

BWET

Crude Tanker Market Primer



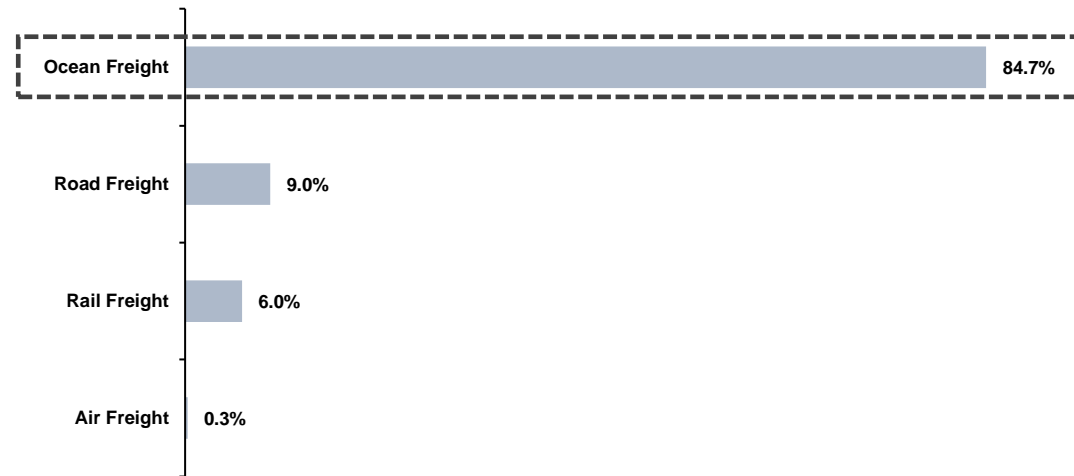
Democratizing Shipping | Decarbonizing Maritime

The Shipping Industry

Shipping is a Global Industry and a Vital Economic Sector

Transport Sectors – Trade Volume

Source: Clarksons Research, 2022



- Shipping is a vital part of the global economy and an integrated part of commodity trading
- Crude oil, iron ore and coal are the three major commodities shipped around the world
- 85% of global trade by volume is carried by ships

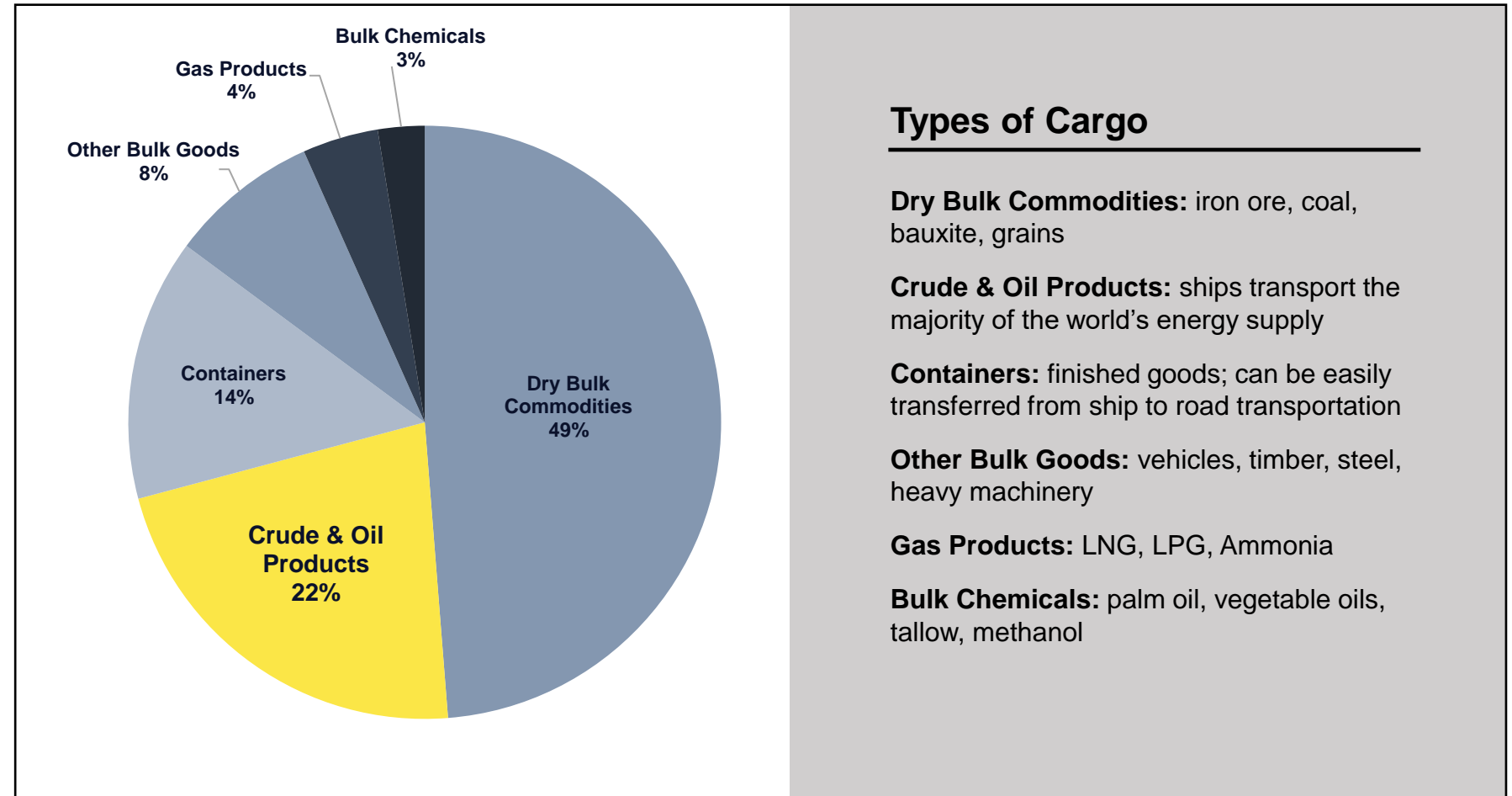
“God must have been a shipowner. He placed the raw materials far from where they were needed and covered two thirds of the earth with water.”

Erling Naess, Shipowner 1901-1993

The Shipping Industry

Seaborne Trade by Cargo Type, by Tonne-miles

Source: Clarksons Research, 2022



Overview: Tankers

Crude Tankers

- Crude tankers transport crude oil from extraction point to refineries around the world
- Crude tankers have the largest carrying capacity, by weight, of any other class of ship. Crude carriers come in a variety of sizes in order to balance economies of scale and accessibility to thousands of different port terminals
- As of 2022 there are ~2,200 active crude tankers in the world, each with the capacity to transport between 60,000 to 400,000 tons of crude oil
- Crude carriers have a typical lifespan of 25 years but ships older than 15 years are often considered 'old' and relegated to trade routes with less oversight

