

Global Tank Storage Assets

The Power of Market Intelligence



INSIGHTS GLOBAL

TABLE OF CONTENTS

1. In which region is capacity per terminal the highest?	4
1.1. Terminals per region	4
1.2. Tanks per terminal and average capacity	5
2. In which region is the most capacity under construction and in expansion?	7
2.1. Terminals under construction	7
2.1 Terminals in expansion	8
3. Where are the most storage investments planned?	9
3.1. Planned expansions	9
3.1. Conclusion	10
4. About us	11
5. Contact us for more information	12

1. In which region is capacity per terminal the highest?

All over the world, there are independent tank storage companies that support market players in storing their liquid bulk products. They help oil and chemical companies that have downstream obligations with storing products or support trading companies seizing (arbitrage) opportunities or governments and oil companies with building their strategic reserves. Tank terminals have an important, if not a primary function, in the oil, gas and chemical value chain.

1.1. Terminals per region

At time of writing, April 2020, the TankTerminals.com database consists of almost 5,100 tank terminals per geographical region. This number is not evenly spread over these regions. The applicable regions are Africa, Asia, Europe, Middle East, Oceania, North America, Central America and South America. In table 1, you can see the number of terminals per region.

Geographical region	# of terminals (*)	# of tanks	Market share (*)
Africa	245	3,223	5%
Asia	1,060	27,371	23%
Europa	1,166	30,982	25%
Middle East	133	2,825	3%
Oceania	67	1,333	1%
North America	1,456	26,970	31%
Central America	205	4,032	4%
South America	346	5,256	7%

Table 1: Terminals per region

From this table can be derived that most terminals are located in the US (1.456) followed by Europe (1.166) and Asia (1.060). Smaller regions with respect to terminals are South America (346), Africa (245), Central America (205), Middle East (133) and Oceania (67).

When analyzing tank storage capacity per region and per terminal, some clear distinctions can be found as can be seen from table 2.

Geographical region	Capacity (kcbm)	Market share	# tanks / terminal	Av. Cap. / terminal (kcbm)
Africa	37,264	4%	13	152
Asia	374,325	38%	26	353
Europa	251,145	26%	27	215
Middle East	54,743	6%	21	412
Oceania	4,032	0%	20	60
North America	191,182	20%	19	131
Central America	35,077	4%	20	171
South America	27,857	3%	15	81

Table 2: Capacity per region and terminal

1.2. Tanks per terminal and average capacity

In table 2 can be seen that most storage capacity is currently in Asia (374,325 kcbm, 38%), followed by Europe (251,145 kcbm, 26%) and North America (191,182 kcbm, 20%). From this perspective the top 3 have reshuffled and Asia is ranked number one, the region with most tank storage capacity.

When combining table 1 and table 2 the following charts can be derived: Chart 1: tanks per terminal per region and Chart 2: Average capacity per region.

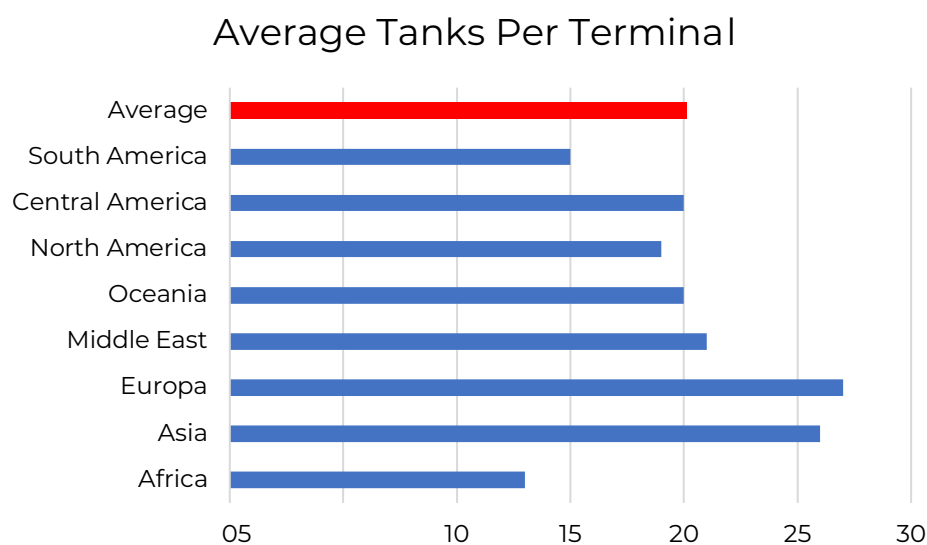


Chart 1: Tanks per terminal

Chart 1 shows that, with 27 tanks, Europe has the most tanks per terminal followed by Asia with 26 tanks per terminal. The average number of tanks per terminal across all regions are 20 tanks. Middle East has 21 tanks per site and Oceania has 20 tanks per terminal and are around average tanks per site size. Smaller terminal sites (below average) are located in the Americas and Africa.

