

The Shuttle Tanker Market



6 October 2021

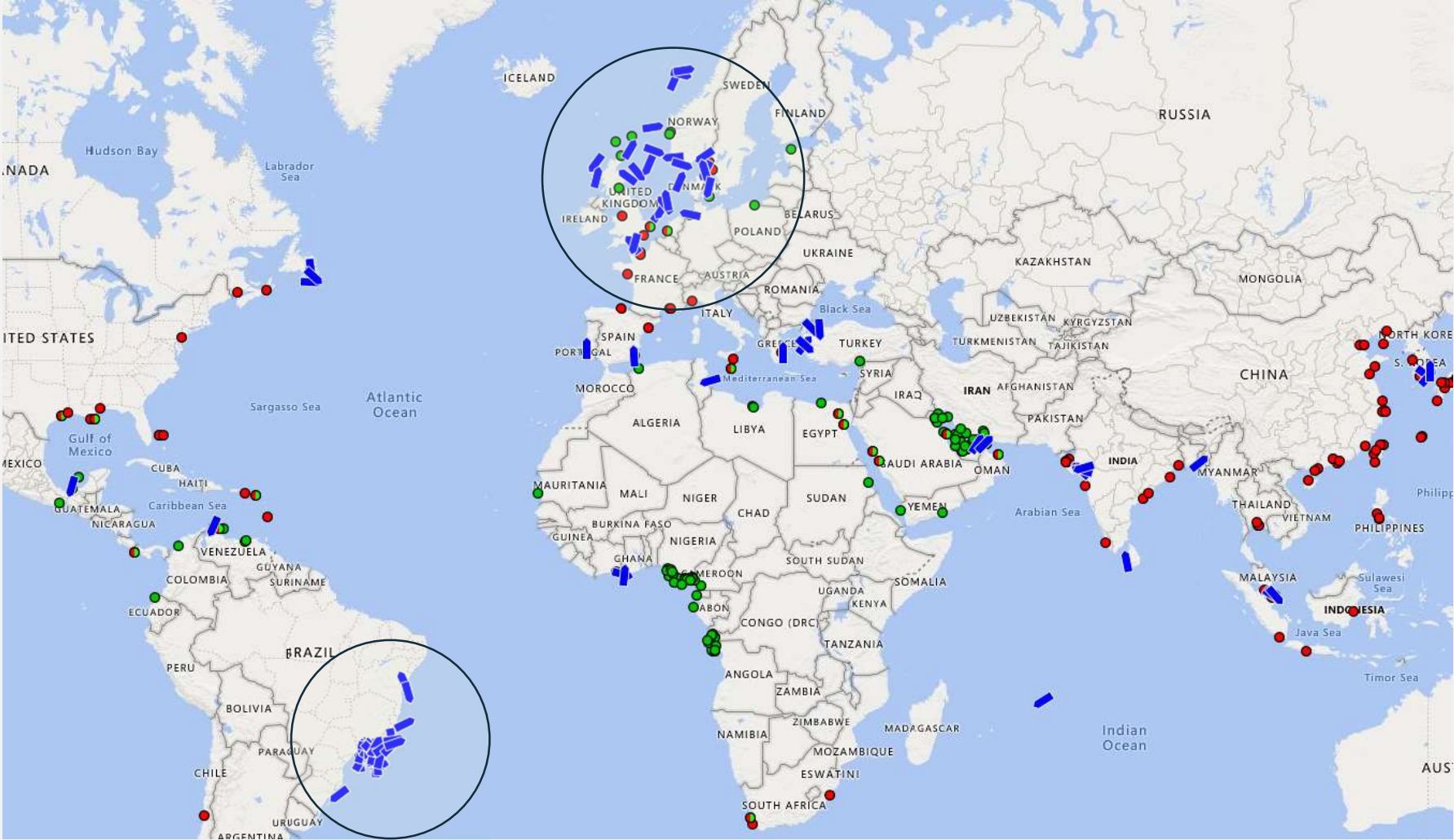
50 years of offshore loading in the North Sea



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Two main deployment areas: The North Sea and Brazil



