

How Wabtec innovated solutions may decarbonize ports & terminals ?

*Christophe Gaigneux
July 04th, 2024
Constanta, Romania*



TRANSPORT
EVENTS



**Black and
Caspian Sea 2024**

PORTS & LOGISTICS

Creating Synergies by Connecting The Black, Baltic and Caspian Economies

AGENDA

Introduction

Challenges for Onshore Power Supply (OPS)

Towards Port Cranes Automation

Other possibilities

Wrap Up

/// What's the Challenge? Zero emission latest in 2050 According to COP21 in Paris

NEWS | 09 August 2021

IPCC climate report: Earth is warmer than it's been in 125,000 years

Landmark assessment says that greenhouse gases are unequivocally driving extreme weather – but that nations can still prevent the worst impacts.



UNITED NATIONS  NATIONS UNIES

POSTAL ADDRESS—ADRESSE POSTALE: UNITED NATIONS, N.Y., 10017
CABLE ADDRESS—ADRESSE TELEGRAPHIQUE: UNATIONS NEWYORK

Reference: C.N.735.2016.TREATIES-XXVII.

PARIS,
PARIS,
EN

The Secretary-General of the United Nations, acting in his capacity as depositary of the Convention, communicates the following:

On 5 October 2016, the conditions for the entry into force of the above-mentioned Agreement were met. Accordingly, the Agreement shall enter into force on 4 November 2016, in accordance with its article 21, paragraph 1, which reads as follows:

"This Agreement shall enter into force on the thirtieth day after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 per cent of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession."

5 October 2016

APAC SEPTEMBER 15, 2020 / 11:21 PM / UPDATED 4 DAYS AGO

EU parliament votes to make ships pay for their pollution

By Kate Abnett

3 MIN READ



BRUSSELS (Reuters) - The European Parliament on Tuesday voted in favour of including greenhouse gas emissions from the maritime sector in the European Union's carbon market from 2022, throwing its weight behind EU plans to make ships pay for their pollution.



FILE PHOTO: Shipping containers are being loaded onto Xin Da Yang Zhou ship from Shanghai, China at Pier J at the Port of Long Beach in Long Beach, California, U.S., April 4, 2018. REUTERS/Bob Riha Jr/File Photo

As of 1 May 2025, the Mediterranean Sea will effectively become an Emission Control Area (ECA)

/// Decarbonization progress in Romania

DP World Constanta granted €38 million to transform into a global trade hub

May 31, 2023

By Dom Magli



DP World has received a €38 million (\$40.5 million) grant from the Ministry of Transport in Romania and the European Union to transform its Constanta terminal into global trade hub.

<https://www.dpworld.com/romania/news/latest-news/dp-world-boosts-european-trade-with-130m-euro-investment-in-romania>

DP World Romania > News > Latest News > DP World boosts European trade with €130m investment in Romania

DP WORLD BOOSTS EUROPEAN TRADE WITH €130M INVESTMENT IN ROMANIA

Date: 20/05/2024

- Cargo flows expected to increase by around two million tonnes per annum, boosting trade, economic growth and opportunity in Europe
- Links between the Black, North and Adriatic seas with mainland Europe set to be transformed
- Investments mark 20 years of DP World in Romania, with the business predicting it will become an increasingly important hub for European trade



/// Reason for Going Green- Why Sustainable Ports?

I care

- Finding a balance between socio-economic and environmental interests is key for sustainable ports development today and for future generations.

I must

- Defined by law/regulations. Paris Agreement ratified by 54 African countries.

I want

- It is cheaper (price kw/h, taxes, port fees).
- Corporate target: i.e. going on zero emissions until 2040.
- Practical advantage (i.e. 24h work).

I should

- Pressure from various stakeholders (local/national politics, NGO's local residents)
- I get quite some money for funding.



