DBS

Live more, Bank less

OUR PATH TO

NET ZERO

SUPPORTING ASIA'S TRANSITION TO A LOW-CARBON ECONOMY

SHIPPING

Disclaimer

List of abbreviations

Abbreviations (alphabetical order)	
AER	Annual efficiency ratio
AR6	IPCC's Sixth Assessment Report
BF-BOF	Blast furnaces-basic oxygen furnace(s)
CCUS	Carbon capture, utilisation and storage
CIX	Climate Impact X
CO_2	Carbon dioxide
CRREM	Carbon Risk Real Estate Monitor
DCM	Debt capital markets
DRI-EAF	Direct reduced iron-electric arc furnace(s)
EAF	Electric arc furnaces
EAF-Scrap	Scrap-based electric arc furnace(s)
ECM	Equity capital markets
EU	European Union
EV	Electric vehicle(s)
GDP	Gross domestic product
GHG	Greenhouse gas(es)
IATA	International Air Transport Association
IBG	Institutional Banking Group
ICE	Internal combustion engine
IEA	International Energy Agency
IEA NZE	International Energy Agency's Net Zero Emissions by 2050 Scenario
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
$kgCO_2/MWh$	Kilograms of CO_2 emissions per megawatt hour of power produced
$kgCO_2/p\text{-}km$	Kilograms of CO_2 emissions per passenger kilometre travelled
$kgCO_2/vehicle\text{-}km$	Kilograms of CO_2 from tailpipe emissions per vehicle kilometre travelled
$kgCO_2e/kg$	Kilogram of CO_2 equivalent per kilogram of crude steel produced
LLE	Loans and loan equivalent(s)
MPP	Mission Possible Partnership
$MtCO_2e$	Million tons of CO_2 equivalent
N/A	Not applicable
NGFS	Network for Greening the Financial System
NZBA	Net-Zero Banking Alliance
O&G	Oil & Gas
OEM	Original equipment manufacturer(s)

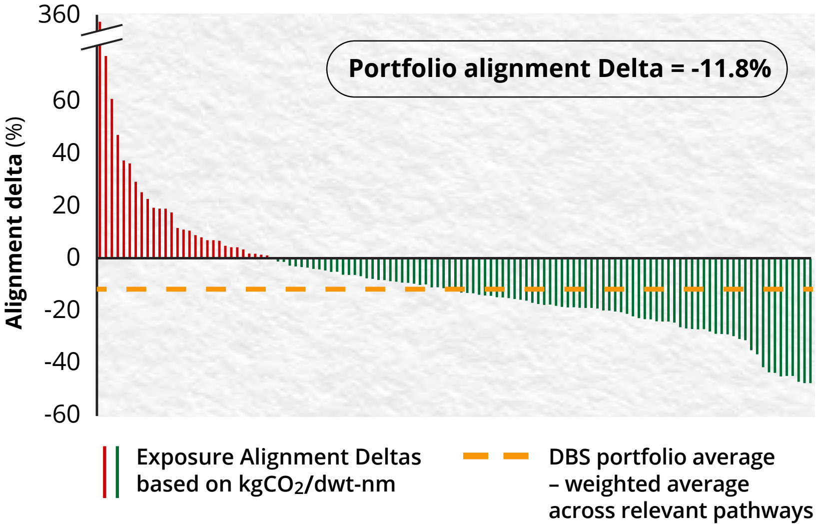
PCAF	Partnership for Carbon Accounting Financials
REIT	Real estate investment trust(s)
SAF	Sustainable aviation fuel
SGX	Singapore Exchange
SPV	Special purpose vehicle(s)
TCFD	Task Force on Climate-Related Financial Disclosures

2.6. Shipping

"Shipping is a critical enabler in our interconnected global economy. Powering the global fleet with zero emissions fuels will take a joint global effort. The technologies to do so are rapidly improving and the will to do so is increasing as companies focus on greening their supply chains. DBS will play its part by working with our shipping clients to promote adoption of technologies and fuels that support green shipping."

Max Lim
Group Head of Shipping, Aviation, Logistics and Transportation

Shipping Portfolio Alignment Delta
2020



Year	Alignment Delta (current 2020, and targets)	Implied % Reduction in emissions intensity vs. 2020
2020	-11.8%	-
2030	≤ 0%	23%
2050	≤ 0%	71%

What's included?