Tanker Trade

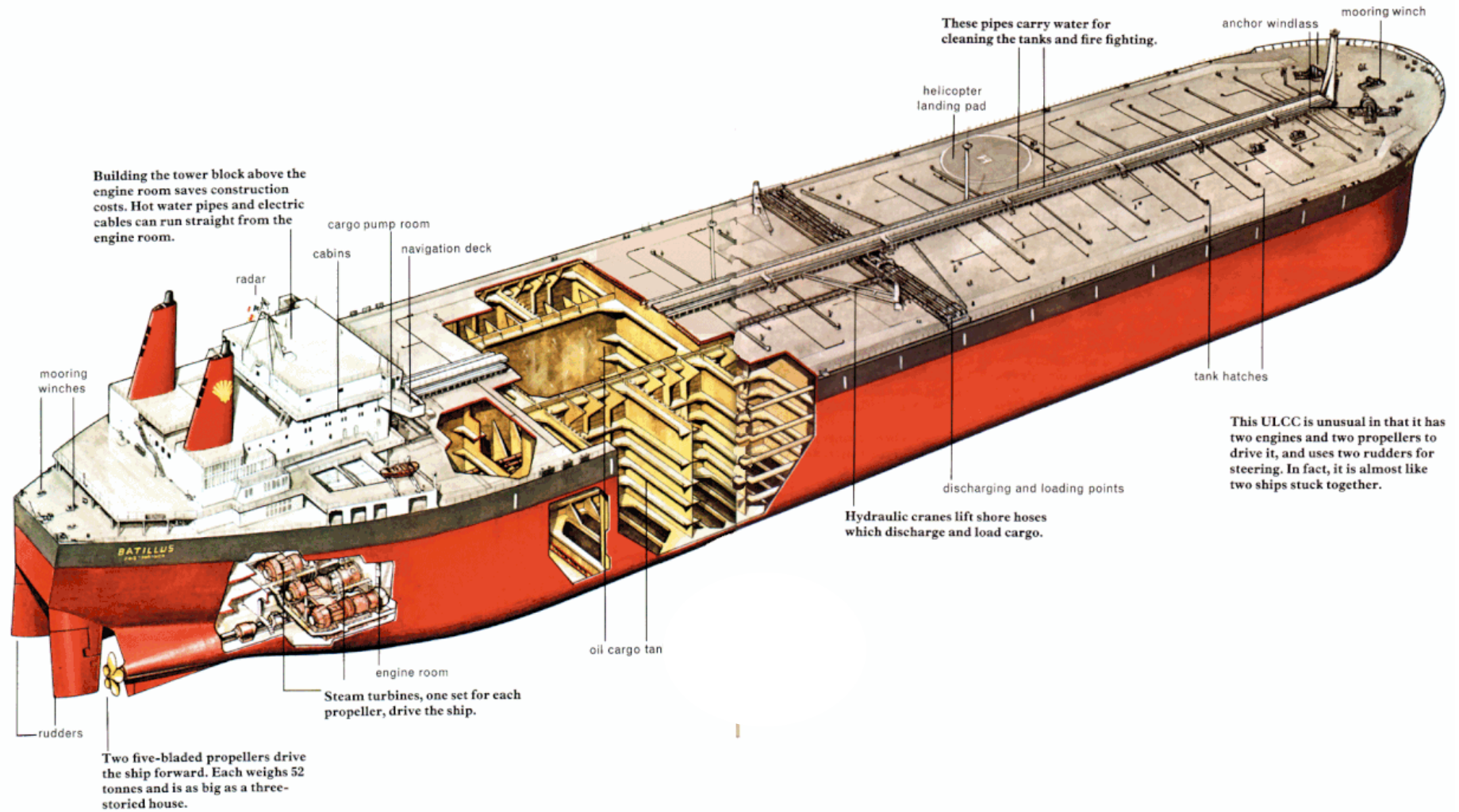
- Crude carriers are chartered, meaning hired, by oil companies and commodity traders
- Ships are a flexible form of transport, providing charterers optionality to deliver the crude cargo to a wide variety of ports and refineries
- Seasonal weather patterns is the main factor that drive supply and demand of crude tankers. However, in the past few years geopolitics has also been a growing factor
- The cost to transport crude is a small fraction of the final cost of oil products, but the expense to the charterer can vary greatly due to several factors



Overview: Tankers

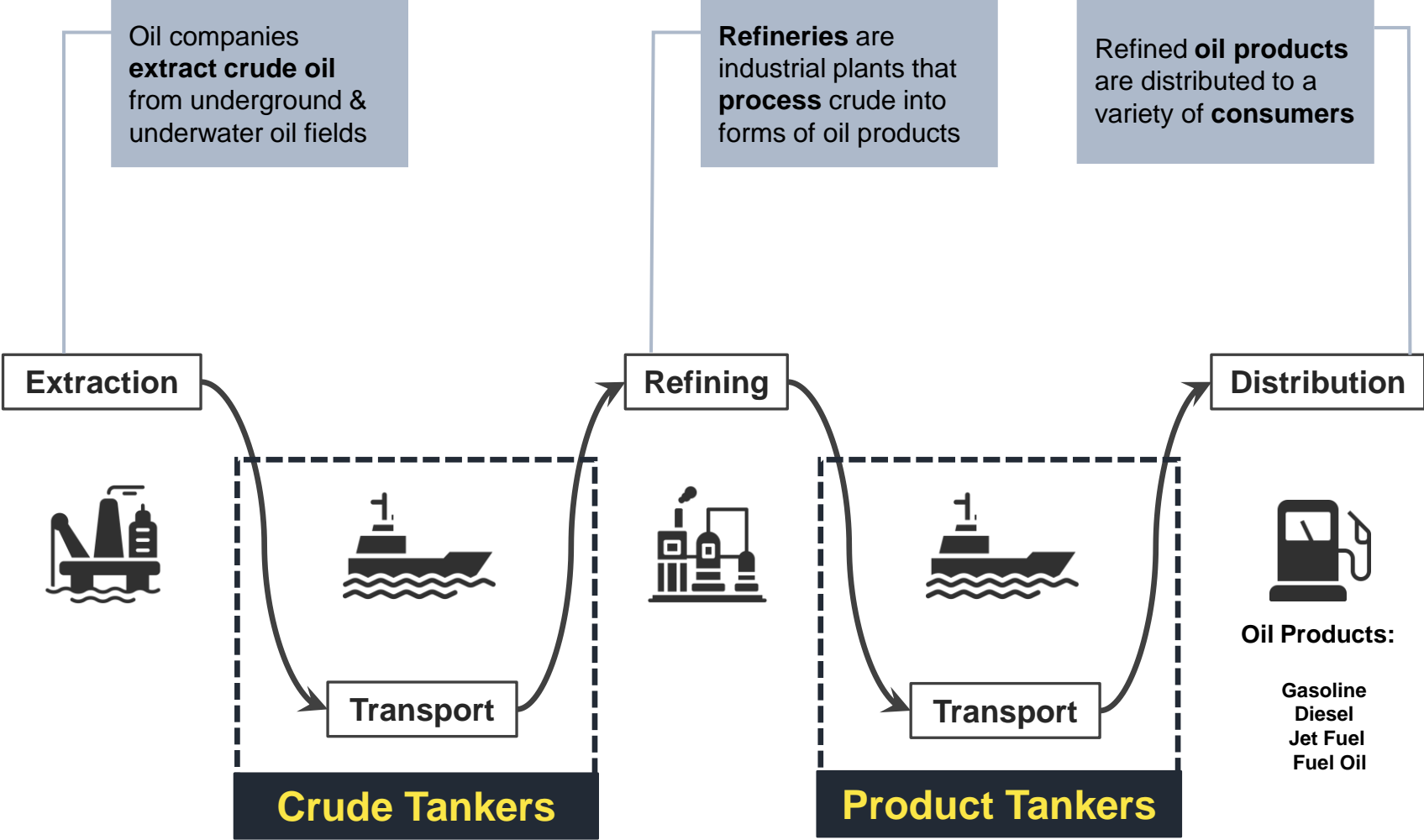
Crude Tanker Diagram

Source: The ULCC "Batillus". Collection Didier Pincon.



Overview: Oil Supply Chain

Oil Product Production: From Extraction to Distribution



Overview: Oil Supply Chain

Tankers transport 2/3 of all crude

- The crude tanker market exists due to the geographic distances between oil fields and refining capacity
- Oil fields that are economically viable to extract are geographically concentrated
- Refineries are expensive, complex assets that are most often built close to where oil products are consumed in the highest quantities