AGENDA

Introduction

Challenges for Onshore Power Supply (OPS)

Challenges for Port Cranes

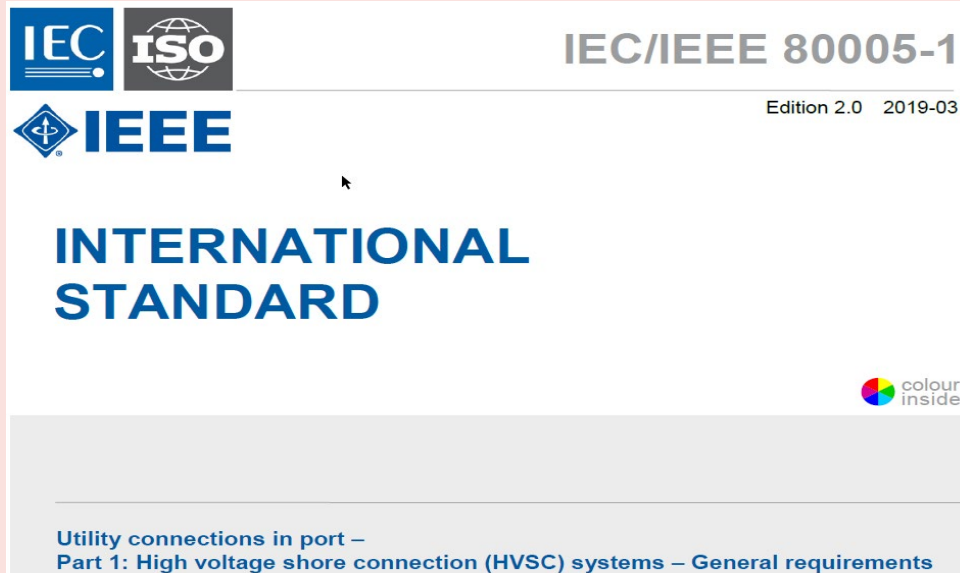
Other possibilities

Wrap Up

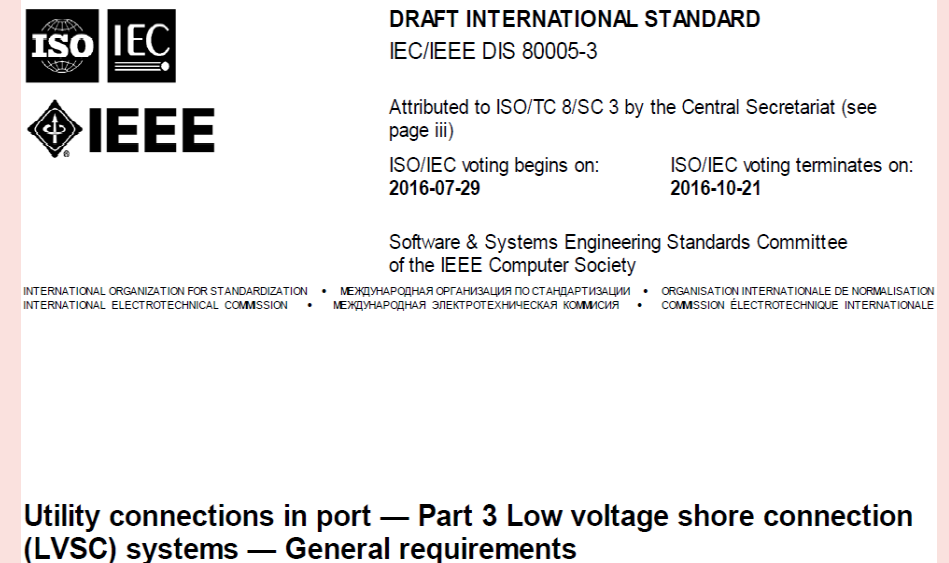
/// What is Onshore Power Supply (Cold Ironing) – Definition

HVSC / Shore power or **Onshore Power Supply (OPS)** is the provision of shoreside electrical power to a ship at berth while its main and auxiliary engines are shut down. OPS and its handling is defined in IEC/IEEE 80005.

