CLdN

Reducing the Footprint of Freight

Driving down supply chain emissions with smarter transport solutions

Introduction

As a leading provider of sea, road and rail transport solutions, it is CLdN's responsibility to monitor and minimise any adverse impact of our activities on the planet and society.

The area in which our business can undoubtedly have the biggest impact is on CO_2 emissions and climate change (UN Sustainable Development Goal 13: Climate Action). The movement of goods around the world has a significant carbon footprint. Freight transportation accounts for around 8% of global greenhouse gas (GHG) emissions, rising to 11% if ports and warehouses are included[1].

This document outlines the measures CLdN has already implemented to reduce GHG emissions across our business, the steps we are currently taking, and our plans for the future. As well as the environmental benefits being realised, our drive for greener transport solutions is helping our customers to gain a competitive advantage through a lower carbon supply chain.

For further information please contacts us at:

info@cldn.com

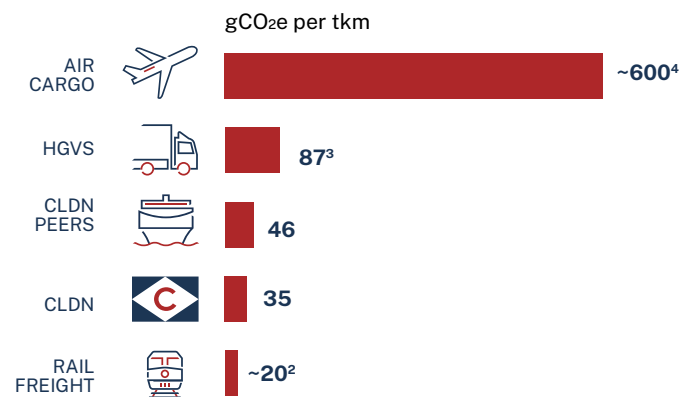1. https://climate.mit.edu/explainers/freight-transportation

Shipping

Around 90% of the world's freight is moved by sea. And as global trade increases, so too does the number of vessels navigating our oceans, each using significant amounts of fuel.

Whist shipping accounts for around 2.5% of global greenhouse gas emissions, it is already the most energy-efficient form of freight transport.

Average CO_2 emissions by mode of transport
EU-27, 2014-2018

gCO$_2$e per tkm

Mode	gCO$_2$e per tkm
AIR CARGO	~600[4]
HGVS	87[3]
CLDN PEERS	46
CLDN	35
RAIL FREIGHT	~20[2]

1. Official EU MRV data 2022
2. EU average based on GHG Protocol. Emissions vary from country to country depending on fuel used
3. GHG Protocol for 33t HGV
4. GHG Protocol for long-haul air freight

The extension of the EU Emissions Trading Scheme (ETS) to include maritime transport is designed to incentivise improvements in energy efficiency and low-carbon solutions, and to reduce the cost of alternative, lower-carbon fuels for shipping. CLdN has been preparing for the introduction of more stringent emission norms for close to a decade and is already leading the way in lower carbon solutions for its customers.

How CLdN measures up

To reduce fuel consumption and emissions, for the last decade we have been investing in larger, more fuel-efficient ships. That strategy is already paying off.

A comparison of CO_2 and fuel consumption data of CLdN and its main peers reported under the European Commission's Monitoring, Reporting and Verification (EU-MRV) Regulation for 2022 revealed the following:

- With a weighted average emission for our fleet of 36g CO_2/tonne-km, CLdN emitted 24% less greenhouse gas per tonne of cargo carried than our nearest competitor.

- CLdN operates the youngest fleet with an average vessel age of 11 years compared to the peer group average of 16.5 years.

Driving Operational Efficiency

We take a range of measures to optimise the fuel and emissions performance of our fleet. This includes:

- a systematic programme of propeller and hull inspection and cleaning to reduce drag

- the application of premium hull coatings, also to reduce drag

- the fitting of sensors and utilisation of information systems to continuously monitor the performance of every ship in our fleet

- providing our captains and crews with data to monitor and optimise sailing speeds

> CLdN OPERATES THE YOUNGEST FLEET WITH AN AVERAGE VESSEL AGE OF 11 YEARS COMPARED TO THE PEER GROUP AVERAGE OF 16.5 YEARS.

