

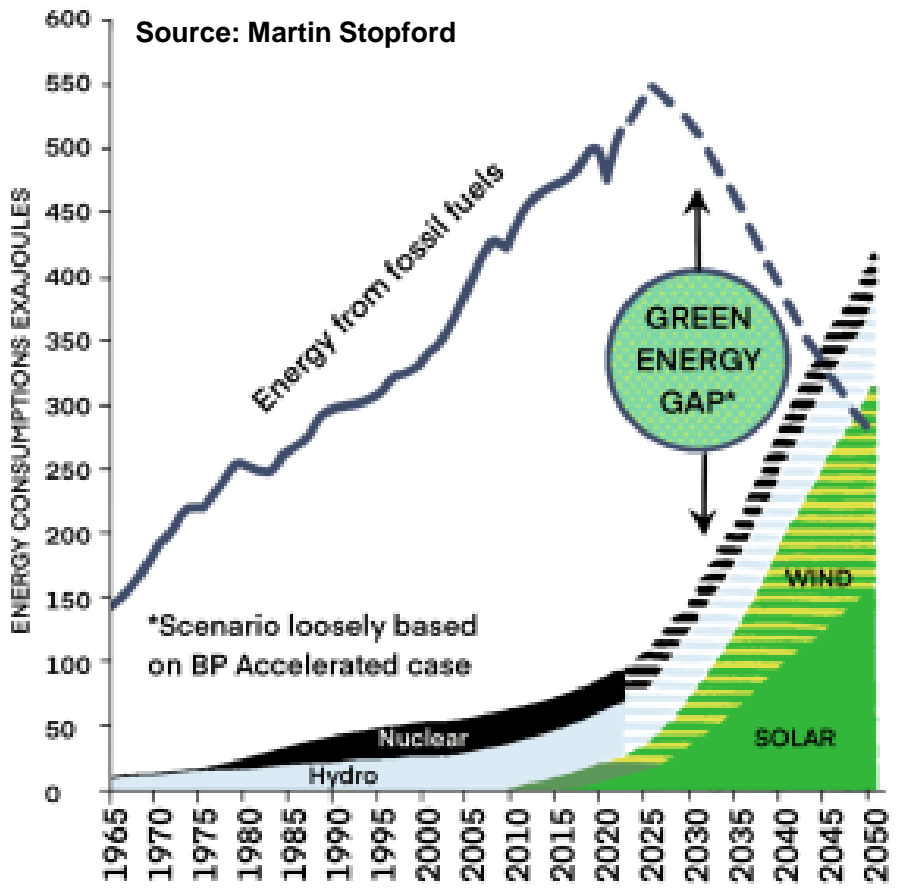
Bringing Global CO₂ Emissions to the Forefront

