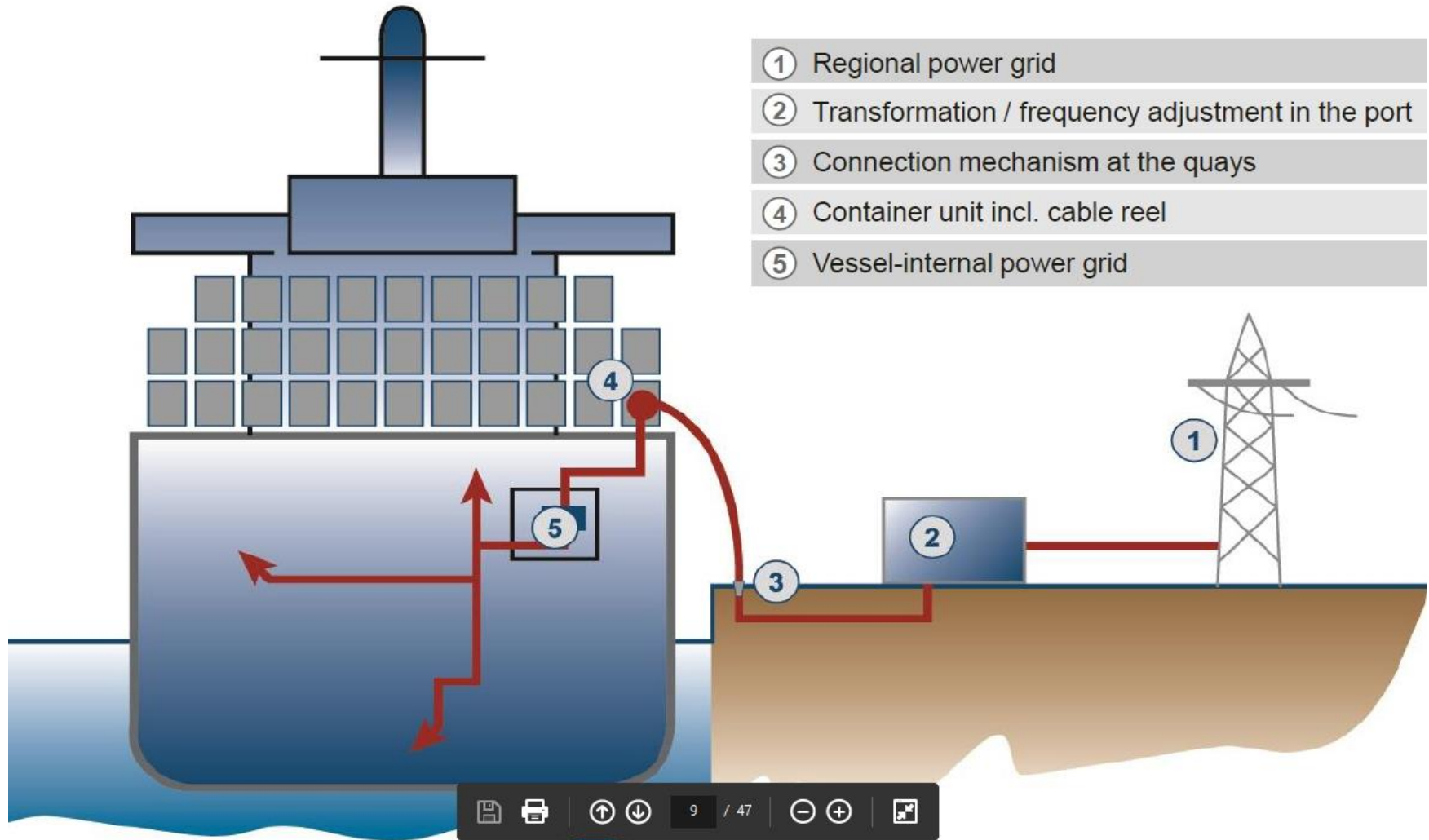
ShoreCONNECT

/// Container Vessels



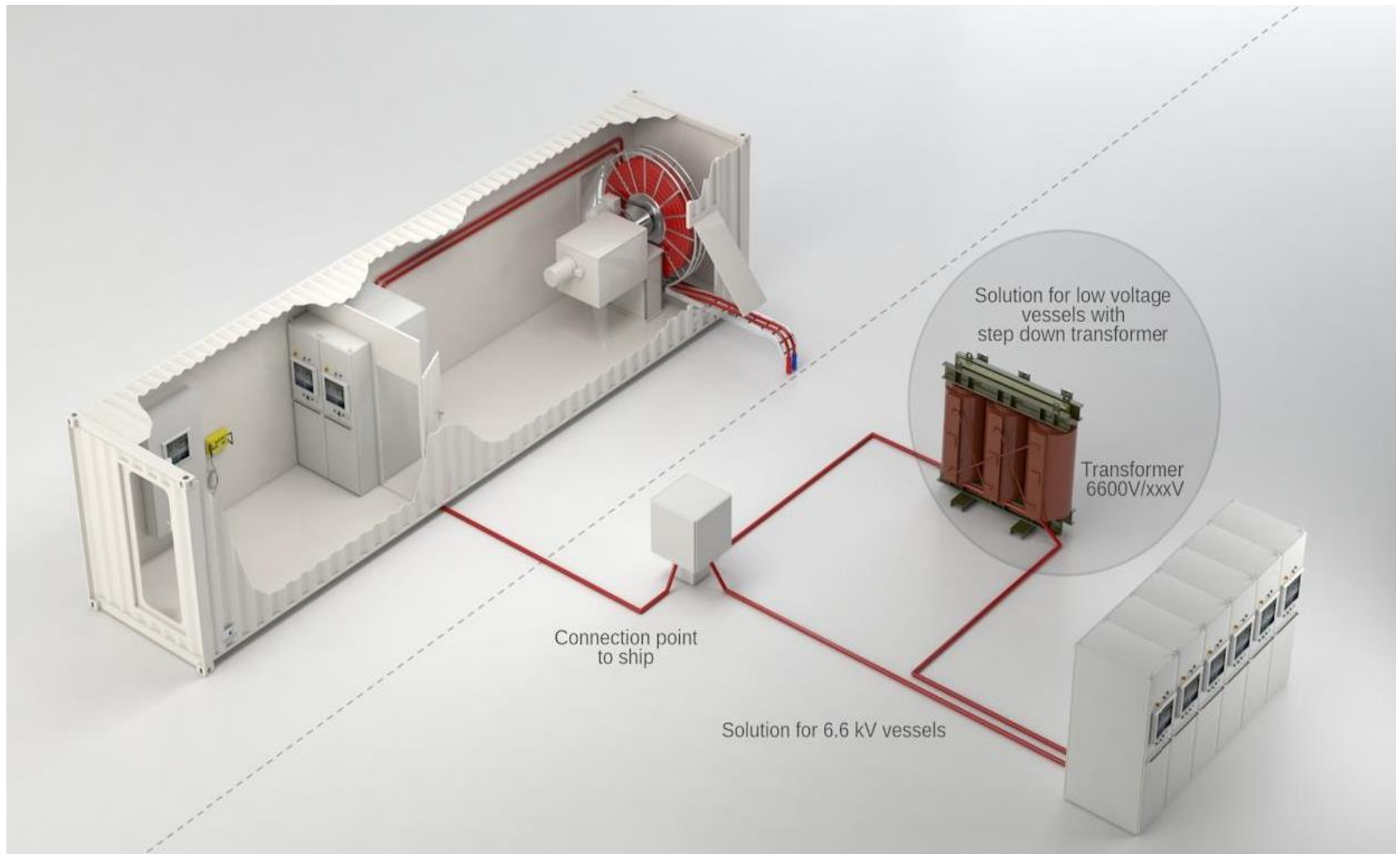
/// Cable Reel Container Systems