Average Capacity Per Region (in kcbm)

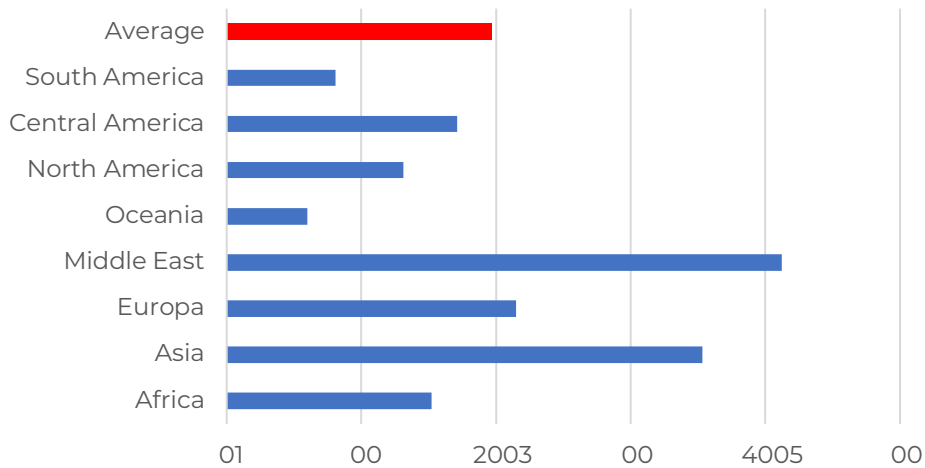


Chart 2: Average capacity per region

In chart 2 can be seen that the Middle East holds the most capacity per terminal, far above the average capacity of 197 kcbm. In the case of this region the average capacity per terminal is 412 kcbm. A good second place has been taken in by Asia with 353 kcbm. The third place is for Europe with 215 kcbm. The average capacity per terminal in Central America (171 kcbm), Africa (150kcbm), North America (131 kcbm), South America (81 kcbm) and Oceania (60 kcbm) are below average.

The reason behind this ranking, although not part of this analysis, is that tank terminals in the Middle Eastern and Asian region are new compared to more matured tank terminal regions such as Europe and North America. Furthermore, especially in the case of the Middle East national governments have a stake in these assets. Both arguments led to the development of assets with a larger average capacity.

2. In which region is the most capacity under construction and in expansion?

2.1. Terminals under construction

In chart 3 can be seen that on a global scale there are 34 new terminals under construction, with a combined capacity of 14,623 kcbm. These projects are either greenfield or brownfield, but their construction is under way. Most projects are in the Middle East (10) and Asia (9), followed by Europe (6) and Africa (5). North America and Central America have respectively 3 and 1 project under construction. Around 11.6Mcbm are under construction globally.

The most tank storage capacity is being constructed in the Middle East. This is around 7,861 kcbm or 57% of the total capacity under construction. The Middle East is followed by Asia (2,558 kcbm or 17%) and Europe (1,790 kcbm or 12%). Other regions such as the Americas, Oceania and Africa have less capacity under construction. This ranges between 0% and 7%. North America and Oceania have a more mature tank storage industry which does not drive investments while regions such as Africa and Central America have a complex investment environment.