Shuttle tanker design – Dynamic positioning systems



Controllable pitch propellor, flap rudders

Bow loading

(Retractable azimuth) Thruster

(Retractable azimuth) Thruster

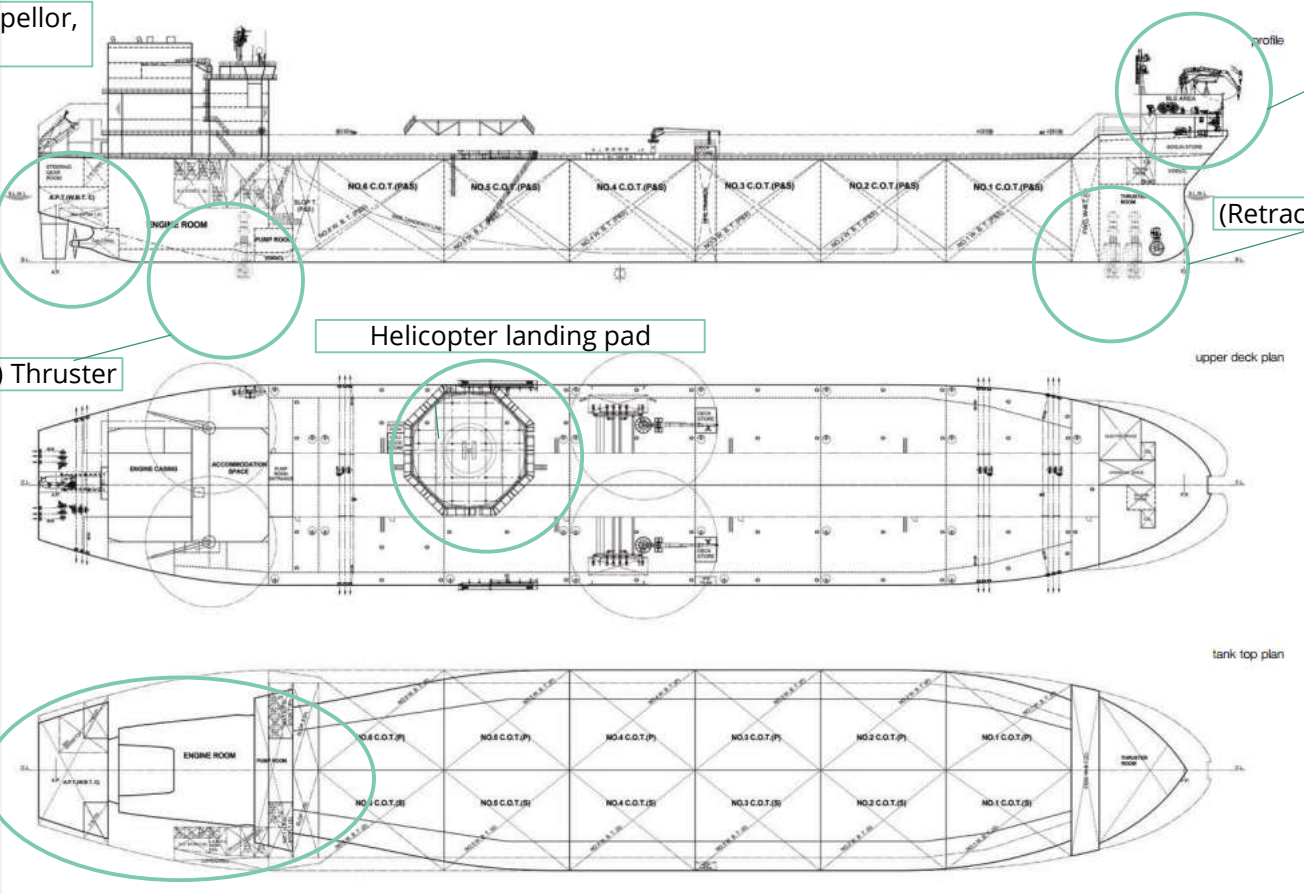
Helicopter landing pad

upper deck plan

tank top plan

Twin propellor or diesel-electric propulsion

It is possible to convert an existing conventional tanker to a DP shuttle tanker, however, the cost is prohibitive and none have been converted in recent years



Dynamic positioning is a key feature for safe and secure loading of oil offshore



Unique asset class



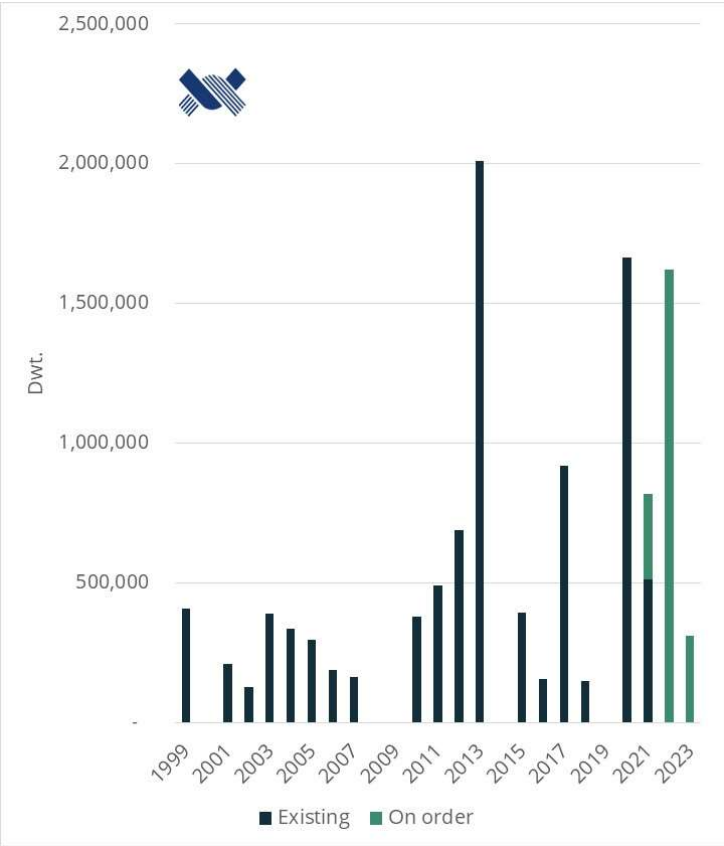
| | Specialised Asset Class | | Standardised Asset Classes | |
|---------------------------------------|--|---------------------------------------|---|-----------------------------------|
| | Shuttle Tankers | LNG carriers | Conventional Tankers | Bulk Carriers |
| Function | Transport of crude oil from FPSO or production unit to terminal / refinery | Transport of LNG to and from terminal | Transport of crude oil or petroleum products between terminals / refineries | Transport of dry bulk commodities |
| Ordering | With contract | With contract or speculatively | Mainly speculatively | Mainly speculatively |
| Typical trading | Long-term contracts (5-15 years) | Long-term contracts (5-25 years) | Mainly spot contracts | Mainly spot contracts |
| Total size / Capacity of global fleet | 77 | 573 | 5035 | 13240 |
| | 9.8 mdwt | 93.6 mcbm | 595 mdwt | 958 mdwt |