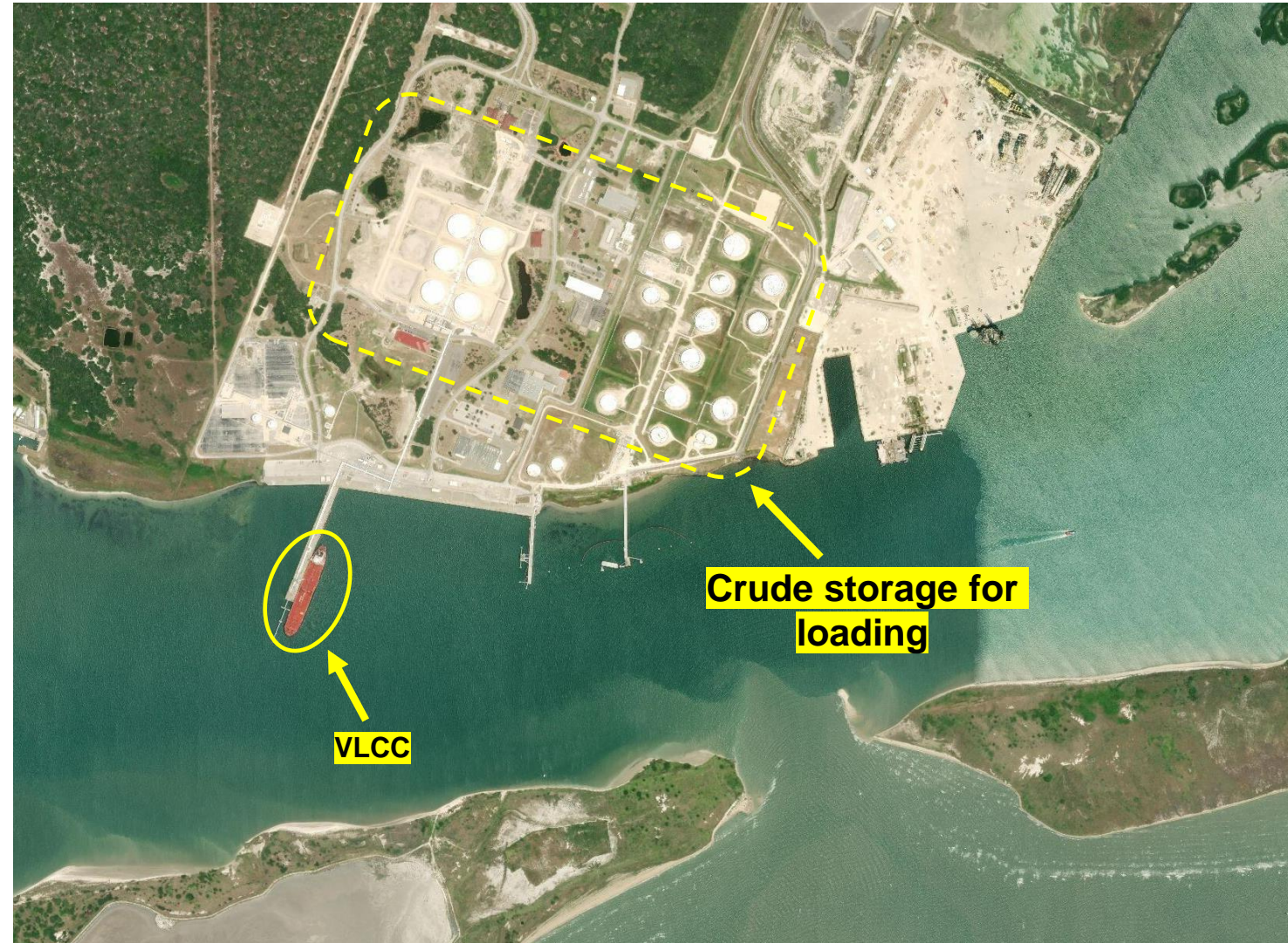
Alternative Transport Methods

- **Pipeline:** the most efficient and cost-effective way to transport crude but depends on geography and requires significant up-front investment
- **Rail:** like pipelines, many countries have well developed rail infrastructure, but also depends on geography
- **Road:** used as a short haul transport method, mainly for distribution

Overview: Oil Supply Chain

Loading Port: Crude Storage for Export

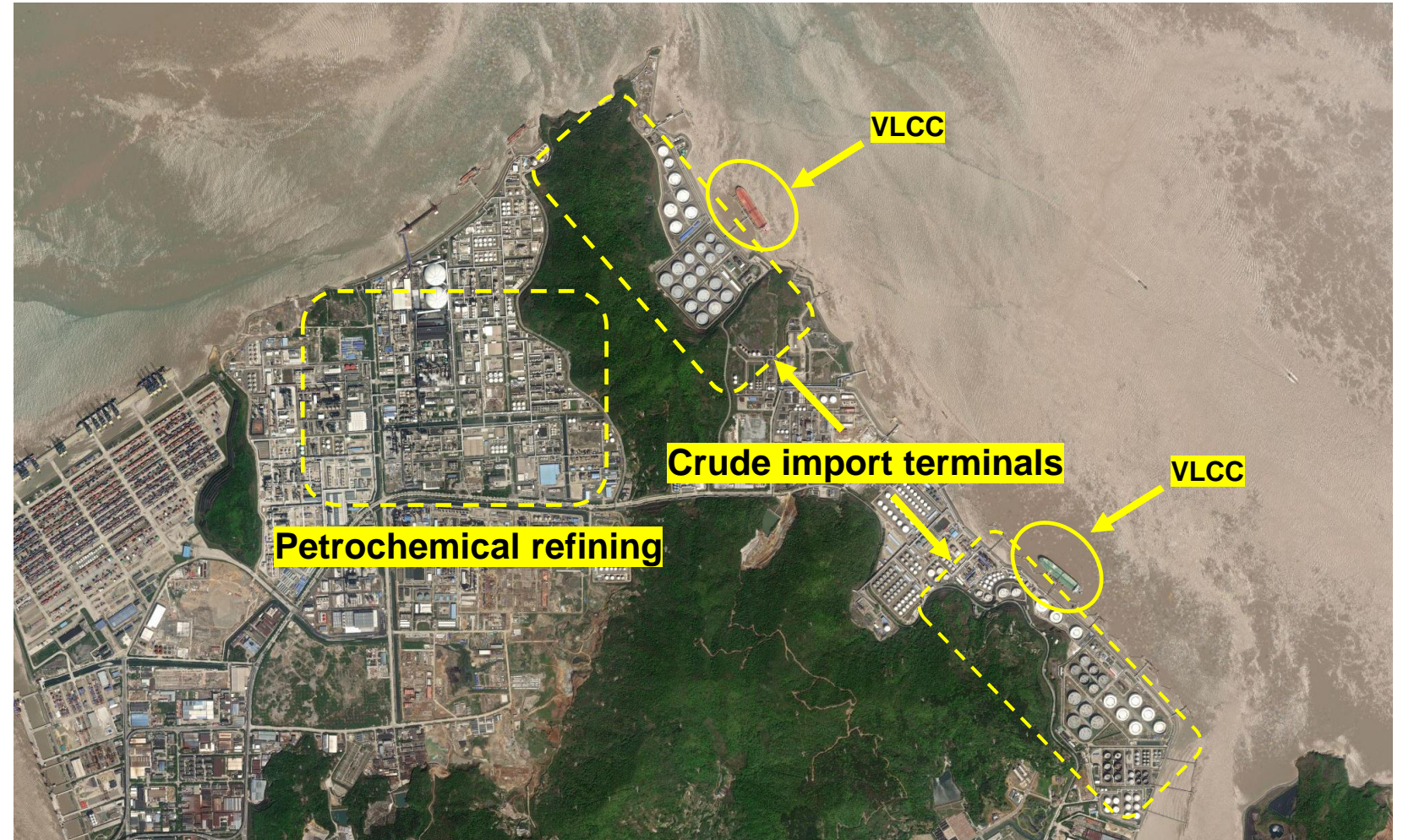
Enbridge Ingleside Energy Center - Corpus Christi, Texas, USA