CSN Cyprus Maritime Supply Chain and Vessels Performance Forum

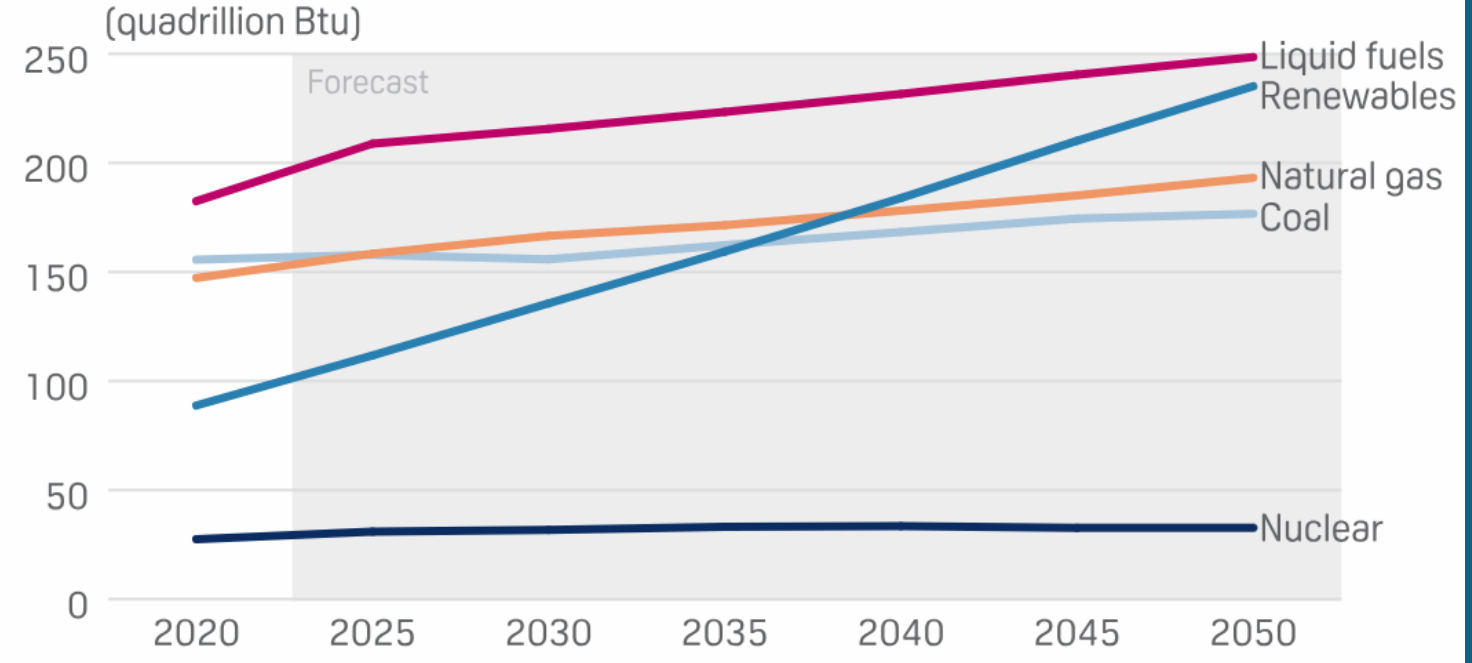
20 March 2024

Limassol