Cleaner power

Liquified natural gas (LNG) is a clear, colourless and non-toxic liquid formed when natural gas is cooled to -162°C. Ships powered by LNG can reduce their Carbon Intensity Indicator significantly.

At CLdN, the latest ships in our fleet can be powered by LNG. Our two newest vessels on order will be LNG-ready. We are currently setting up an LNG supply chain in Rotterdam and Zeebrugge.

CLdN's newbuild vessels that will be commissioned in 2025 will be equipped with two conventional main engines as well as two electric propulsion motors of 6MW each.

If converted into full electric mode, the ship would have the potential to achieve a cruising speed of 16–17 kn. Both vessels will also allow the integration of new fuel and/or battery technology.

CLdN will continue to investigate and pilot alternative fuels and propulsion systems, including wind power (see opposite).

Piloting rotor sail wind propulsion

To explore the potential of wind power for our fleet, CLdN's MV Delphine was recently fitted with a rotor sail wind propulsion system comprising two 35m x 5m sails.

The ship, which has a cargo capacity of over 8,000 lane metres and operates between the UK, Ireland and Europe, is already one of the most fuel-efficient short sea roll-on/roll-off vessels in the world, emitting just 21g of CO_2 per ton of cargo shipped per km travelled. When activated, the rotor sails will help MV Delphine to reduce emissions by up to 10%.

We are working with the Maritime Technology Division at Ghent University in Belgium to study the performance of the newly installed rotor sails. MV Delphine is our first vessel to be fitted with the system. If successful, rotor sails will be installed on other ships in our fleet.

> MV DELPHINE IS OUR FIRST VESSEL TO BE FITTED WITH THE SYSTEM.
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Intermodal Transport

To reduce the environmental impact of our logistics solutions, we have always focussed on a workable balance between ferry, rail, barge and truck.

By limiting truck transport to the first and last mile of a journey, we help relieve highly congested roads and decrease CO_2 emissions.

By using a combination of road and rail transport, instead of road-only, significant CO_2 savings can be achieved:

Route	CO_2 Saving
Lisbon - Poznan	66% (3.9 tonnes)
Verona – Northampton	73% (2.1 tonnes)
Kolding - Salamanca	52% (2.4 tonnes)

Calculations based on a container / trailer of approx. 20 tonnes, and a rail ratio of approx. 75% electric and 25% diesel.

We have developed a calculation tool that enables us to accurately estimate GHG emissions for all routes, and to continuously map and minimise the number of empty kilometres travelled.

To cut emissions in our supply chain, we actively engage with our hauliers with regard to vehicle efficiency and driver training.

Renewable Energy

In 2021, five new wind turbines were installed at CLdN's facilities in Zeebrugge as part of Port of Antwerp-Bruges' goal to become the 'green energy gateway of Europe'.

Standing 150 metres high, the turbines have a combined capacity of 18MW, producing up to 50 GWh of green electricity per year. Some of the energy is used locally to charge CLdN electric terminal vehicles and cars. We are also exploring the potential to use electricity from the turbines to charge batteries installed on our ships when docked.

In 2022-23 a similar wind farm was installed at CLdN's port terminal in Vlissingen.

Our CO₂ Ambition

CLdN's ambition is to ensure that our fleet retains its leadership position in terms of CO_2 emissions per tonne-km of cargo carried (as defined by the annual EU-MRV rankings).

We will also consolidate our fleet emissions with emissions from our ports and cargo activities, and will report a baseline for Scope 1 and Scope 2 emissions.

Based on this baseline CLdN will determine further ways to support the EU goal of reducing CO_2 emissions by 55% by 2030.