Overview: Oil Supply Chain

Discharge Port: Refining, Storage and Distribution

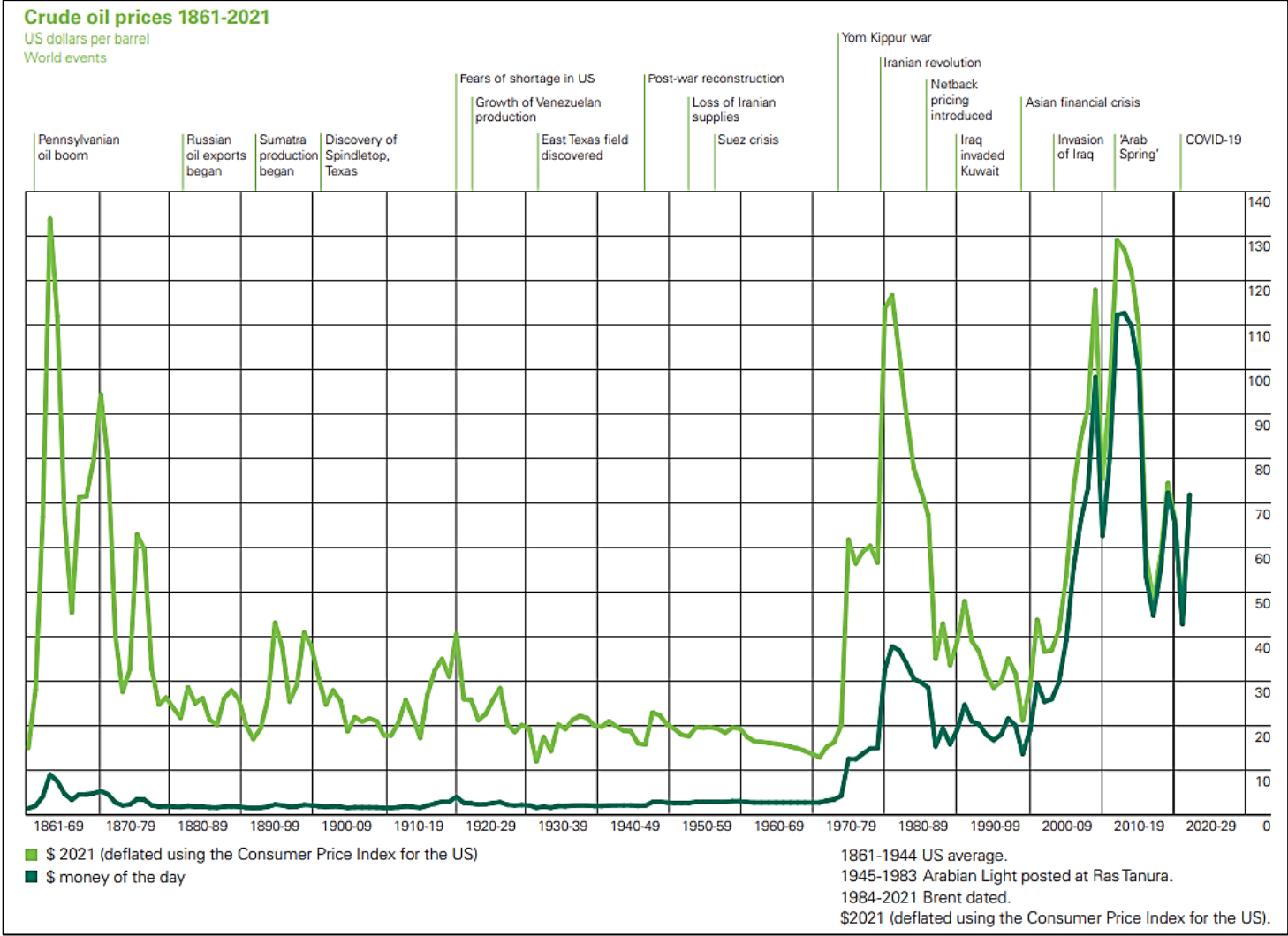
CNOOC crude import and petrochemical refining - Daxie Island, Ningbo, China



History: Crude Oil

History of Crude Oil Pricing

Source: BP Statistical Review of World Energy, 2022



Owners & Charterers

Top Crude Tanker Owners

Source: Clarksons Research, 2022

	Owner	Country	Type
1	Euronav NV	Belgium	Shipowner
2	China Merchants	China	State Shipowner
3	China COSCO Shipping	China	State Shipowner
4	Angelicooussis Group	Greece	Shipowner
5	Nat Iranian Tanker	Iran	State Shipowner
6	Fredriksen Group	Cyprus	Shipowner
7	Bahri	Saudi Arabia	Shipowner
8	Dynacom	Greece	Shipowner
9	Mitsui OSK Lines	Japan	Shipowner
10	SK Shipping	Korea	Shipowner
11	DHT Holdings	Bermuda	Shipowner
12	Nippon Yusen Kaisha	Japan	Shipowner
13	Petronas	Malaysia	State Energy Co.
14	Intl Seaways	USA	Shipowner
15	Asyad Shipping	Oman	State Shipowner
16	Sinokor Merchant	Korea	Shipowner
17	Marmaras Navigation	Greece	Shipowner
18	Thenamaris	Greece	Shipowner
19	Alpha Tankers	Greece	Shipowner
20	Kyklades Maritime	Greece	Shipowner

Top Crude Tanker Charterers

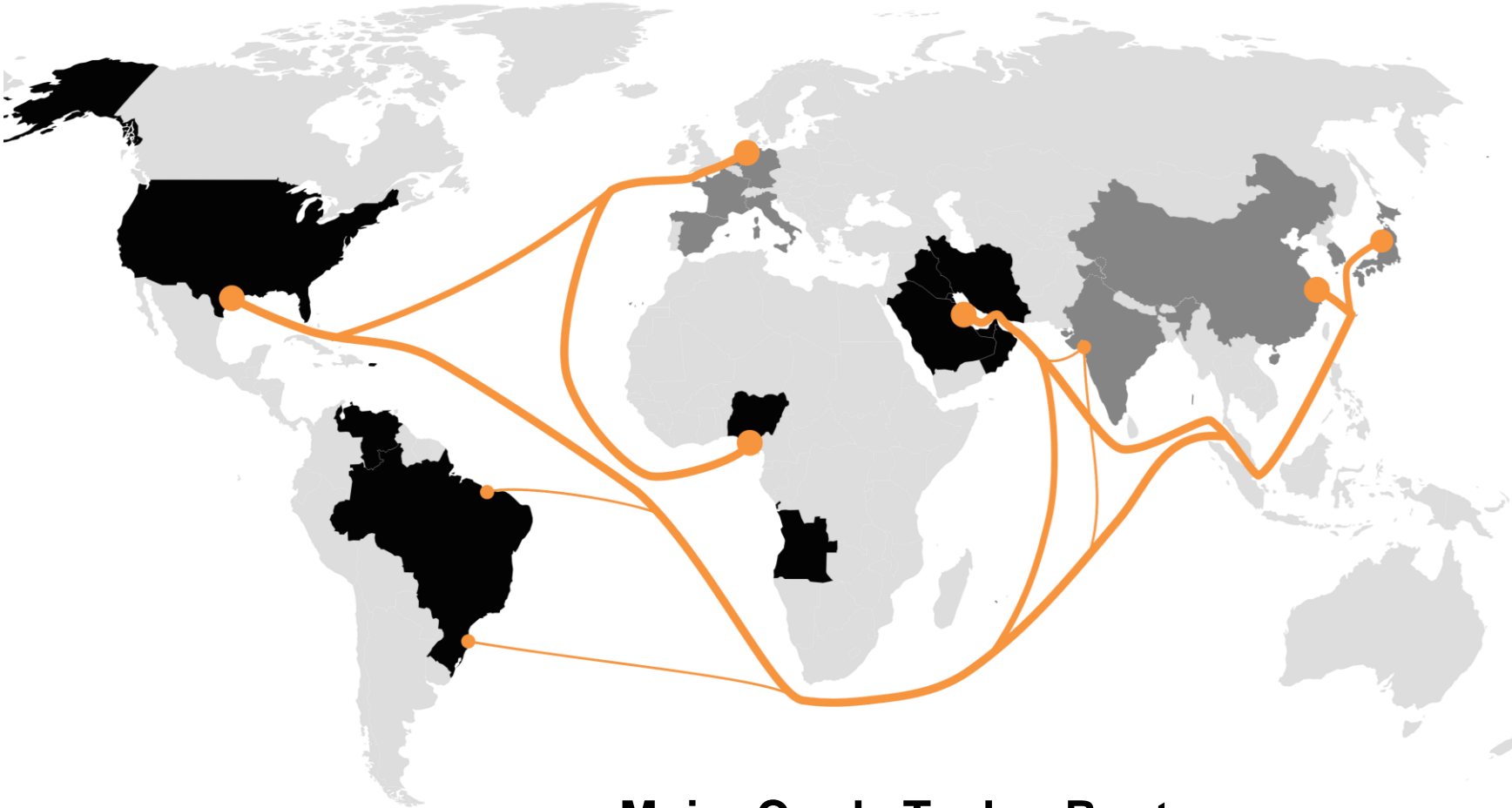
Source: Poten & Partners, 2021

	Charterer	Country	Type
1	Unipecc	China	Energy Co.
2	Shell	England	Energy Co.
3	Vitol	Netherlands	Commodity trader
4	BP	England	Energy Co.
5	ExxonMobil	USA	Energy Co.
6	loc	India	Energy Co.
7	Total	France	Energy Co.
8	Chevron	USA	Energy Co.
9	Petrobras	Brazil	Energy Co.
10	Trafigura	Switzerland	Commodity trader
11	Lukoil	Russia	Energy Co.
12	Petrochina	China	Energy Co.
13	Repsol	Spain	Energy Co.
14	Sinochem	China	State Energy Co.
15	Equinor	Norway	Energy Co.
16	Glencore	Switzerland	Commodity trader
17	BPCL	India	Energy Co.
18	Reliance	India	Energy Co.
19	Mercuria	Switzerland	Commodity trader
20	Hyundai	Korea	Shipping co.