...for container vessels



/// Cable Reel Container Systems

...for container vessels



/// Cable Reel Container Systems

...for container vessels / mobile socket



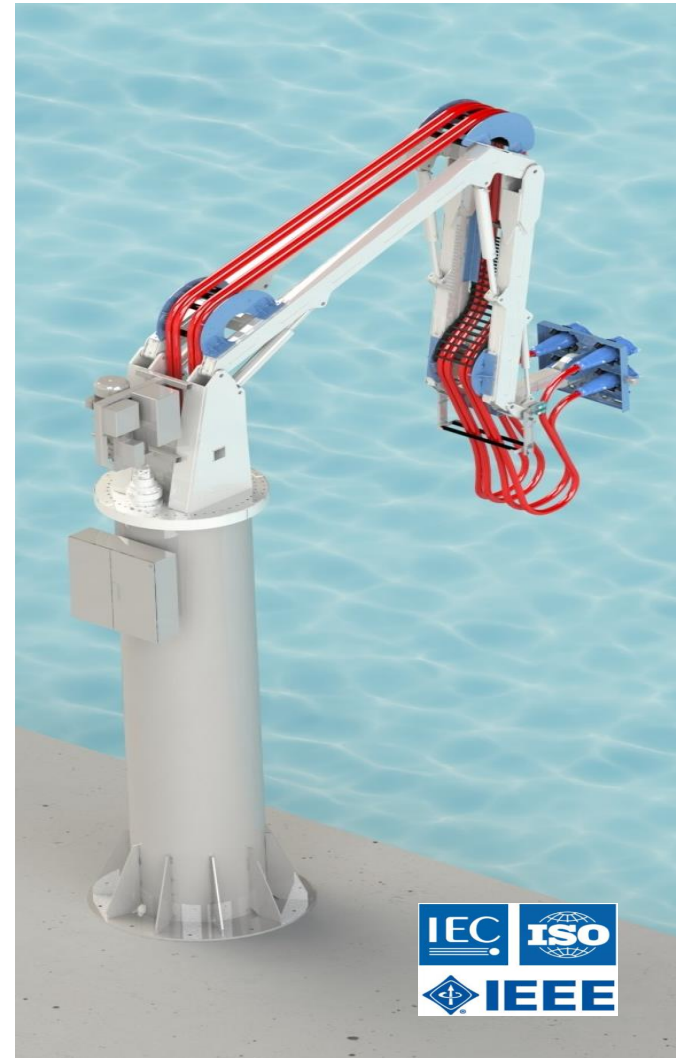
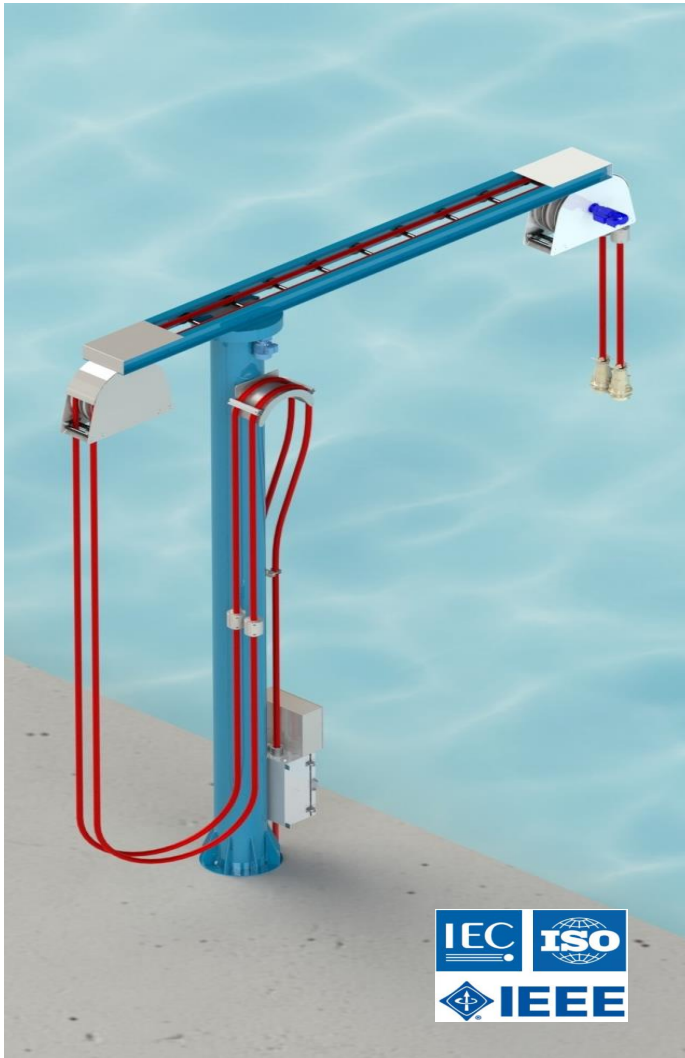
ShoreCONNECT