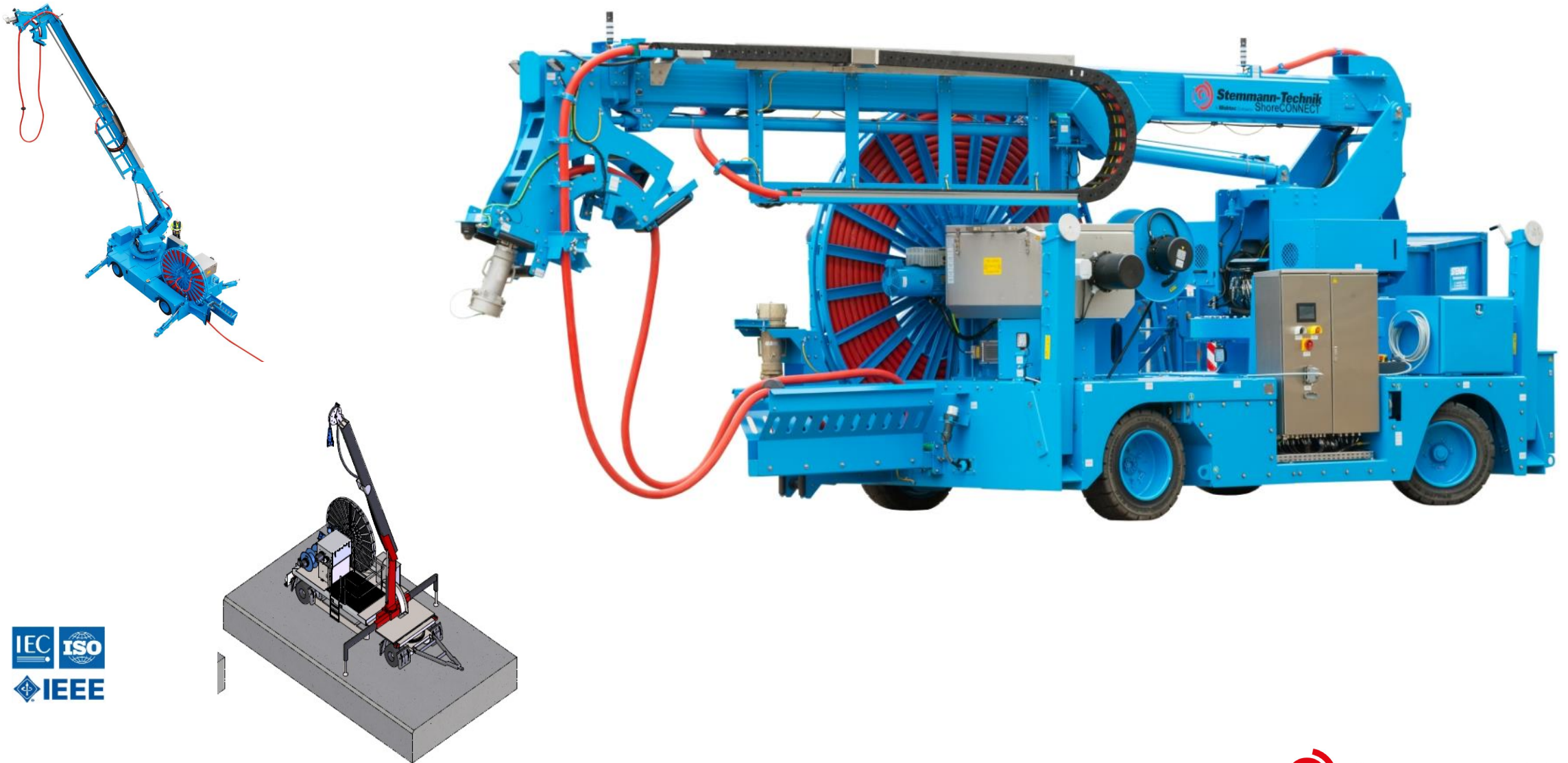
IEC/IEEE 80005-1 for high voltage



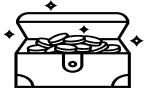
IEC/IEEE 80005-3 for low voltage (draft)



/// ShoreCONNECT for RoPax ferry – references in Poland, 2021 -2024



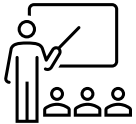
/// Challenges for Onshore Power Supply (OPS)