Crude Tanker Routes

Inter-area Crude Movements, 2021

Source: BP 2022 Statistical Review of World Energy



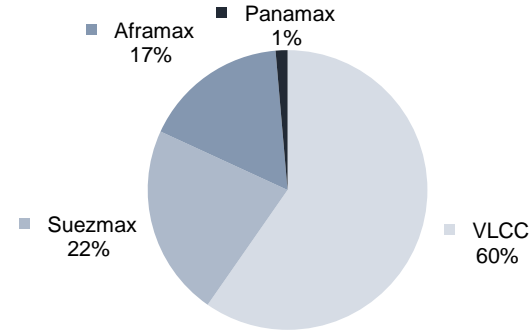
Major Crude Tanker Routes

■ Oil Producing Countries ■ Oil Consuming Countries

Fleet Overview

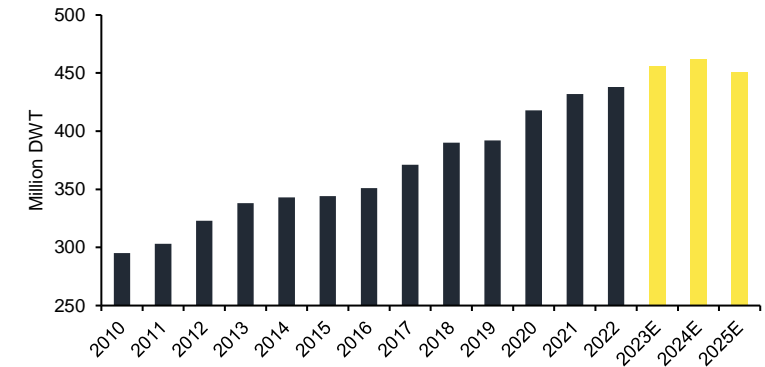
Crude Carrying Capacity - By Class

Source: Clarksons Research, 2022



Fleet Capacity – Deadweight Tonnage (DWT)

Source: Clarksons Research, 2022



VLCC*:
~300,000 tons

Largest cargo ship;
Mainly used for transporting crude oil to US and Asia from Middle East



Suezmax:
~150,000 tons

Half-size of VLCCs;
Mainly used in the Atlantic; Largest tanker that can use the Suez Canal



Aframax:
~105,000 tons

Most versatile crude oil tanker; Can access most ports



Panamax:
~80,000 tons

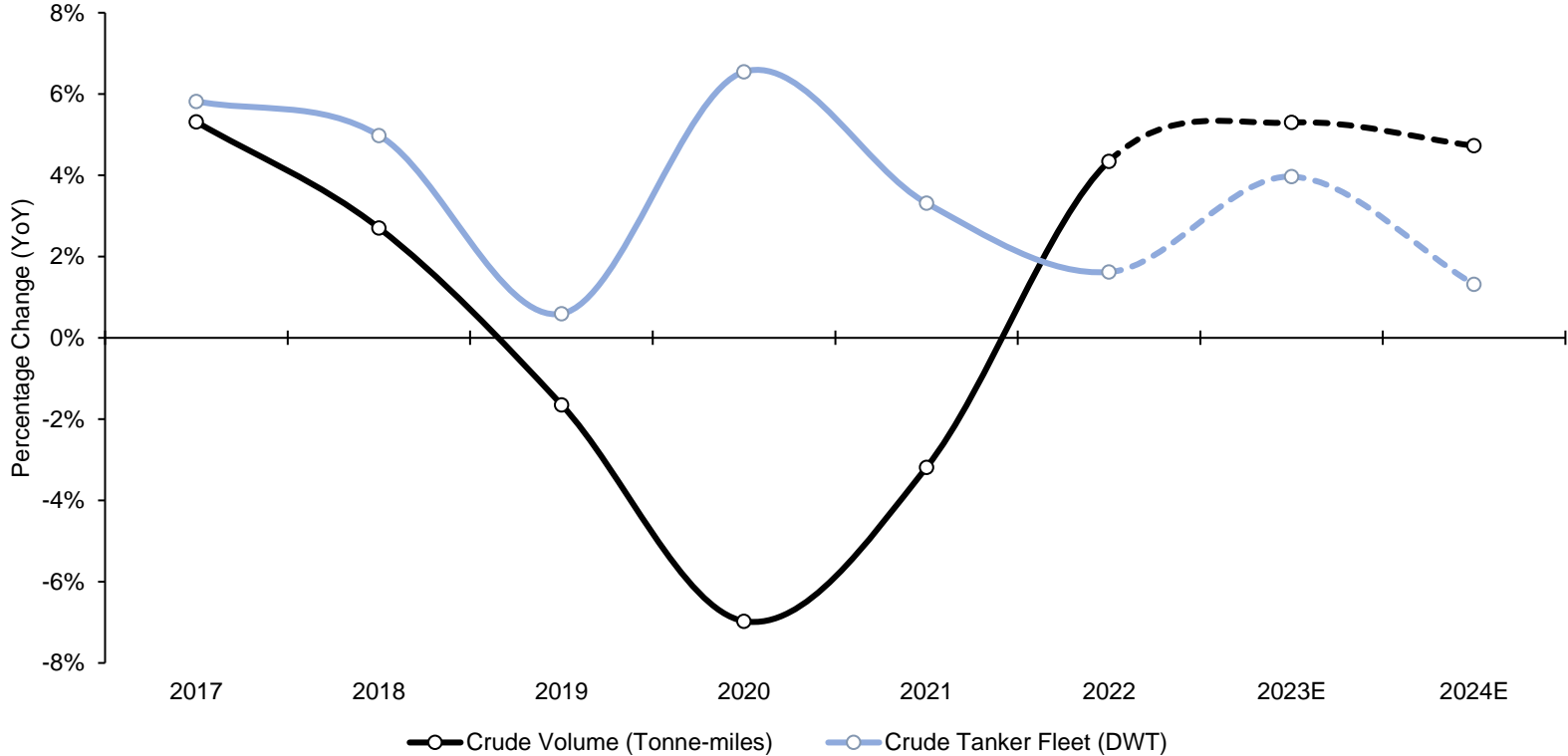
Mainly used for refined oil product trading

*VLCC: Very Large Crude Carrier

Global Oil Consumption

Seaborne Crude Trade and Crude Fleet Tonnage

Source: Clarksons Research, 2022

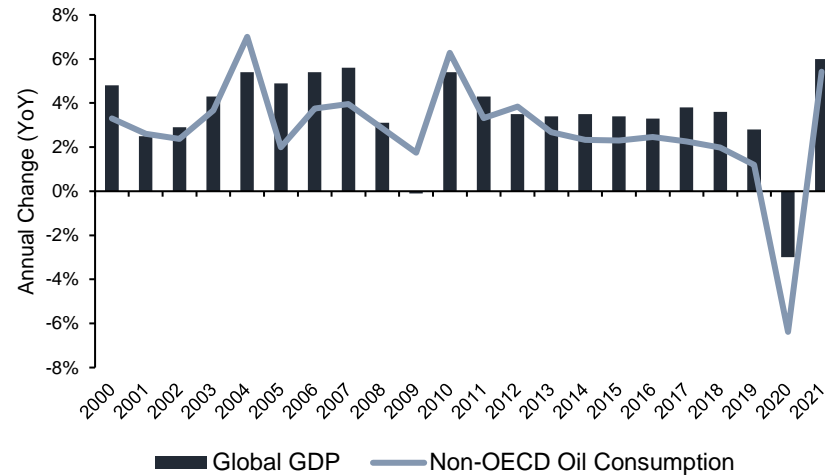


Tanker rates are driven by two primary factors: number of ships available and demand for ship by charterers