FOSSIL FUELS HAVE CONSTANTLY MET GLOBAL ENERGY DEMAND

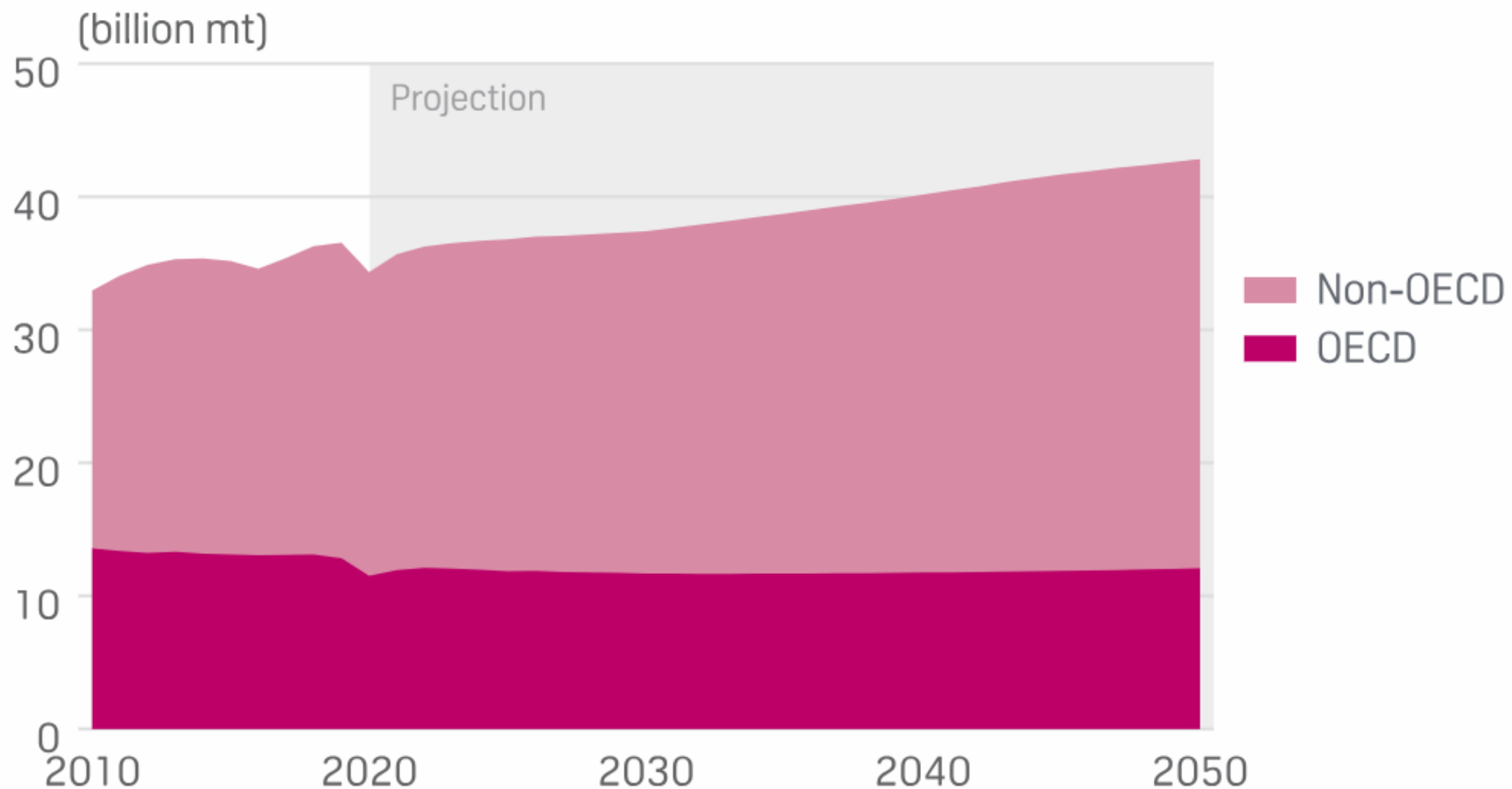


GLOBAL OIL DEMAND TO GROW