Approach consistent with Poseidon Principles for financing to the Shipping industry

Scope 1 emissions

Financed vessels

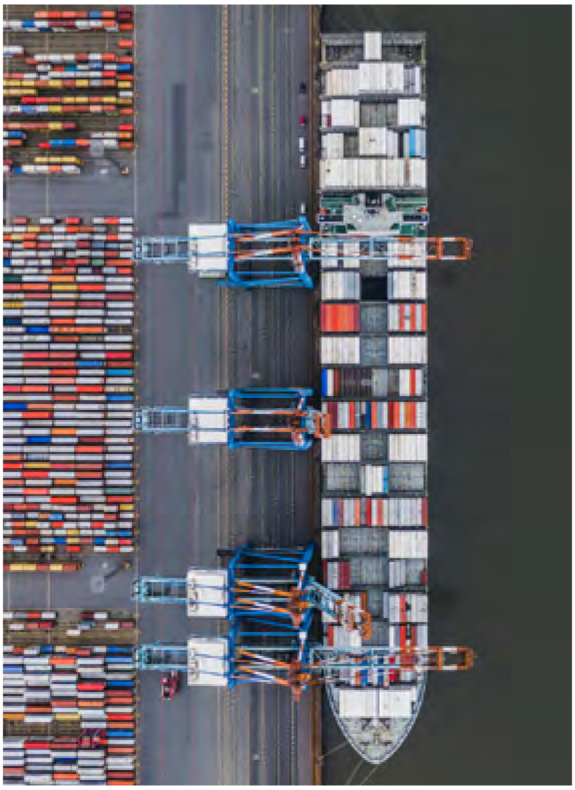
Reference scenario

- IMO – Poseidon Principles

How we will achieve our targets

- Financing more efficient ships
- Supporting the adoption of lower-GHG emitting fuels

2.6.1. Net zero in Shipping



Shipping accounts for nearly 3% of global emissions[53]. As with aviation, the overwhelming source of GHG emissions comes from the combustion of fuel in ships. While localisation of supply chains can reduce demand for shipping, overall economic growth is expected to increase demand for shipping in coming decades. Therefore, the route to net zero relies on reducing the physical emissions intensity of ships, and we have set our targets on this basis.

The industry is made up of a wide variety of ships including bulk carriers, container ships, tankers, and a range of specialised ships that can be further categorised by size. It relies on a range of differently sized vessels for different routes and purposes. These cannot be easily substituted across vessel types and sizes as they have vastly different levels of emissions intensity – creating a problem of comparability. This means it is impractical to simply set a target based on an average emissions intensity level for the industry.

The International Maritime Organization (IMO) has developed an elegant solution to this problem. It has published requirements for different vessel types and sizes' Annual Efficiency Ratio (AER), or Scope 1 emissions intensity measured in gCO_2/deadweight tonnage per nautical mile until 2023. We extrapolated the IMO's climate ambitions to reduce the absolute emissions of the sector by at least 50% by 2050 from 2008 levels onto these starting requirements[54], thereby creating a series of benchmarks for each vessel type and size through to 2050 (see the chart in the next page). Based on our starting portfolio of vessels and estimates for growth in the volume of shipping, this implies an aggregate 23% and 71% reduction in portfolio-level emission intensity by 2030 and 2050, respectively[55]. We note that the IMO's targets are not explicitly calibrated to achieving net zero in 2050. We expect the IMO to revise these targets to align to net zero in future and will review our targets accordingly.

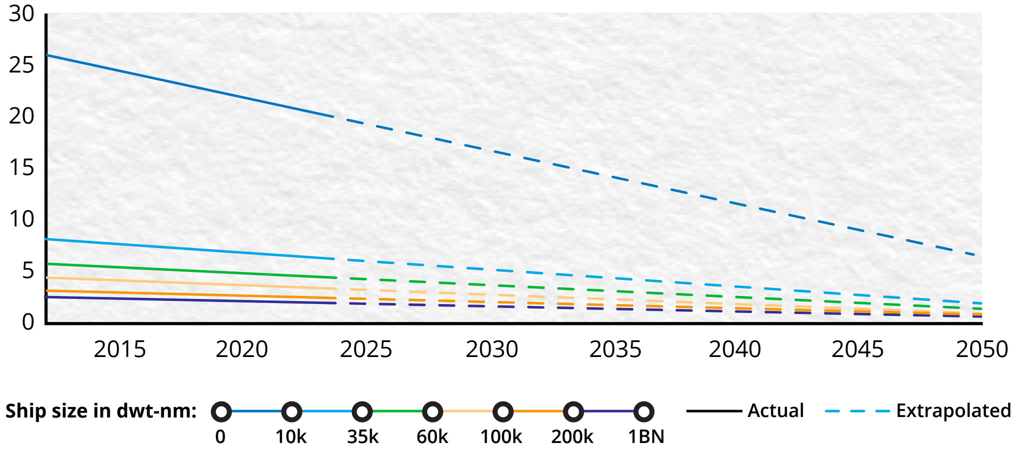
[53] Fourth Greenhouse Gas Study 2020 (imo.org)