Global Oil Consumption

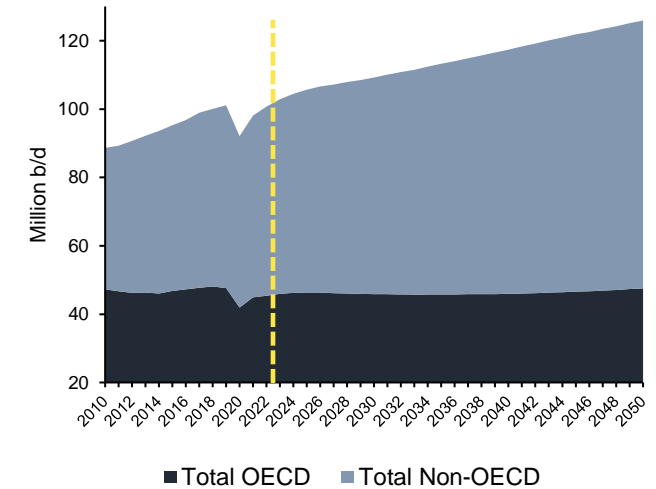
Correlation: GDP & Oil Consumption

Source: BP 2022 Statistical Review of World Energy, IMF



Projection: Liquid Fuel Consumption

Source: EIA International Energy Outlook 2021



Global GDP and oil consumption changes are closely correlated

Organization for Economic Co-operation and Development (OECD) countries generally have more developed economies and existing infrastructure

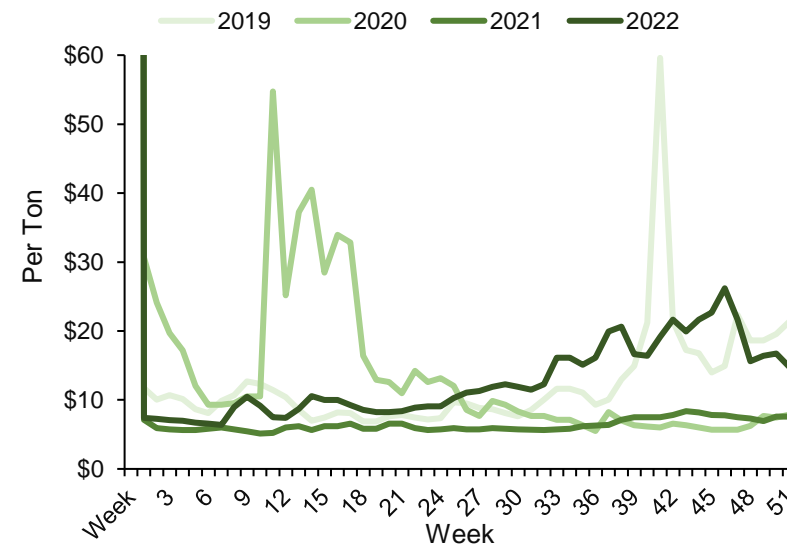
Non-OECD countries are characterized by higher population growth and infrastructure development. Energy demand growth in Non-OECD countries has significantly outpaced OECD countries

Future Demand trends: EIA projects a 20% increase in global liquid fuels consumption between 2018 and 2050. Within that period, demand in OECD countries is expected to remain relatively stable, but non-OECD demand increases by about 45%

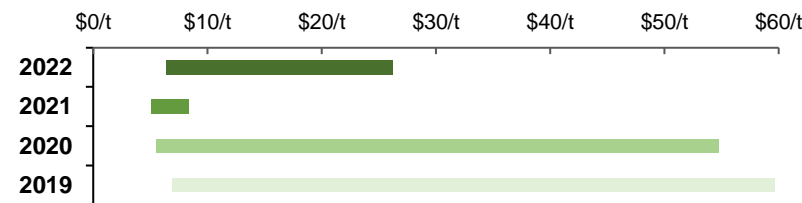
Tanker Rate Volatility

VLCC Spot Rates: TD3C 2019-2022

Source: Bloomberg, Clarksons Research, 2022

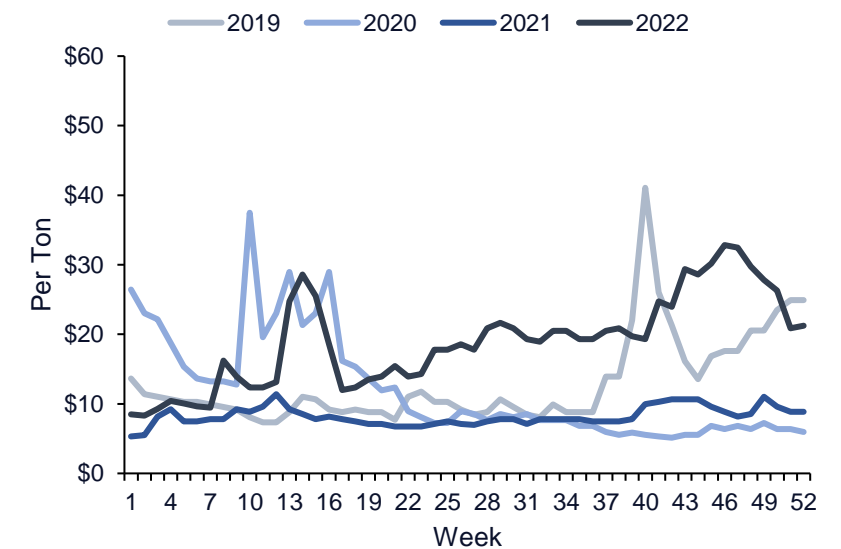


	2019	2020	2021	2022
High	\$59.62/t	\$54.75/t	\$8.39/t	\$26.18/t
Low	\$6.89/t	\$5.48/t	\$5.10/t	\$6.38/t

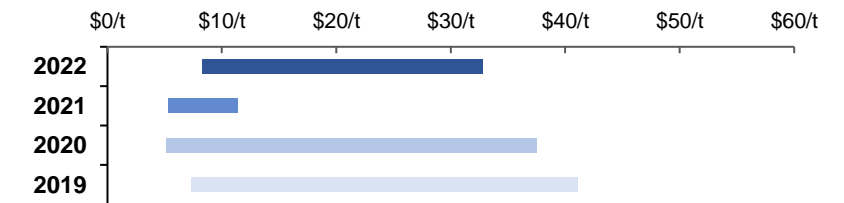


Suezmax Spot Rates: TD20 2019-2022

Source: Bloomberg, Clarksons Research, 2022



	2019	2020	2021	2022
High	\$41.08/t	\$37.50/t	\$11.37/t	\$32.85/t
Low	\$7.34/t	\$5.11/t	\$5.33/t	\$8.31/t

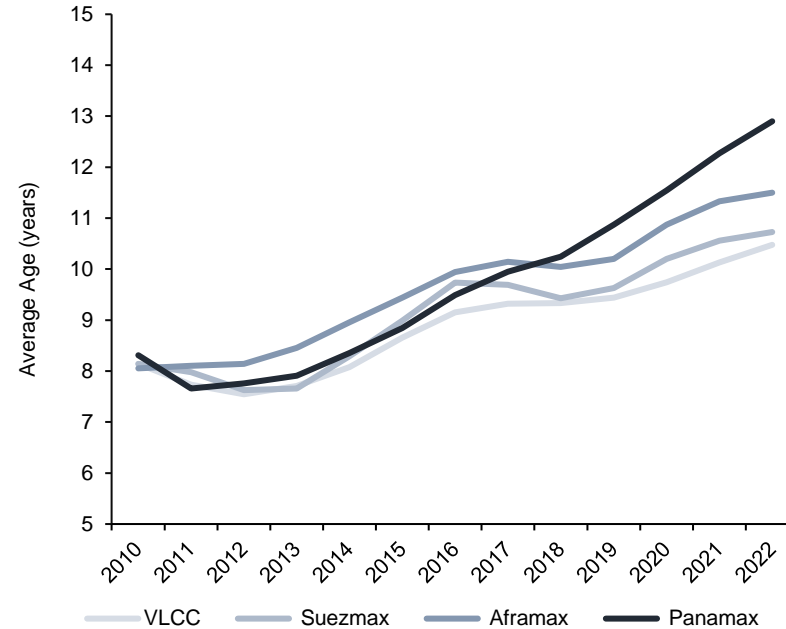


While the fleet grows and contracts at a relatively slow pace, crude tanker freight rates can experience significant volatility.

