

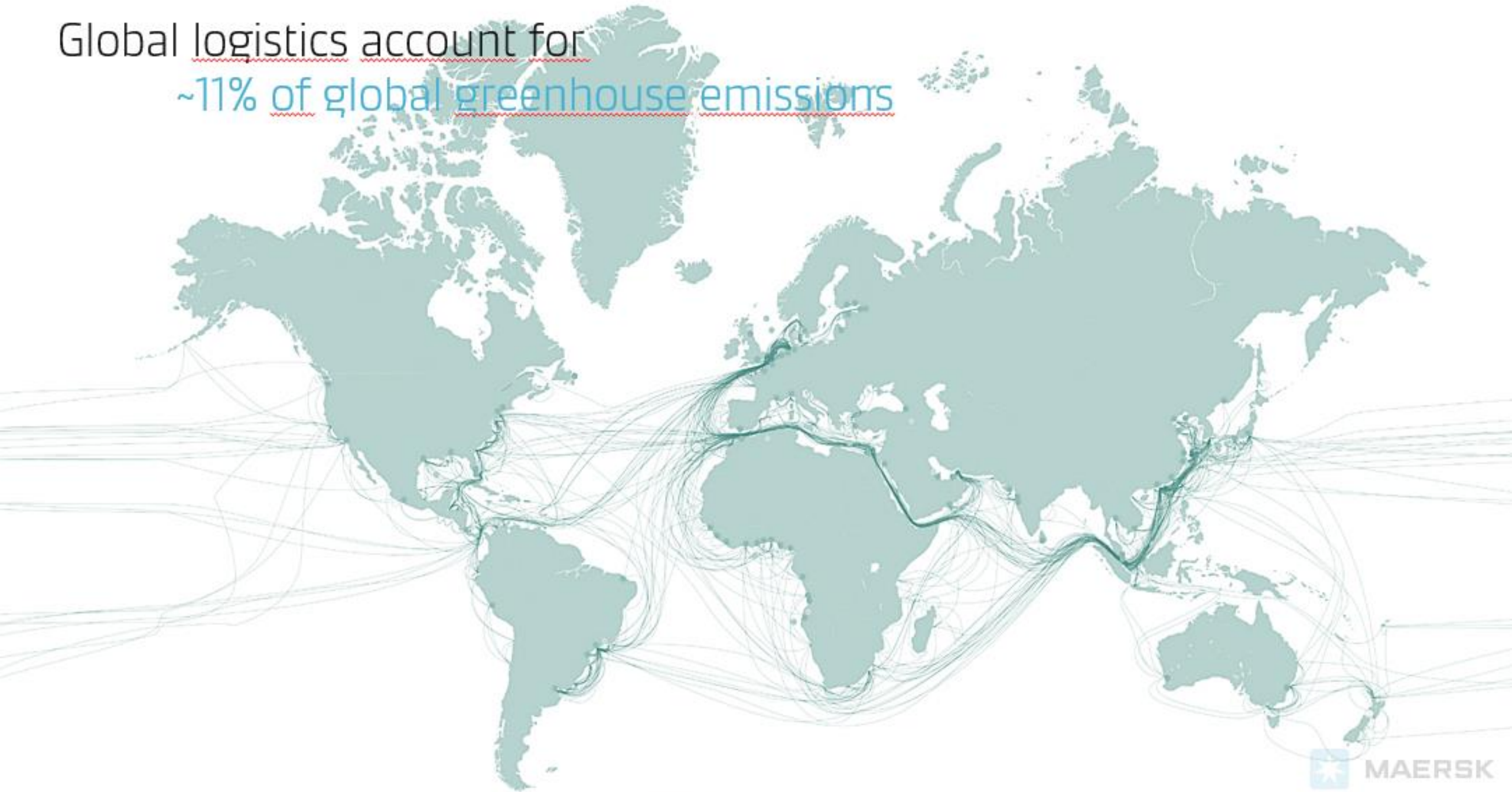


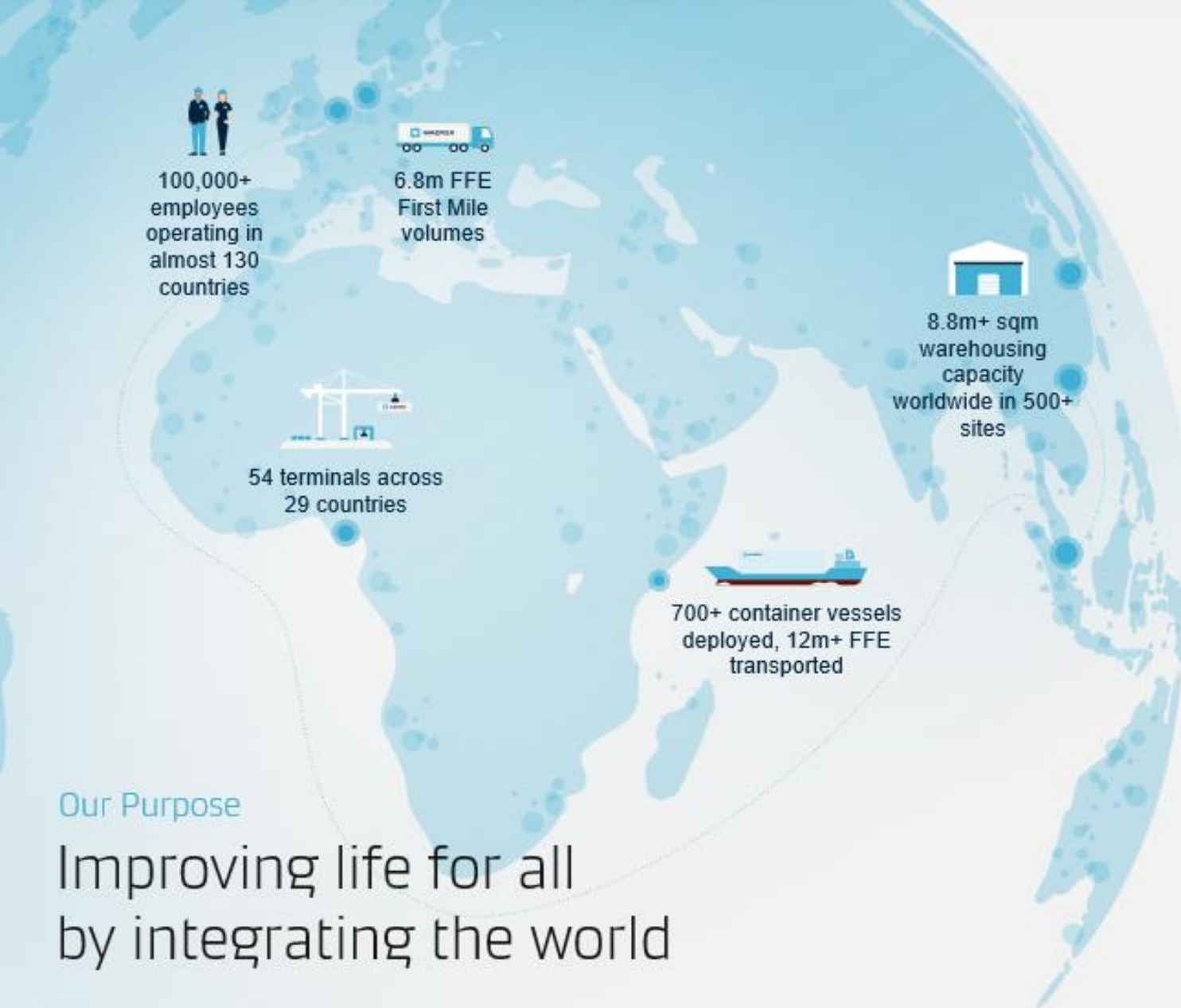
Transformación energética: Construyendo liderazgo para una transición energética efectiva

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Maersk Decarbonisation Journey



Global logistics account for
~11% of global greenhouse emissions





Our Purpose

Improving life for all
by integrating the world



Ocean



Large dual-fuel methanol vessels delivered in 2024	7
Containers per annum (m FFE), serving over 500 ports worldwide	12.4
Container vessels deployed	700+

Logistics & Services



8,800k+ sqm warehousing capacity worldwide across Countries with EV truck solutions in operation or under trial	500+ sites
First Mile volumes managed (m FFE)	14
	6.8