THROUGH 2050 DESPITE SURGING RENEWABLES



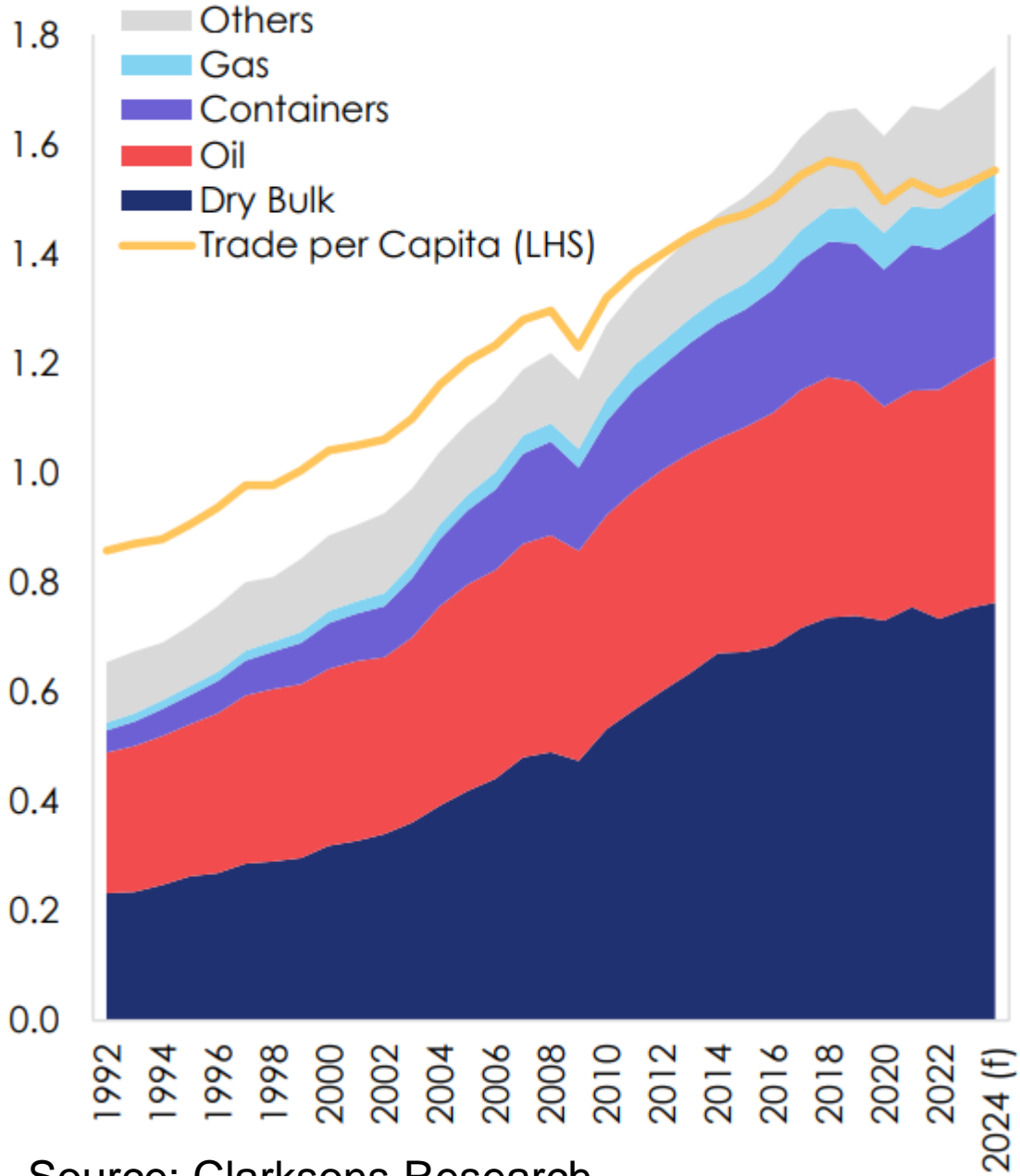
Source: US Energy Information Administration

