A GREEN FUTURE FOR FREIGHT

Presentation of Eric Beckwitt, CEO, Freightera, at the Clean Tech Alliance, Seattle, WA, February 13, 2019

Photos courtesy Getty Images, Vindskip and Daimler- AG
“Business as Usual” = Sea Levels up 60-120 feet?

Transport: 19% of GHG Emissions

Source: Sankey Diagrams
Air and marine transport could be 20-50% of global GHG emissions by 2050

Figure 7: International aviation and maritime transport’s share of global GHG emissions under the RCP 2.6 pathway

Source: ICAO 2013b, IMO 2014, van Vuuren, D. P. et al. 2011

Freight CO2 emissions to grow 332% in Asia, 315% in Indian Ocean, and 273% in N. Pacific by 2050

Source: The Carbon Footprint of Global Trade, OECD/ITF 2015
Concentrating strategically on the largest GHG freight emission sources first

Source: World Resources Institute 2016
Transitioning to green freight: avoid – shift – improve

Grams of CO₂ emitted by transporting 1 tonne of goods 1km

- Triple-E: 3g
- Train: 18g
- Truck: 45g
- Plane: 560g

Sources: Maersk, 2016
Use speed reduction/other operational measures to permanently reduce marine transport CO2 emissions 30%+ immediately

Figure 5: Potential fuel use and CO2 reductions from various efficiency approaches for shipping vessels

Operational
Weather routing 1-4%
Autopilot upgrade 1-3%
Speed reduction 10-30%

Auxiliary power
Efficient pumps, fans 0-1%
High efficiency lighting 0-1%
Solar panel 0-3%

Aerodynamics
Air lubrication 5-15%
Wind engine 3-12%
Kite 2-10%

Thrust efficiency
Propeller polishing 3-8%
Propeller upgrade 1-3%
Prop/rudder retrofit 2-6%

Engine efficiency
Waste heat recovery 6-8%
Engine controls 0-1%
Engine common rail 0-1%
Engine speed de-rating 10-30%

Hydrodynamics
Hull cleaning 1-10%
Hull coating 1-5%
Water flow optimization 1-4%

Source: Wang & Lutsey 2013

Sources: Emission Reduction Targets for International Aviation and Shipping, European Parliament, 2015; Options for Reducing Logistics-related Emissions from Global Value Chains, Alan C. McKinnon, European University Institute 2014
Shift all possible long haul (>300km) freight from road to rail or inland waterways for emission reductions of 60%+

Figure 8.8 | Projected freight modal split in the EU-25 in 2030 comparing 2011 shares with future business-as-usual shares without target and with EU White Paper modal split target. Source: Based on Tavasszy and Meijeren, 2011.

Source: Intergovernmental Panel on Climate Change (IPCC) 2016: Chapter 8: Transport
Introducing Freightera’s Low Emission Freight Marketplace

Redefining Freight
Ship More • Stress Less

Best freight quotes from 100s of carriers. 16BN+ rates. Book online 24/7. U.S. and Canada's business freight marketplace.

Customers rate Freightera 4.9 ★★★★★ 92 Google Reviews

13 February 2019
Selecting based on price, shippers are booking the lower emission option 86% of the time.
Freightera’s Low Emission Freight Marketplace: 60% less CO2 emissions shipping by rail

Long Beach CA, to Dunwoody, GA: Rail emits 60% less CO2 (Grams CO\textsuperscript{2} / tonne / km)

Long Beach, CA to Dunwoody, GA: Rail costs 44% less
Expanding rail service with Freightera’s Link2Rail

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Green Future of Long Haul Freight: Sustainable Electric Rail

Source: Getty Images
Connecting the continents with sustainable electric rail

Sources: Washington Post, 2015; Shiller Institute; InterBering 2016
Green Future of Marine Transport: Wind, Solar and Hybrid Electric Cargo Ships

The cargo vessel with a hull so huge it acts as a SAIL. Innovative design harnesses wind power to reduce fuel consumption by half | Daily Mail Online

Sources: Vindskip™ by company Lade AS, Aquarius EcoShip by Eco Marine Power, Tûranor PlanetSolar by LOMOcean Design, and Black Magic by Sauter Carbon Offset Design
Green Future of Road Freight: Zero Emission Trucking

Sources: California Cleaner Freight Coalition, Smith Electric Vehicles, Nikola One by Nikola Motors, and Fuso by Daimler AG
Green Future of Air Freight: Solar and Low-E Airships

Sources: Aeros, Yuanmeng and Lockheed Martin
For more information and collaboration, please contact:

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Zero Emission E/S Orcelle, Image courtesy: Wallenius Wilhelmsen