Terminals*

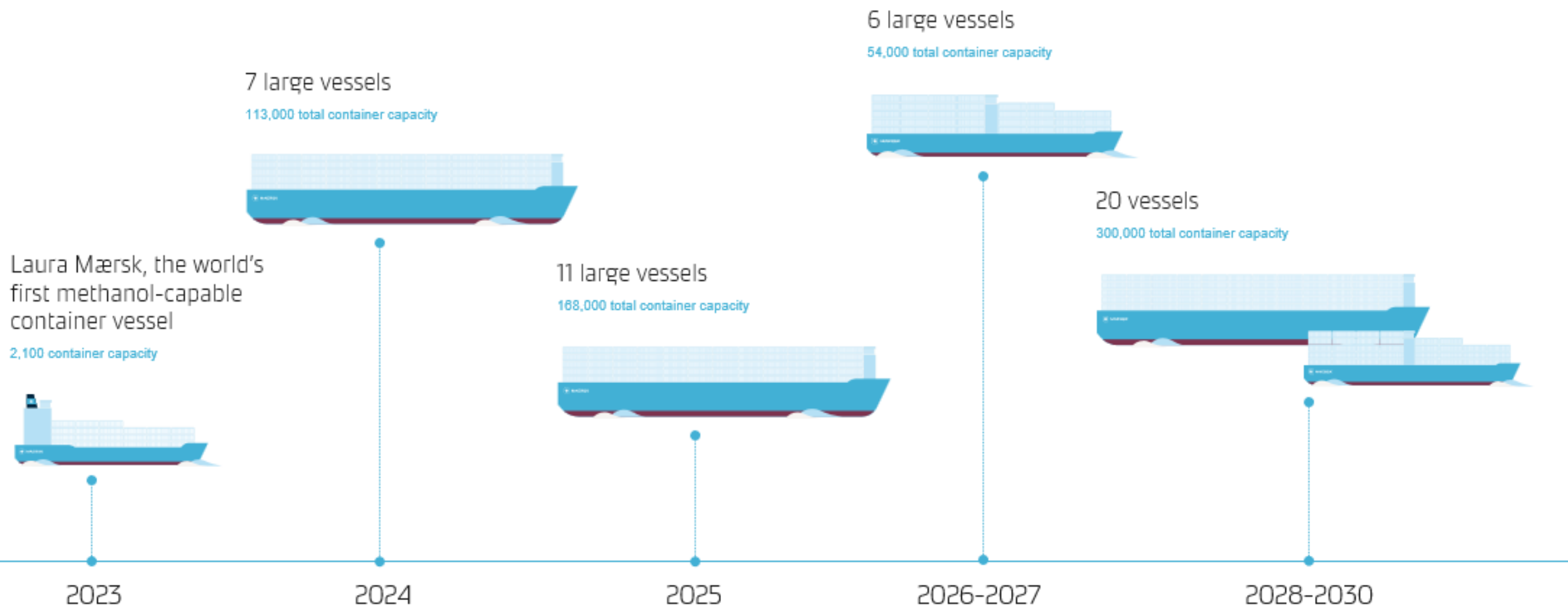


Moves in 2024	13.1m
Vessel calls	13,980+
Operating facilities across 29 countries; 3 new port projects	54

* Gateway terminals and hubs

Decarbonisation through efficiency

Maersk's own **dual-fuel** vessel investments



MAERSK





Sustainability at A.P. Møller - Maersk

The transition to renewable energy sources for Landside Transportation will in most cases require a technology innovation

Time horizon (est.)		Heavy-duty trucking				Rail				Barge			
<div>● 1 - 3 years</div> <div>● 5-10 years</div>		Diesel ¹	Battery electric	Fuel cell electric	Biofuels	Diesel ³	Electric	Fuel cell electric	Biofuels	Diesel	Battery Electric	Fuel cell electric	Biofuels
	Emission factors estimations (gCO ₂ e/tn-km) ²	~60-150	<2	<2	~10-30	~21-55	<2	<2	~5-10	~15-30	<2	<2	~2-5
	Feedstock/ Energy source	Diesel / crude oil	Renewable electricity	Hydrogen / renewable electricity	Approved feedstock / biofuels	Diesel	Renewable electricity	Hydrogen / renewable electricity	Approved feedstock / biofuels	Diesel	Renewable electricity	Hydrogen / renewable electricity	Approved feedstock / biofuels
	Tech maturity		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>
	Applicability		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>
	Scalability		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>		<div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div></div>
	Examples												
Tech maturity		● Mature technology		● Commercial solutions recently introduced		○ Limited or no commercial solutions available							
Applicability		● Covers all distances		● Short and medium distance (<500km)		○ Only short distance (<100km)							
Scalability		● Fully scalable		● Limits to scalability		○ Low scalability							

1. 60gCO₂e/tn-km: 40-44 ton truck, load factor of 80% and 25% of empty running 2. For biofuels, FCEV and BEV trucks, a relative emission reduction of ~80-90%, 95% and 95% from diesel is applied, respectively. 3. Range based on the carbon intensity of electrical source, efficiency of locomotive and train load factors.; 4) Applicability will be useful once technology is available, e.g. for FCEV it is expected to be by 2030, Sources: Bioenergy international; Statistical pocketbook 2018; Intergovernmental Panel on Climate Change; EIA; Alternative Fuel Data Center; Shell report