[54] This extrapolation is consistent with the methodology adopted under the Poseidon Principles to estimate the carbon intensity improvement required across all ship types through to 2050 based on IMO's ambitions.

[55] As shipping activity is expected to grow rapidly, IMO's absolute emissions commitment translate into a greater decrease in emissions intensity.

Example: Reference Scenario for Dry Bulk, by vessel size

gCO_2/dwt-nm



Shipping is considered a hard-to-abate sector. Two main decarbonisation levers that the sector relies on are (i) increased efficiency of new ships over time, and (ii) development and adoption of vessels that can operate with low-carbon fuel alternatives to traditional bunker fuel, such as biofuels, ammonia or hydrogen. This is not sufficient for the industry to achieve net zero emissions by 2050, but if taken together with other industries and offsetting activities, it can be consistent with a global transition towards net zero carbon emissions.

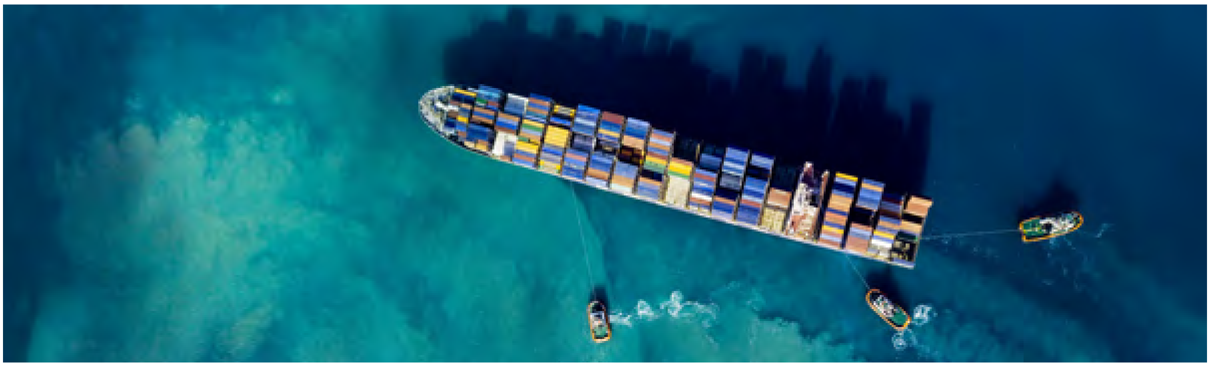
2.6.2. DBS' targets for the Shipping sector

DBS' starting performance and targets are aligned with the methodology for financed vessels as set out by the Poseidon Principles[56]. Based on reference benchmarks for each vessel type and size, we have compared each financed vessel's emission intensity against its corresponding benchmark. This difference constitutes the vessel's "alignment delta". DBS' portfolio alignment delta is then weight-aggregated from its financed vessels' share of the portfolio. In doing so, we included all the ships that we financed with over 5,000 gross tonnage and which were engaged in international waters (per the Poseidon Principles). An alignment delta of zero at the portfolio level means we are in line with our target; a positive alignment delta means our portfolio has an above target emissions intensity; and a negative alignment delta means we are ahead of track.

Our starting alignment delta is -11.8%, indicating an average emissions intensity well below the starting benchmark. This reflects our portfolio being weighted towards more efficient vessels and gives us a head start towards achieving our decarbonisation target of keeping our portfolio alignment delta at or below zero.