Shuttle Tankers are a unique and highly specialized asset class that is integral to the offshore oil infrastructure

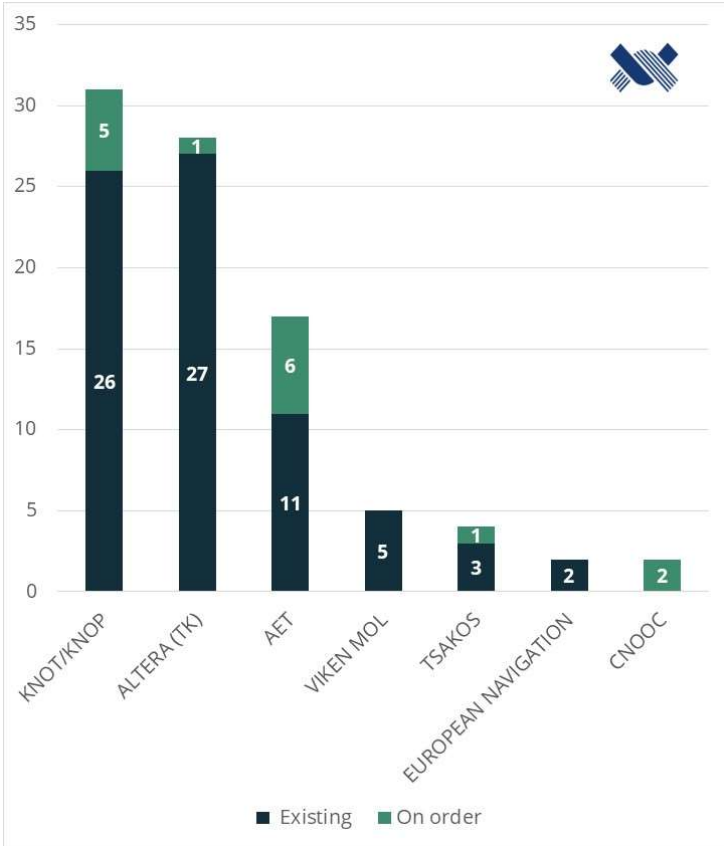
Fleet and ownership



Current shuttle tanker fleet



Shuttle tanker fleet by owner



Rules and regulations



Decarbonisation

- The maritime sector constitutes about 3% of global GHG emissions.
- Decarbonisation of the maritime sector is necessary
- The IMO launched their GHG Strategy in 2018.
- This strategy calls for an 'at least 50% reduction in CO2 emissions in 2050 compared to 2008.
- Several new regulations will enter into force in the coming few years
- The EU has proposed to include shipping into the EU ETS
- The current US Administration backs the IMO endeavours strongly
- China, as a first step, has introduced a national ETS for coal fired power utilities
- Several major economies are introducing unilaterally measures

IMO: EEXI

- Energy Efficiency Index for Existing ships
- Capping the emissions intensity (gram CO2/dwt-nm).
- In principle EEXI is required for all ships built before July 2015
- Effective from 2023

IMO: CII

- Carbon Intensity Index
- Operational index
- Rating system for ships according to their emissions intensity
- Effective from 2023 and first reporting in 2024

EU: ETS

- Effective from 2023 (proposed)
- Covers 100% of emissions from intra-European voyages/port operations
- Covers 50% of emissions from voyages to/from EU/EEA.
- All EU Allowances (EUA) must be purchased
- Currently EUAs cost about 72 \$/mt CO2.
- The *Shipping Company* is the party responsible for surrendering EUAs
- We expect effective cost-pass-through mechanisms.
- If not all, the additional cost will mostly end up with the end-user

A good thing is that the IMO is quite agnostic about measures taken:

Fuel saving devices, reduced speed, hull/propeller maintenance, bio-fuels, etc.

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