



Oil storage

Oil storage facilities play a vital role in the oil industry



Why is oil storage important?

Storage facilities play a crucial role in the crude oil and oil products industry. They serve as a logistical midstream link between the upstream (exploration and production) and the downstream (refining) segments of the oil industry. Additionally, they support refining businesses by storing end products. Storage terminals are not only used to store primary, intermediate and end products, they facilitate the continuous supply of feedstock to refineries and chemical plants in the processing industry and absorb fluctuations in sales volumes. Each change in the mode of transport requires temporary storage capacities (terminals with tank storage facilities). An efficient oil industry logistics chain would be inconceivable without such infrastructure.

What are the sector's main characteristics?

The oil storage sector is characterised by sustainable growth, with the business model ensuring recurring revenue and high EBITDA margins. Due to the limited direct exposure to commodity prices (third-party storage providers do not own the oil they store), the oil storage sector is far less cyclical than the energy industry. Thus, this asset class is attractive for infrastructure-focused investors.

Storage facilities also offer revenue-generating ancillary services. The inflows may vary depending on the demand for such services. These include throughput services, blending, heating and inter-tank transfers.

What are the different types of terminals?

Many major energy companies and traders own and operate terminal storage facilities to help integrate their upstream or downstream assets into the marketplace. Although the basic capabilities of such terminals are often the same as the ones owned by independent operators, in general they do not provide storage to third parties.

However, by utilising third-party storage providers, major energy companies can avoid the large capital expenditure required to build their own infrastructure.

Independent storage providers have more flexibility and can adjust better to market

movements because their storage is accessible to the open market and is used by third parties.

Tank storage terminals can be classified as:

- **Hub terminals:** Located near the major oil hubs (Amsterdam-Rotterdam-Antwerp (ARA), Houston, Singapore and the United Arab Emirates (Fujairah)), where high-volume product flows intersect.
- **Import/export terminals:** Used for storing products that are exported or imported by local companies.
- **Industrial terminals:** Designed as a component of larger complexes of the chemicals industry.

The main hub terminals

Ports	Capacity (million m ³)	Capacity 2008-2020 CAGR	The main players
ARA	38	4%	Vopak, Koole, VTTI and Oiltanking
Houston	33	4%	Kinder Morgan, Enterprise Products and Magellan Midstream
Singapore	15	8%	Vopak, Oiltanking and Universal Group
Fujairah	10	20%	Vopak, ADNOC, Horizon Terminals, Brooge Energy

Source: Edison Investment Research, TankTerminals.com by Insights Global

What are the main drivers of growth?

The main demand driver for the tank storage industry is the development of the (seaborne) transport volume of oil and oil products. This is determined by total consumption and/or the processing volume of crude oil and oil products and by trade flows.

The location of terminal assets is also a significant value driver: the hub terminals are well positioned and are less sensitive to local and regional economic circumstances as their business activity is related to global trade (therefore less volatile and with a lower risk profile).

Storage capacity additions are driven by market structure (contango versus backwardation) and do not exhibit a strong correlation with spot oil prices. Currently, there are several capacity expansion projects planned/ongoing in the main trading hubs (listed above). According to Insights Global, total tank storage capacity may increase by c 10% in

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'The midstream sector continues to be of significant strategic importance, supporting the infrastructure and storage needs of the oil industry and ultimately allowing the market to work more efficiently.'

Nicolaas L Paardenkooper, CEO of Brooge Energy

the next few years (from c 1bn cubic meters of storage capacity in 2020).

What impact does contango/backwardation have on oil storage?

A contango occurs when futures prices are higher than current spot prices. If the spread between the prices is large enough to cover storage, finance and shipping costs, traders can make a profit by buying oil now and selling it on the futures market for delivery later. However, to capitalise on this profit, traders need storage (and transport) capacity. In this scenario, storage rates typically tend to increase, but the fees from ancillary services may fall due to lower utilisation of these services.

Backwardation occurs when futures prices are lower than current spot prices. Storage rates tend to fall during backwardation but are balanced by higher ancillary fees since utilisation of ancillary services typically rises.

How did COVID-19 affect the sector in 2020?