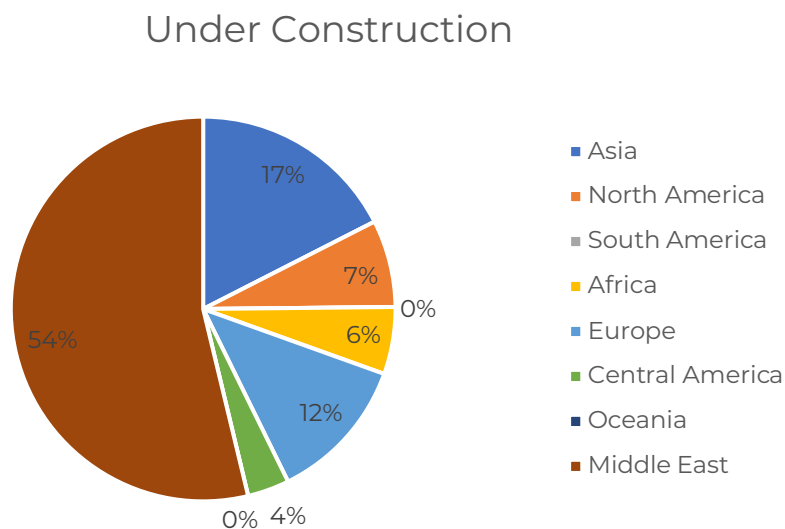


Chart 3: Terminals under construction

With respect to major projects in the Middle East, it is worth mentioning that ADNOC's 6,678 kcbm underground storage in Fujairah (UAE) will be operational in December 2022 and Earth Wealth Energy's 550 kcbm project, also in Fujairah, is expected to be operational in June 2020. Another major project in Asia, is the construction of the Korea Oil Terminal in Ulsan. The planned capacity is 3,836 kcbm and it is expected to become operational in 2026. A major project in Europe is the Hartel terminal in Rotterdam, which should become operational in December 2020 and the planned capacity is around 1,300 kcbm.

2.1 Terminals in expansion

Globally, there are 71 terminals that are currently being expanded. Most of these projects are in Europe, with 24 storage capacity addition projects going on. The region with second most expansion project is North America (17) and Asia, with 16 projects, ranks third. Other regions currently increasing their storage capacities are Africa (4), Middle East (4), South America (4), Central America (1) and Oceania (1).

Chart 4 shows that in total there are 11,676 kcbm under expansion. In the case of expansions, Asia is the region where the most tank storage capacity is under expansion. Around 5,482 kcbm, that is 47% of the total capacity, is under expansion. Asia is followed by North America (2,121 kcbm or 18%), Europe (2,091 kcbm or 18%) and Africa (1,569 kcbm or 13%). Other regions have less capacity under expansion; which ranges between 0% and 3%. Data shows that around 14.6 Mcbm are under expansion globally.

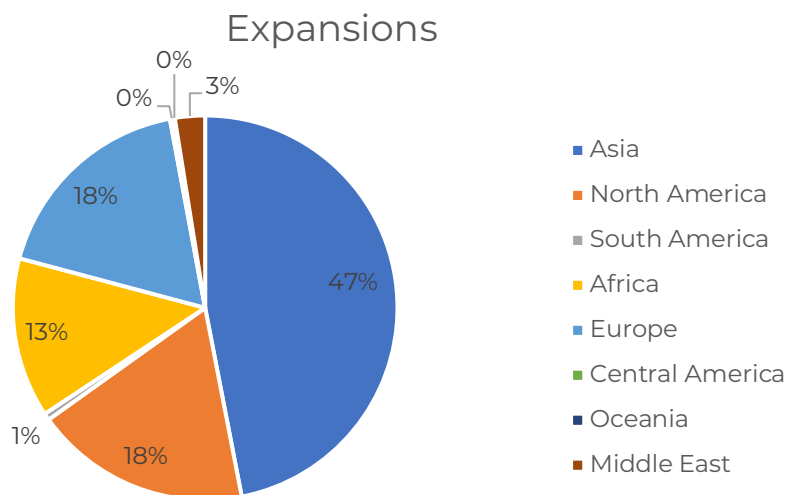


Chart 4: Terminals in expansion

Oriental Energy in Ningbo (China) is expanding their terminal with 2,000 kcbm, which results in a 500% increase of their storage capacity. Estimates are that this capacity will be operational at the end of 2020. Plains All American is expanding its St. James crude oil terminal from 0,318 kcbm to 2,385 kcbm. It is expected to be operational on July 2020. The PERN terminal in Gdansk (Poland) is adding around 0,325 kcbm of storage capacity which will boost this terminal's capacity to 0,700 kcbm; doubling its storage capacity. Expectations are that the new capacity will become operational in December 2020.

3. Where are the most storage investments planned?

3.1. Planned expansions

In total, there are 68 terminal projects that have announced storage capacity increase in the future. Most of them are located in both Europe (21) and Asia (20). They are being followed by Africa (13). In North America and South America there are 6 and 4 planned capacity increase projects announced. Regions with less investment dynamics are Middle East (2), Central America (1) and Oceania (1).

In chart 5 we can see that most of the planned expansions are located in the Middle East with 38,171 kcbm or 54% of the planned expansion in this region. This region is followed by Asia with 19,938 kcbm, that is 28% of the planned expansions. Then Europe, with 5,839 kcbm or 8% of the planned expansions. In North America around 3,473 kcbm or 5% is capacity planned to be increased. Other regions have between 0% or 4% planned capacity expansions. A total of 70 Mcbm are expected to be added to the current storage capacity worldwide.