ENERGY-RELATED CO2 EMISSIONS



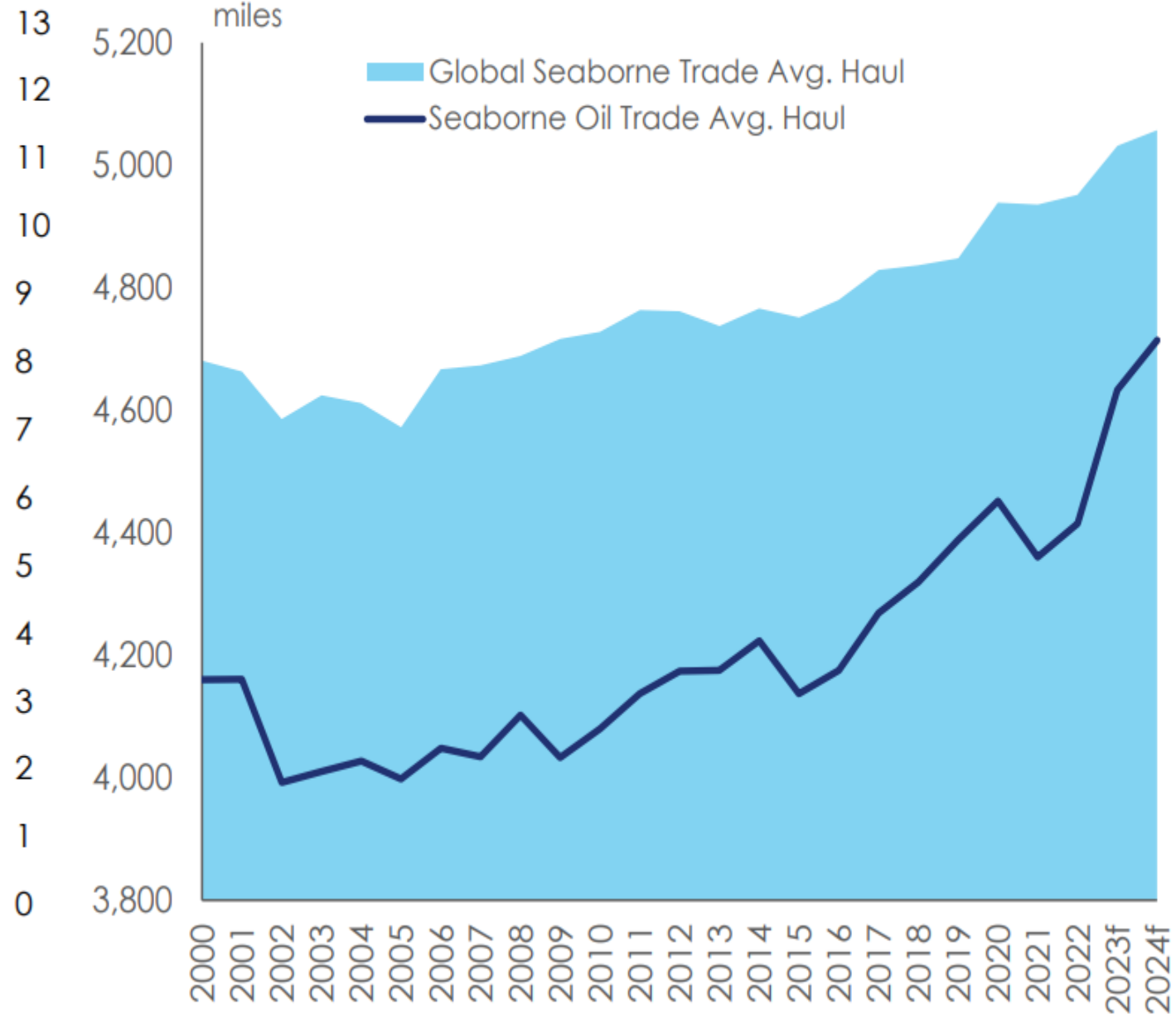
Source: EIA's International Energy Outlook 2021