Aging Fleet

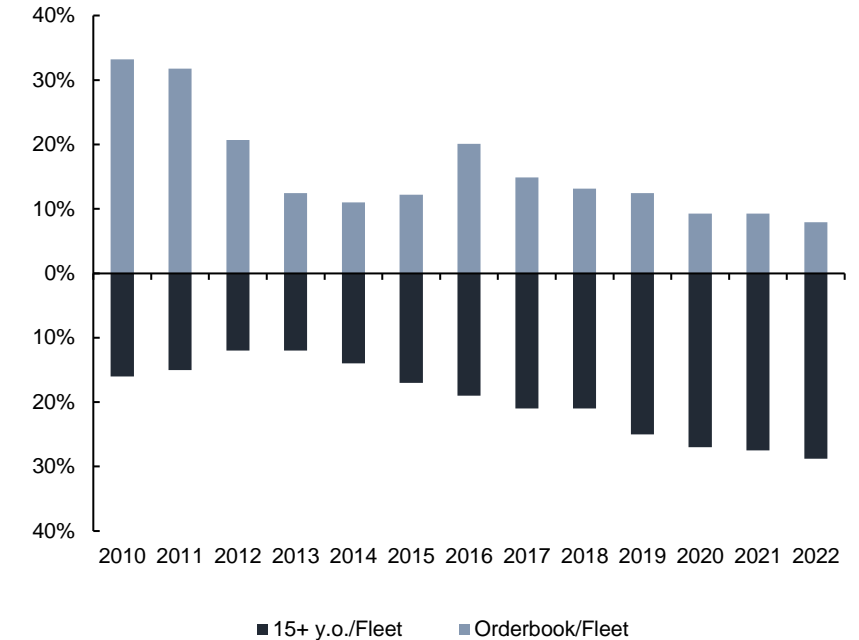
Crude Tanker Fleet Age by Size

Source: Clarksons Research, 2022



Orderbook vs. 15+ y/o Tankers

Source: Clarksons Research, 2022

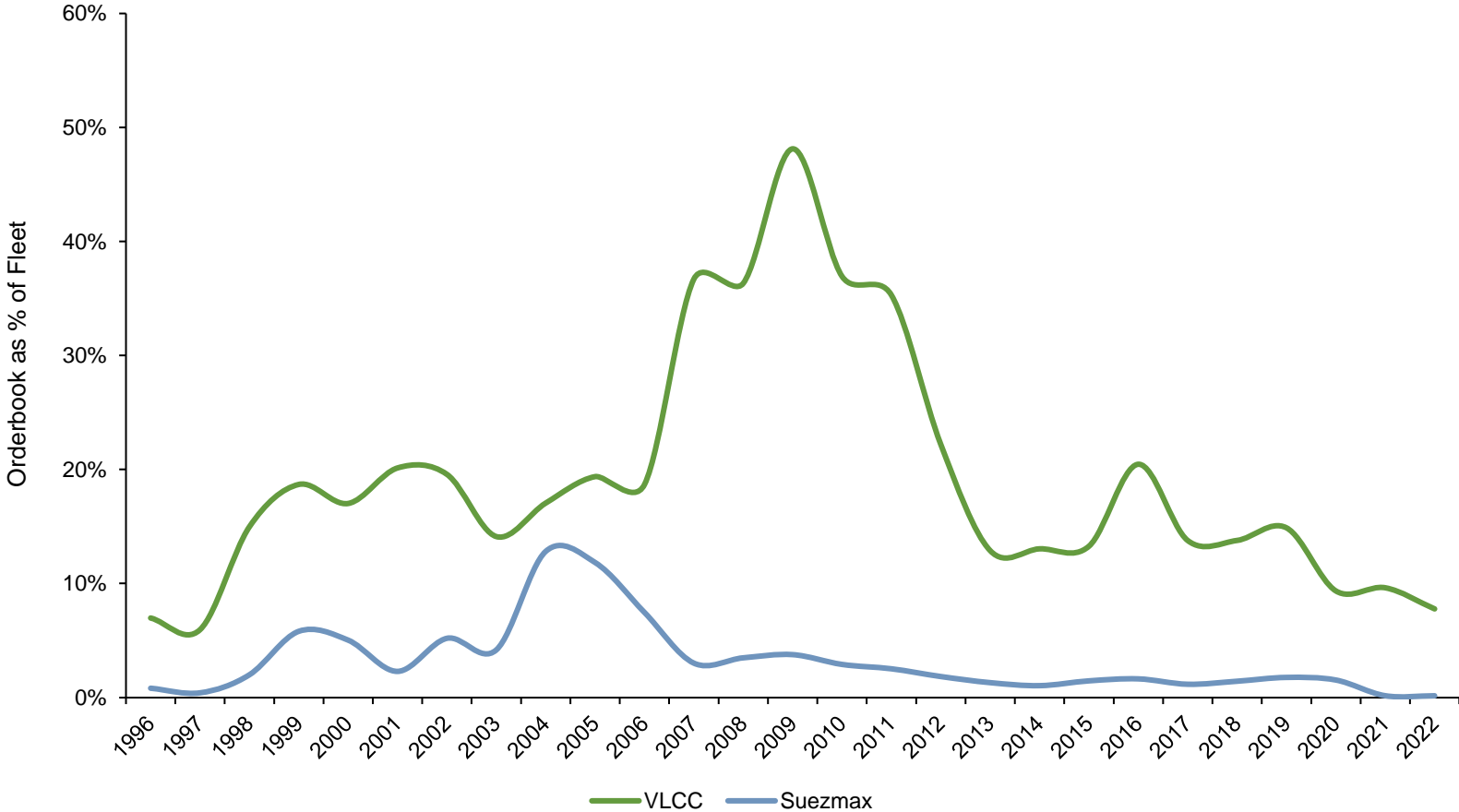


Tanker supply fundamentals are impacted by new orders, new deliveries and demolition of ships that are no longer viable to operate.

- **New orders** are placed by shipowners anticipating future rates to exceed a break-even level that is determined by the purchase price of the ship as well as the projected cost to operate it
- **New deliveries** take place 2-3 years after a ship is ordered
- **Demolition** of crude tanker is typical after the ship reaches 20-25 years of age, at which point ships are not economical to operate due to the cost maintenance (a full inspection completed every 5 years) to meet environmental and technical requirements

Crude Tanker Orderbook vs Fleet

Source: Clarksons Research, 2022



The crude tanker orderbook is at its lowest level in recent years

Ship Building



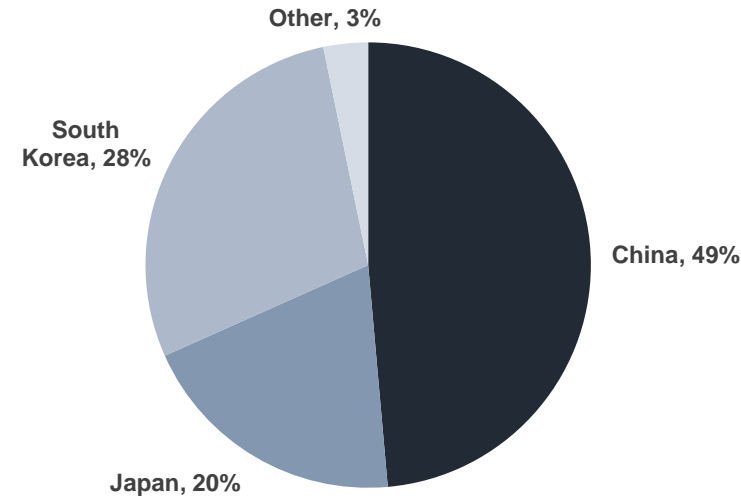
Ship Demolition



- Shipbuilding, ship demolition and fleet utilization usually determine the supply of ships
- It takes roughly two years to build a new ship, while the useful life of a ship is approximately 25 years
- Ship ordering and ship scrapping is relatively dynamic: prevailing freight rates, future freight rate expectations and ship operating economics are the main determinates of such activities
- Speed, waiting time, weather, port maintenance, congestion are also factors affecting ship supply over shorter periods of time