Exploring **fuel pathways** for decarbonising shipping

Fuel	Key advantages	Key limitations/risks
 Biodiesel (from waste feedstocks)	<ul style="list-style-type: none">• Biodiesel market already exists• Can be used as drop-in fuel in existing vessels and engines	<ul style="list-style-type: none">• Limited availability of suitable biomass feedstock• Price pressure due to competing demand from road transport and aviation
 Bio- and e-methanol (from waste feedstocks)	<ul style="list-style-type: none">• Can be produced from a wide range of waste biomass and renewable electricity• Vessels running on methanol are already in operation today• Well-known handling	<ul style="list-style-type: none">• Bio-methanol: availability of suitable biomass feedstock (mostly dry biomass like agricultural and forestry waste)• E-methanol: availability of biogenic CO₂ source and renewable electricity
 Bio-methane ("bio-LNG") (from waste feedstocks)	<ul style="list-style-type: none">• Can offer significant GHG emission reduction savings, depending on the production pathway	<ul style="list-style-type: none">• Availability of suitable biomass feedstock (mostly wet biomass like manure, dairy waste and wastewater)• Controlling the methane slip into the atmosphere during the fuel life cycle
 Green ammonia (e-ammonia)	<ul style="list-style-type: none">• Can be produced at scale from renewable electricity• Contains no carbon and does not emit CO₂ in combustion	<ul style="list-style-type: none">• Safety and toxicity challenges as well as lifecycle climate and environmental impacts• Infrastructure challenges at ports• Future costs depend on cost of renewable electricity and availability of engine (evaluation is still ongoing)

Decarbonisation through energy shifts

Safeguarding the environmental sustainability of green fuels

Maersk's approach to green fuels is guided by requirements across three pillars:

- 1) All green fuels must be certified by a third party
- 2) Lifecycle GHG savings; all fuels must meet the minimum reductions of 65% for biofuels and 70% for e-fuels compared to referenced fossil fuel.
- 3) Maersk only accepts second-generation feedstocks such as wastes and residues

We consider a broad range of environmental indicators such as biodiversity, ecosystems, resources and materials depletion, human health and ecotoxicity, air and water quality.



Please access the policies on [Maersk.com/sustainability](https://www.maersk.com/sustainability)



A.P. Moller - Maersk: Safeguarding green fuel environmental sustainability



Maersk has requirements for biomass feedstocks and green fuels covering all uses across SPMM and is governed by three pillars:

1. Certification: All biofuels must be certified by a 3rd party to ensure credibility. All fuels must have a proof of sustainability (PoS) or equivalent under a mass balance scheme to support any emission saving claims made against a fuel. Maersk accepts RSB and ISCC certified fuels and is an active member of both certification schemes and engages in the development of certification standards for new fuels and production methods.
2. Lifecycle GHG savings: Fuels must meet the minimum reductions in Article 29(3) of the EU Renewable Energy Directive (2018/2001) which is 65% for biofuels and 70% for e-fuels compared to fossil reference fuel.
3. Feedstocks: Maersk only accepts wastes and residues as feedstocks. Forestry waste and residues must originate from FSC certified forest or equivalent. Maersk does not accept any first generation crops (e.g., corn, soy, rapeseed, palm, sugar cane, sugar beet, sunflower, energy crop) or feedstock commonly used for food purposes. Maersk does not accept any feedstock related to palm oil including waste and residue feedstocks derived from palm oil production (e.g., palm oil mill effluent (POME), empty fruit bunches, palm fatty acid distillate (PFAD), spent bleach earth oil).

New green fuels like methanol are assessed based on lifecycle analysis (LCA). In addition to climate change, we consider a broad range of environmental indicators, such as biodiversity, ecosystems, resources and materials depletion, human health and ecotoxicity, air and water quality. We use consequential LCA in our decision support, which means that we also consider indirect effects of fuel use such as indirect land use and other marginal effects. This is important to avoid shifting the burden of GHG emissions and impacts from one stakeholder to another.

For e-methanol, we will only be using biogenic CO₂ as feedstock and combine it with green hydrogen to produce the methanol. Biogenic CO₂ is a waste product from, e.g., upgrade of biogas to biomethane, biomass-fired power plants, pulp and paper mills and ethanol plants and is today otherwise emitted to the atmosphere. The hydrogen must be "green", i.e. produced from electrolysis of water using renewable electricity. The electricity demand for industrial-scale production of e-fuels is massive. Hence, in line with the EU Renewable Energy Directive and its delegated acts, Maersk requires that the renewable electricity used for production of e-fuels fuels is additional, meaning that new renewable electricity capacity is added. Visit <https://www.maersk.com/sustainability> for greater details.

Classification: Public

A level regulatory playing field is key to achieving full decarbonisation

Five critical policy levers for a level regulatory playing field



A market-based mechanism levelling the playing field between black and green fuels



A well-to-wake approach is required (lifecycle perspective to decarbonisation)



Must look beyond CO₂ and include all GHG, notably methane and nitrous oxide



Continued high IMO ambitions for 2030 and 2050, backed by rigorous implementation



Global regulation is needed. US and EU measures only address part of the problem