Planned Expansions

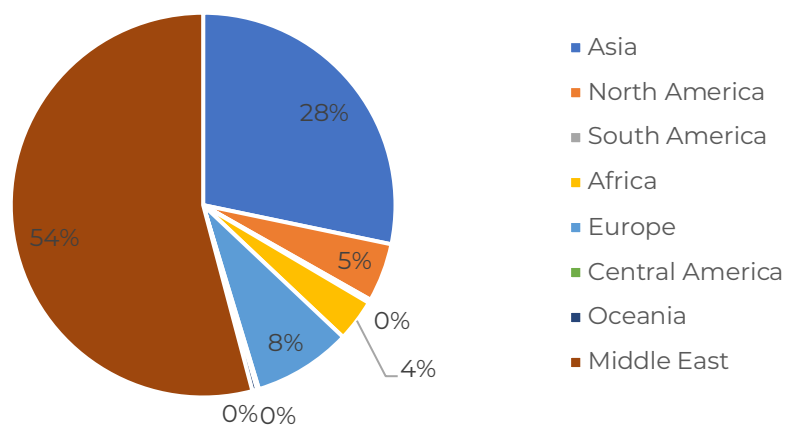


Chart 5: Planned expansions

In the Middle East, Oman Oil Company is planning to build a 200 Mbbbl storage terminal. The first 31.8 Mcbm will become operational in June 2021. The Benelac terminal in Johor (Malaysia) will handle mostly VLCCs and will have a 1,100 kcbm capacity. March 2021 will most likely be the inauguration date. In Europe, SEA-MOL is investing in a 0,500 kcbm terminal addition, which should become operational in June 2022.

3.1. Conclusion

When we sum all capacity projects that are under construction, under expansion or planned we see that the main growth area is in the Middle East, which will practically double its storage capacity. Expected capacity growth in this region is 46,327 kcbm, although much of these are in planned stage (80%). Other relatively fast-growing tank storage areas are Asia (27,979 kcbm) and Europe (9,720 kcbm). In Asia, some 70% is in the planned stage while in Europe some 60% is in the planned stage. In these regions, additions are already underway and therefore more concrete. Globally some 96 Mcbm will be added!

Total additions

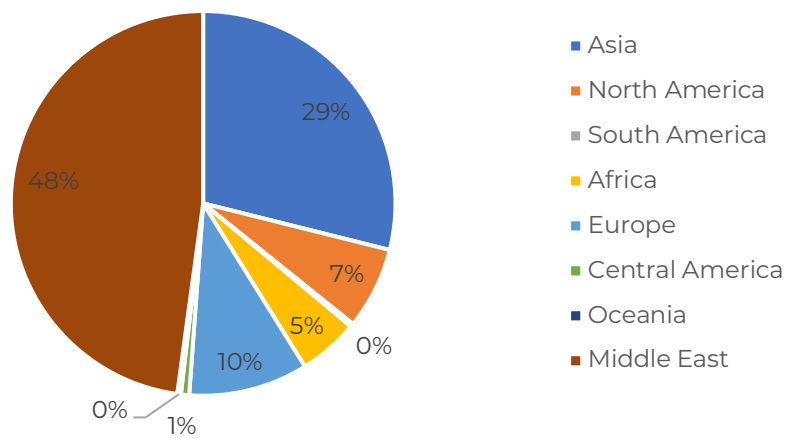


Chart 6: Total additions



4. About us

Insights Global

Insights Global is an independent market research company specialized in global petroleum, chemical and renewables industries. We enable intelligent decisions by supplying our clients with relevant and accurate market data, market analysis reports, consultancy and training services. We distinguish ourselves by combining practical knowledge, an extensive network and our data driven and quantitative approach. Furthermore, we own and operate the largest global online terminal database TankTerminals.com.

TankTerminals.com

TankTerminals.com, one of Insights Global's services, delivers up-to-date global terminal information for a wide range of companies and supports these organizations in:

- ▶ Gaining insights on the competitive landscape
- ▶ Identifying sales leads
- ▶ Segmenting target groups
- ▶ Improving optionality
- ▶ Breaking down the market structure

This market intelligence platform offers terminal factsheets, which include technical parameters, historical development and managerial contact details, all in one place. Combined with the automated vessel clearance guide this is the number one platform for terminal information and help terminals and its customers to work more efficiently.



5. Contact us for more information

René Loozen

Consultancy Director

T +31 (0)850 66 25 24

M +31 (0)6 55 69 11 75

E rloozen@insights-global.com

Michael Muijen

Account Manager

T +31 (0)850 66 25 05

M +31 (0) 6 28 34 87 48

E mmuijen@insights-global.com

Greta Talmaci

Sales Executive

T +31 (0)850 66 25 21

E greta.talmaci@tankterminals.com

Skype greta.talmaci

 Stationsweg 1B, 4811 AX Breda, The Netherlands

 info@insights-global.com

 +31 850 662520





INSIGHTS GLOBAL