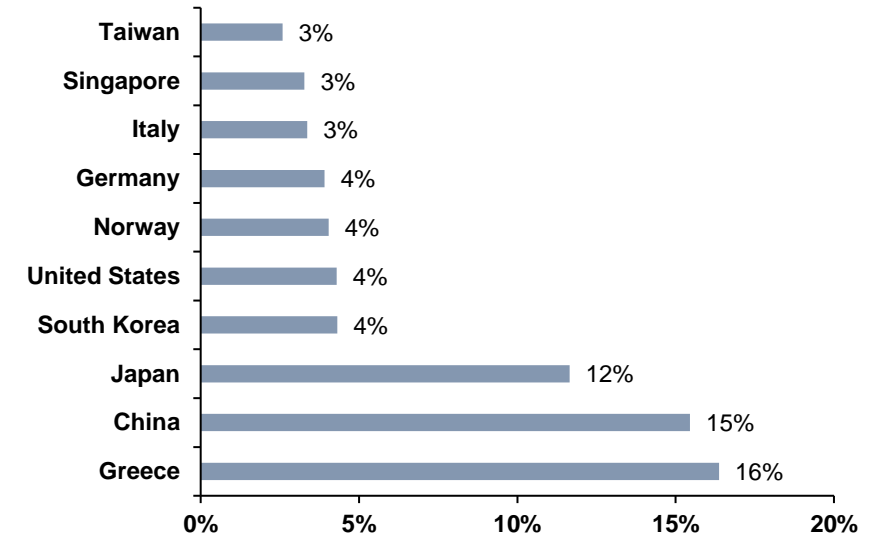
Shipbuilding Countries by Tonnage

Source: Clarksons Research, 2022



Ship Owning Countries by Tonnage

Source: Clarksons Research, 2022

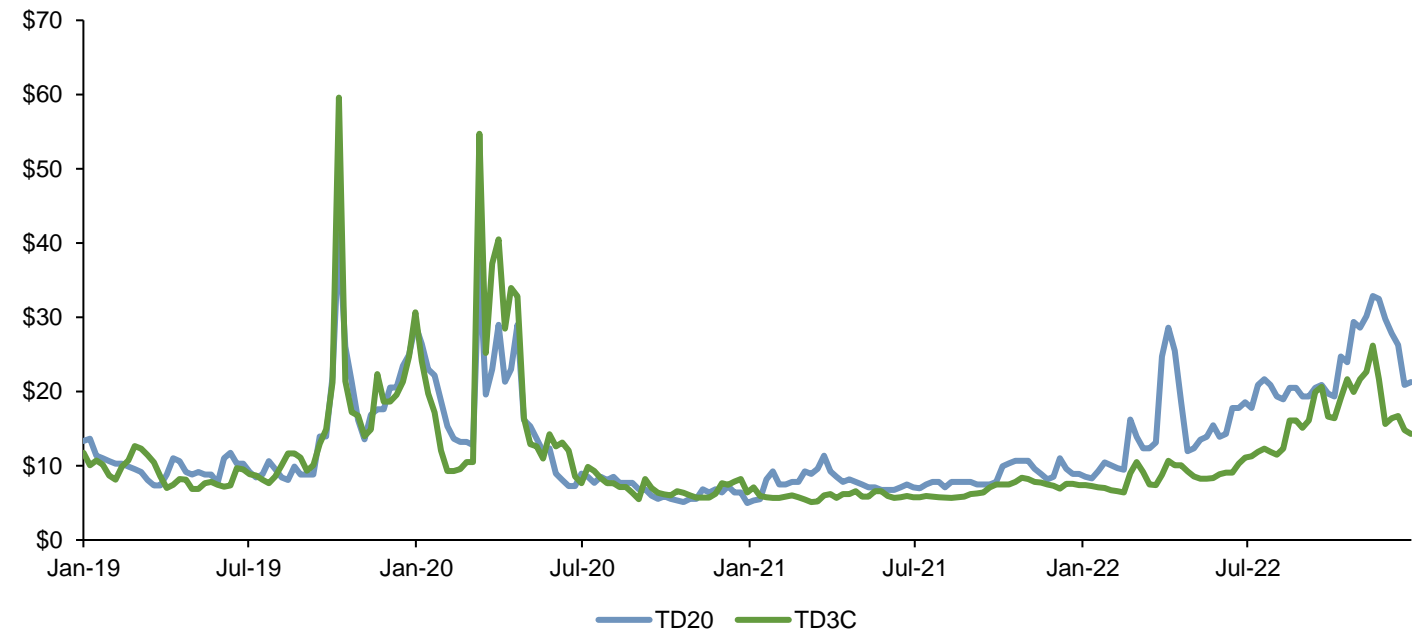


- The major shipbuilding countries are concentrated in the Far East, with China accounting for nearly 50% of the global shipbuilding market
- Japan and South Korea account for most of the remaining share
- Ship-owning is more fragmented, with the top three shipowning countries - Greece, China and Japan- accounting only 43% of the market
- There are more than 100 shipbuilders worldwide and more than 20,000 shipowners globally (including all types of ships)

Crude Tanker Spot Freight Rates

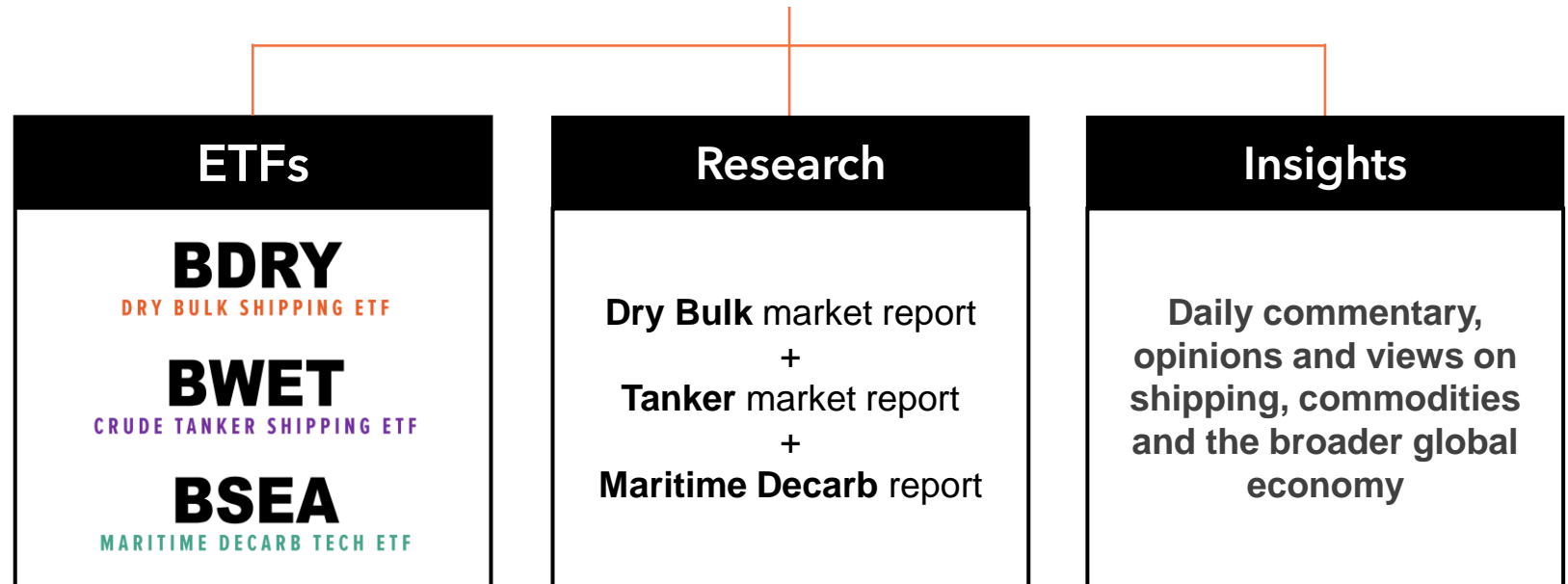
Crude Tanker Freight Rate Volatility

Source: Clarksons Research, 2022



- Crude tanker freight rates have seen considerable volatility in the last 20 years
- Average VLCC rates, being the most volatile, reached an all time high of more than \$60/ton in late 2019
- In 2021, VLCC rates fell as low as \$5/ton
- Suezmax rates are highly correlated to VLCC rates, but exhibit less volatility throughout the cycles

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