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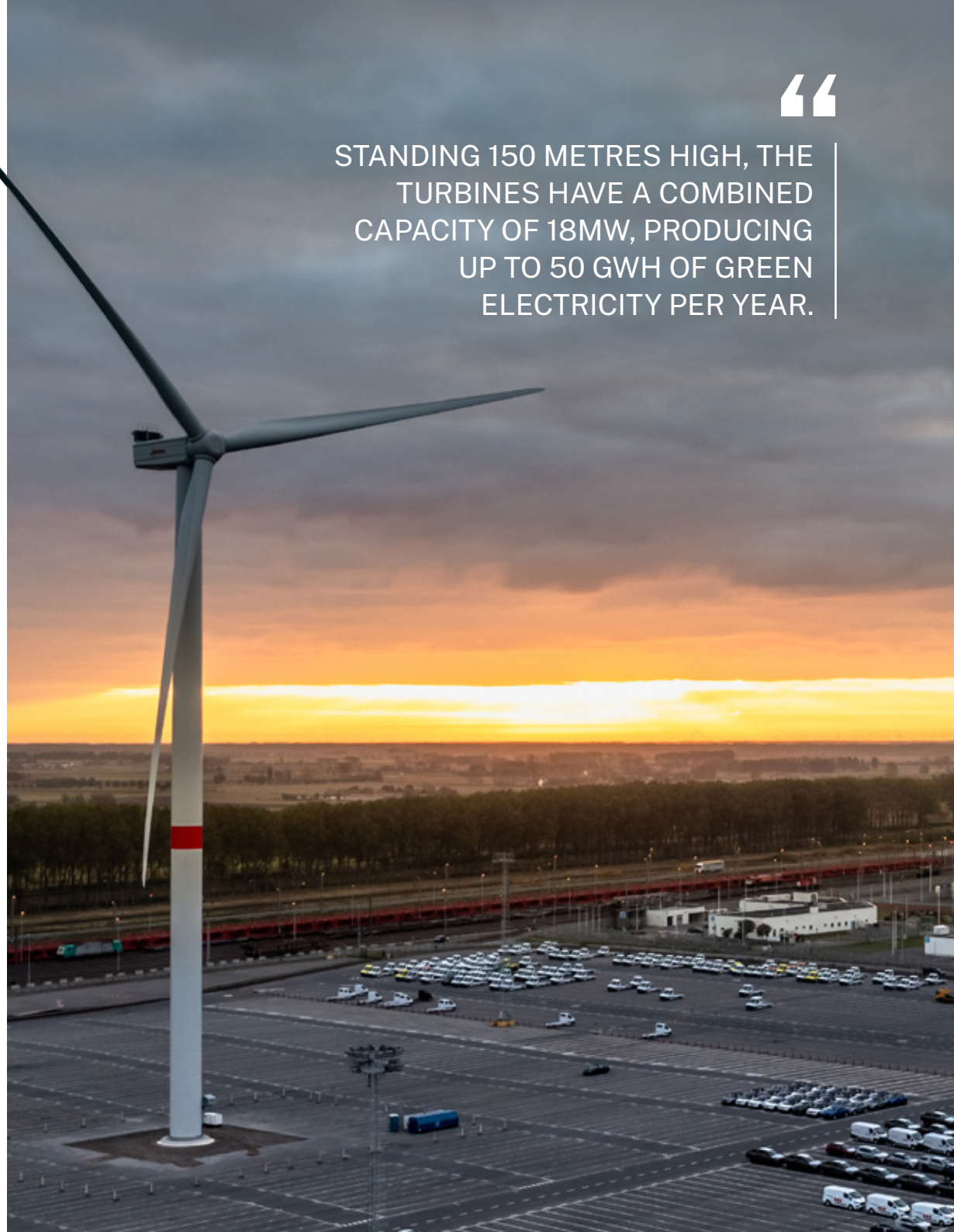
CLdN

Founded in 1929, CLdN is a leading provider of integrated quay-to-quay and door-to-door logistics solutions.

We provide reliable, cost-effective transport that links the major economic areas of Europe. With 30 ships and more than 200 sailings per week, we operate shortsea RoRo connections between the European continent, the United Kingdom, Ireland, Iberia and Scandinavia. A sharp focus on environmental performance means that CLdN offers the lowest CO_2 footprint of all Western European RoRo operators.

Our cargo and multimodal services have a Europe-wide reach, using CLdN's extensive network of ships, terminals and equipment, whilst our 3,000 employees ensure that we always deliver on our mission: to excel as an integrated provider of maritime links.