[56] https://www.poseidonprinciples.org/finance/ as of June 2022

To maintain our portfolio's alignment delta at or below zero, we will need to direct our financing towards more efficient ships. We will also collaborate with our shipping clients to encourage them to renew their fleet with lower-carbon vessels either currently in the market (e.g. dual fuel liquefied natural gas carriers) or once they become commercially viable (e.g. methanol or ammonia-powered vessels). In addition to financing more efficient vessels, we will also encourage our clients to adopt lower emitting fuels.



2.6.3. Future developments and dependencies

To achieve our targets, we require continued efficiency gains in ships and the gradual development and adoption of vessels capable of running on lower-emission alternatives to traditional bunker fuel. This will be particularly so for the later years of the transition journey, because achieving 71% or more emission intensity reduction by 2050 is largely contingent on technologies that are not currently available or commercially viable. We will work with the shipping industry to promote adoption of lower emissions fuels. This will require financing the retrofitting of ships with upgraded engine technology capable of running on new fuels. In some instances, it will require going further and financing entirely new ships that are built to run on lower-emission fuels. For instance, ammonia fuel has a lower energy density than traditional bunker fuel, which means hulls must be designed to carry larger fuel tanks, or else ship ranges will decrease. Beyond the Shipping sector, our work with the O&G sector to finance the increased production of lower emission fuels will further help to decarbonise shipping by increasing the supply of low-carbon fuels.

As with all our targets, our targets for Shipping are likely to evolve over time. The IMO has so far provided pathways out only to 2023 but has also committed to extending that, and has indicated that it may increase its decarbonisation ambition to better align to net zero. The achievement of these targets are also contingent on the support and contributions of our clients' ecosystem partners as mentioned above (for example, the O&G sector).

> Committing to net zero by 2050 and setting our 2030 interim targets mark an important milestone of DBS. Navigating this transition will be a long-term endeavour. Much needs to be done in order to fulfil our commitments set out in this report. It will entail a fundamental change in how we do business – both internally and externally. We will enhance the monitoring and reporting of our targets, review our targets and methodologies at regular intervals, and most importantly, support our clients on their transition to adapt to a net zero world.

Yulanda Chung
Head of Sustainability,
Institutional Banking Group

> As we continue on our journey to supporting a just transition, we are working hard to integrate sustainability into everything we do. To achieve this, our employees are our greatest asset and we are enabling them to deliver new solutions to our clients. We will be very focussed on creating a robust ESG data architecture, develop new analytics tools, and above all, invest in our people by offering the relevant learning and development tools so that they can effect a fair and just transition with confidence.

Helge Muenkel
Group Chief Sustainability Officer

The way forward

1. **Monitoring and reporting annually our progress against our targets** – As an early adopter of the TCFD, we have been reporting under the recommendations since 2018. Now as a signatory to NZBA, we remain committed to being transparent about our efforts and will report annually our progress against both our 2030 interim targets and 2050 net zero targets within our sustainability reports. For the seven sectors of which we have set emissions reduction targets, this will entail updating the annual financed emissions for the sectors and analysing the progress against previous years and the respective targets.

2. **Reviewing periodically and, if appropriate, updating our targets and methodologies** – We expect the reference scenarios against which we have calibrated our emissions reduction targets to continually evolve. Precedent suggests that organisations that own these reference scenarios typically update them periodically. However, we do not intend to update our interim targets for 2030 each time these reference scenarios are revised or updated. Doing so would potentially create business uncertainty, both internally for our business planning and externally in our client engagements. However, we intend to review and, if necessary, revise our targets at least once every five years hereafter. Building on the foundation of this round of target setting, we look forward to the next round with more confidence of our approach.

3 **Supporting our clients on their transition journey** – Our ability to achieve our net zero ambition relies heavily upon the success of our clients in delivering their own transition plans. Hence, we are committed to engaging with our clients and supporting them to transition their businesses through sustainable and transition finance. In the past few years, we have seen a significant increase in the demand for sustainable finance solutions, such as sustainability-linked and green loans. To accelerate the transition and meet the vast investment needs in the next few decades, we will proactively partner our customers, providing them with financial advisory and transition finance solutions, as we collectively work towards a low-carbon future.

- **To our clients:** we applaud your efforts to transition to net zero, and we stand shoulder-to-shoulder with you in those journeys.
- **To our investors:** we hear your demand for us to support the transition to net zero and we want to lead the way.
- **And to the wider community:** we are ready to support you in your decarbonisation efforts and realise a fair and just transition by 2050 in a world where no one is left behind.