The pandemic sharply eroded oil and oil products demand with billions of people facing lockdowns and travel restrictions. This situation intensified in March when Russia and Saudi Arabia could not agree terms regarding the degree of production cuts required to stabilise the fall in oil prices. Russia then stepped out of the Organisation of Petroleum Exporting Countries and partner countries alliance (OPEC+). This resulted in Saudi Arabia selling highly discounted crude to its international customers, which triggered a free fall in oil prices and resulted in a super contango. The Energy Information Administration (EIA) estimates that global oil consumption decreased from c 100 million barrels per day (mb/d) at the end of 2019 to c 85mb/d in Q220 (c 91mb/d in 2020). Oil companies continued to produce, and the resulting oversupply led to a surge in demand for third-party storage capacity. This led to high occupancy rates in the major hubs, putting a premium on free tank capacity. On 20 April 2020, the West Texas Intermediate oil price traded at a negative \$37 per barrel as traders ran out of storage facilities at American hub Cushing, Oklahoma. Just over a year on, with market dynamics stabilising, economies re-opening, demand picking up and production cutbacks from OPEC+, oil trading and the storage businesses should stabilise.

What could impact oil storage in the future?

There is a risk of declining demand for road fuels due to climate policy, improved engine efficiency and the adoption of electric vehicles. However, we would expect increased demand for the blending of biofuels, hence the need for tank storage (where much of the blending takes place). However, in the event of lower local demand, European refineries could increase their volume of exports, which would increase demand for storage.

According to the International Energy Agency, global oil demand is still growing; by 2025 global oil consumption should reach 103.2mb/d (an increase of 3.5mb/d from

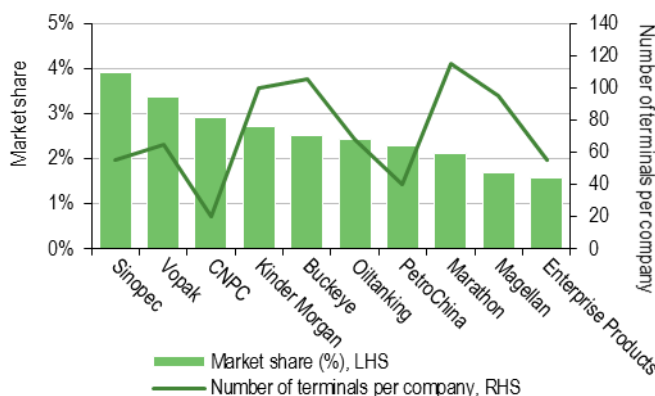
2019 levels). However, in its Sustainable Development Scenario (consistent with global net-zero emissions by 2070) oil demand declines by 3mb/d over the same period. A pathway to net-zero emissions globally by 2050 would require even sharper falls.

Oil storage providers

Chinese national oil companies like the Sinopec Group, China National Petroleum Corporation (CNPC) or PetroChina are the biggest players in the global tank terminal operator segment.

Royal Vopak is the world's largest independent storage provider, with services ranging from the storage of chemicals, oils, gases and LNG to biofuels and vegoils. Other significant European independent operators of tank terminals are Oiltanking (owned by Marquard & Bahls) and VTTI (owned by Vitol: 45%, IFM Investors: 45%, and the Abu Dhabi National Oil Company (ADNOC): 10%).

Top 10 global players in the storage terminals market

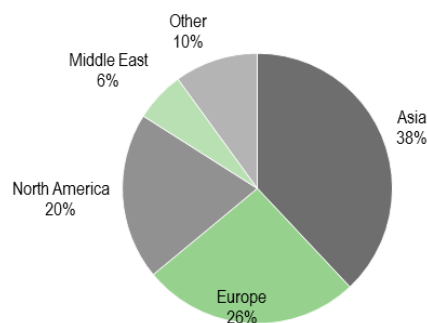


Source: TankTerminals.com by Insights Global

The United States has a number of large midstream operators, including Kinder Morgan, Buckeye Partners, Magellan Midstream Partners and Enterprise Products Partners. They are mostly pipeline operators with storage facilities.

The main players in Fujairah are the state-owned oil companies: ADNOC and Horizon Terminals. [Brooge Energy](#) is an independent provider of midstream oil storage and services with its stated differentiation in fast order-processing times and high-accuracy blending services with low oil losses.

Storage terminals – capacity per region



Source: Global Tank Storage Assets 2020, TankTerminals.com by Insights Global, Edison Investment Research