/// RoRo / RoPax / Special Vessels



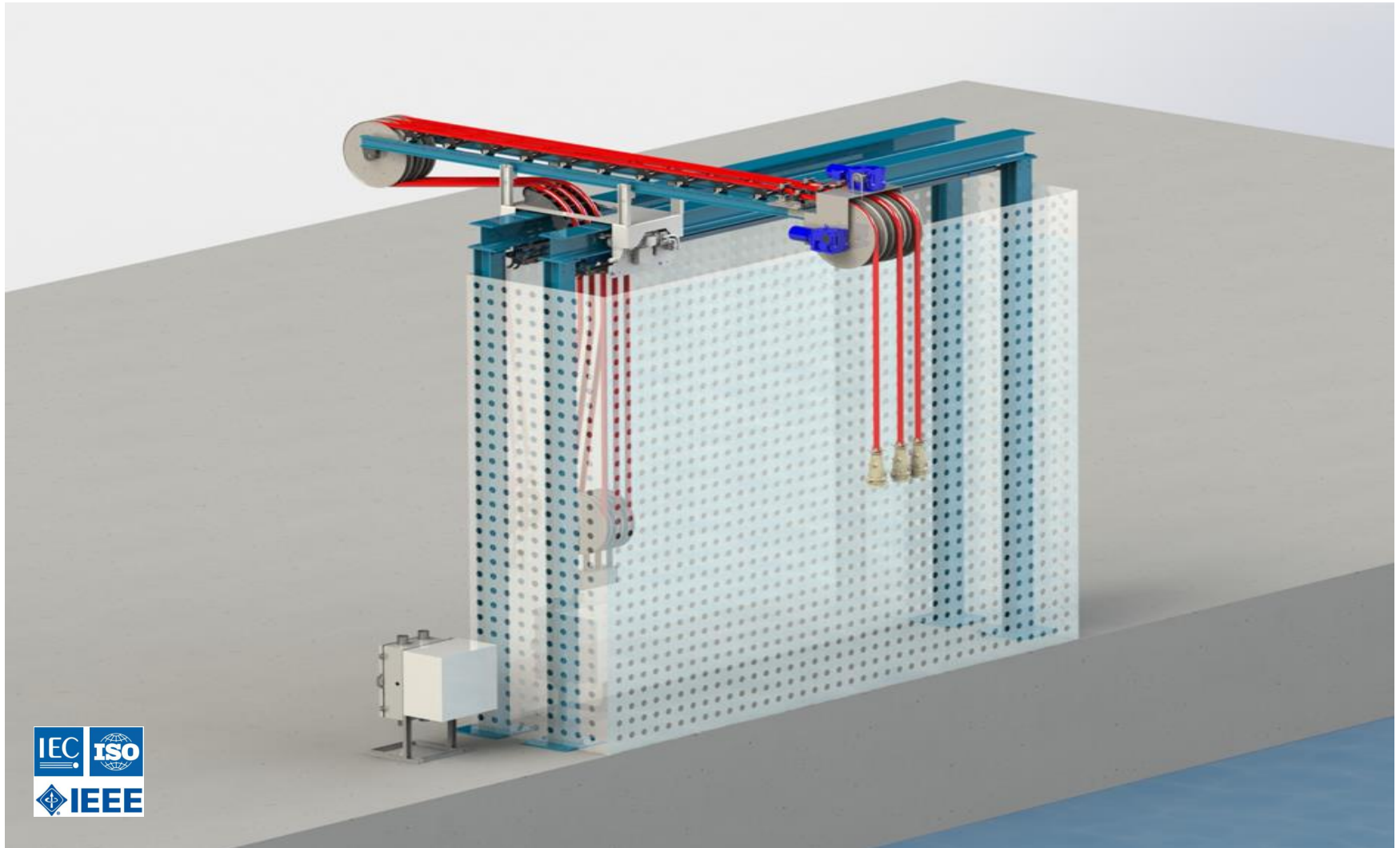
/// ShoreCONNECT Variants

...for various vessels types



/// Project Rotra Vente ShoreCONNECT Cuxhaven

...for various vessels types



/// ShoreCONNECT Variants

for various vessels types including connection box land side and/or onboard unit



ShoreCONNECT

/// Cruise Ships



/// Onshore Power Supply for Cruise Liners



/// Onshore Power Supply for Cruise Liner

...fast and simple connection to the cruise ship



/// Onshore Power Supply for Cruise Liner

...it can be handled by any person



/// Onshore Power Supply for Cruise Liner

...various tidal range compensations



Stemmann-Technik GmbH

Headquarter

Niedersachsenstraße 2 | 48465 Schüttorf | Germany

Phone: +49 5923 81 – 0 | Fax: +49 5923 81 – 100

stemmann-info@wabtec.com | www.stemmann.com

Thank you for your attention.