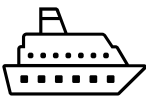
CAPEX investment – Government investments and healthy considerations



Power availability – local authorities towards green solutions



Know – how – tough beginnings, where to start, experience shared



Vessel operators – standardization IEC 80005-1&3



Specific Port/Sea conditions – flexibility

AGENDA

Introduction

Challenges for Shore Power (OPS)

Towards Port Cranes Automation

Other possibilities

Wrap Up

/// Electrification and automation for cranes

It is always in the details

- All sizes of the cranes demand perfect **acceleration control**. Imagine CR for UltraLargeContainerVessels >14500 TEU and with +22 container wide demands great acceleration control (no slack cable).
- **Higher speeds** are needed for better cranes **productivity**. We pioneered high speed MCRs. Current max speeds already done:
 - PCR > 270 m/min
 - SCR > 300 m/min
- Reels or Conductor bars (RMGs/ARMGs).
 - MCRs are more often when data transfer needs to be handled
- **Retrofit of cranes**, to operate larger vessels or moved crane location. Highest flexibility and **customization**.



/// Challenges for Port Cranes Automation



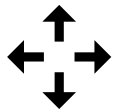
Safety and security – we deliver our quality reels since 1912



Productivity – increased speeds and accelerations



Larger cranes – SuperPostPanamax – acceleration control and high speed



Retrofited cranes – high flexibility, adaptation and customization



OPEX – better handling of the cable = longer lifetime

And CAPEX....?

AGENDA

Introduction

Challenges for Shore Power (OPS)

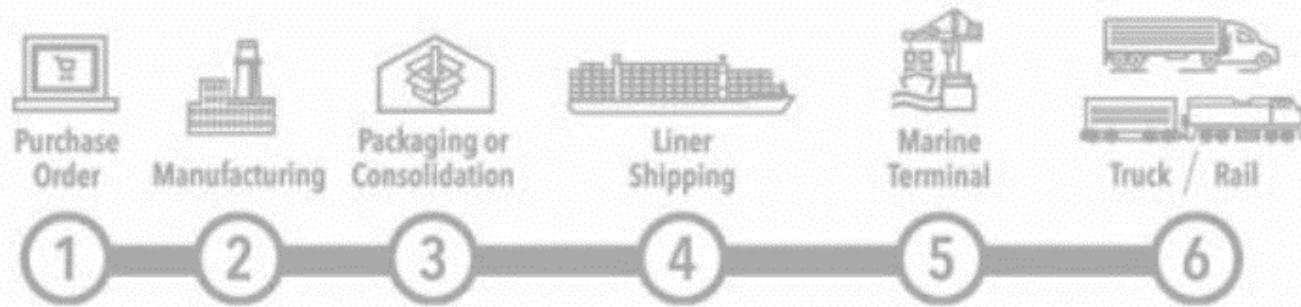
Challenges for Port Cranes

Other possibilities : Digital solutions, electric shuttle

Wrap Up

Port Optimizer™ More Visibility & Planning

Port Optimizer™ is a cargo visibility & planning platform that establishes a global data repository to provide accurate, actionable information & analytics...the digital infrastructure for ports.



DRIVES VALUE BY

- ✓ Increasing throughput and efficiency.
- ✓ Creating an accurate, on-time and reliable source of data for port stakeholders to better plan operations.
- ✓ Improving asset utilization and general operations, making port communities more environmentally conscious.

KEY FEATURES

- Inbound Cargo Viewer
- Empty Returns Advisor
- Truck Turn Times Dashboard
- Cargo Volume Predictor
- Roll On Roll Off (RoRo) Viewer
- Maritime & Supply Chain Asset Manager

AGENDA

Introduction

Challenges for Shore Power (OPS)

Challenges for Port Cranes

Other possibilities

Wrap Up





Christophe Gaigneux
South Europe Regional Sales Mgr
Mobile: +33 659 037 728
Christophe.gaigneux@wabtec.com

[linkedin.com/in/christophe-gaigneux-179283](https://www.linkedin.com/in/christophe-gaigneux-179283)

Thank you