Global Seaborne Trade, bn tonnes

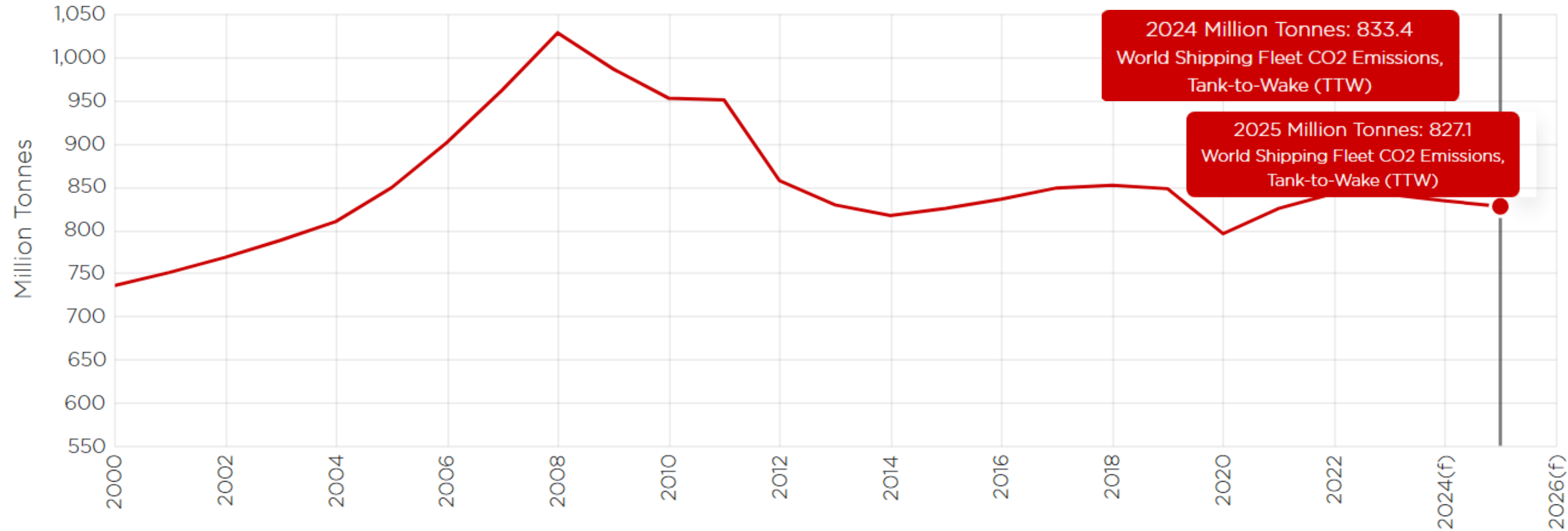


Source: Clarksons Research

Average Haul Trending Up



World Shipping Fleet CO2 Emissions, Tank-to-Wake (TTW)
Million Tonnes



Tank-to-wake (TTW):

This approach takes into account the emissions that result from burning or using a fuel once it is already in the tank. How a fuel is produced and transported to get to a vessel's tank is not included in this analysis.

Importance of Holistic Scientific Research

- Amidst discussions on MRV/ETS, Performance Optimization Products and ESG & Sustainability, the focus on holistic scientific research is essential for addressing global CO2 emissions effectively.
 - Challenges of Forced Emission Reduction:
 - Forced emission reduction measures like EU and IMO regulations may not effectively reduce global emissions without joint efforts.
 - Increased demand for vessels due to slow steaming, leading to higher global emissions.
 - Future of Green Fuels for Ships:
 - The availability and timeline of green fuels like methanol, hydrogen, and ammonia for ships.
 - The emissions associated with setting up factories for these fuels and transitioning from traditional fuels.
 - Transition to Circular Economy:
 - Smarter and longer use of existing machinery: condition-based maintenance (CBM) plays a pivotal role in facilitating the transition to a circular economy within the

Key Takeaways:

- Holistic scientific research is crucial for effective emission reduction.
- Forced emission reduction measures may not yield desired results without joint efforts.
- CO2 offset programs and green fuel adoption require careful evaluation.
- Transitioning to a circular economy is essential for long-term sustainability.



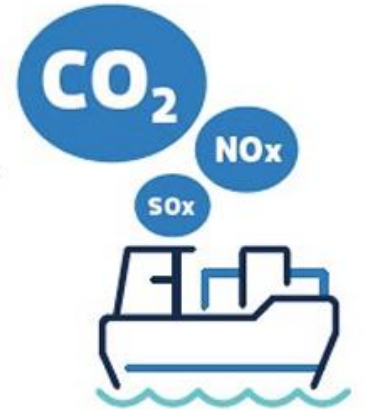
80%

of the **volume** of international trade in goods **carried by sea**

Shipping accounts for roughly

3%

of global **GHG emissions**



We estimate capex of **\$400bn** could be required for **fleet renewal** and more than **\$1.4-\$1.8 trillion** in **upstream investment** in green alternative fuel capacity to support shipping decarbonisation.

\$400bn



Source: Morgan Stanley Report , October 9th , 2023

Conclusion:

- Emphasizing the necessity for harmonized rules and regulations to facilitate the industry's transition, taking into account the overall emissions.
- Advocating for a gradual shift towards sustainable practices, emphasizing collaboration among stakeholders.