

OIL TANKERS

OCTOBER 2017 MARITIME CYPRUS





RECENT NB ORDERS ARE SHAPING THE MARKET'S FUTURE

Dynamic investments in NB ships will affect the market balance significantly

- 2015's strong market encouraged more orders. Towards the end of the year, the price of a newbuilding vessel with a Tier III engine fell, resulting in a rush to place orders. Of the 180 orders placed, 113 were made in the second half of the year. <u>Too often</u> <u>long term investment decisions have been influenced by short</u> <u>term market movements.</u>
- But 2016's weak market deterred contracting orders. In strong contrast to 2015, the softness of the market resulted in significantly less contracting. VLCC contracting in 2016 was down by 67 per cent (55/18). But after recently placed orders, the number of contracts signed during 2017 YTD already exceeds the entire 2016.
- During a time of worryingly low rates, many other tanker owners have been calling for the market to focus on scrapping rather than newbuilds, but some investors appear to have different plans.
- Big players, who can still afford it, are trying to differentiate by expanding and renewing their capacity, looking to develop a competitive advantage by placing orders for newbuilds, while utilising the underwhelmed orderbooks at the shipyards and the resulting historically low newbuild prices.
- Several shipbuilders' orderbooks are lacking content compared to the same time last year, with most of them currently having an order capacity of almost a third less than during same period last year.
- Affinity NB and SnP prices have also been lagging behind. The year-on-year change in newbuild tanker values ranges from -4



NB Contracting for Crude Oil Tankers (in Mn Dwt)





VLCC: RECENTLY INCREASED INTEREST IN NB ORDERS

will add to the currently high orderbook with scheduled deliveries for 2019 onwards to increase significantly.





OIL TANKER FLEET GROWTH







CLEAN TANKER FLEET GROWTH





Comment:

• OB/Fleet ratio suggests how much fleet growth we could expect, while the OB/ 15+Yrs old fleet indicates how scrapping could improve the situation.

		Existing Fleet	>14 Yrs old	On order	Del. 2017	2017	2018	2019	2020	2021	OB/ Fleet	OB/ 15+Yrs
Panamax Ships	Mn Dwt	5.1	1.6	0.3	0.2	0.1	0.1	0.2	0.0	0.0	6%	19%
	Ships	74	23	4	3	1	1	2	0	0	5%	17%
Aframax Ships	Mn Dwt	71.3	15.3	9.3	2.9	1.0	5.0	2.4	0.5	0.5	13%	61%
	Ships	660	148	82	26	9	44	21	4	4	12%	55%
	Mn Dwt	86.5	18.6	10.4	7.8	2.7	6.0	1.5	0.3	0.0	12%	56%
Suezmax	Ships	555	123	67	50	17	38	10	2	0	12%	54%
	Mn Dwt	218.4	42.9	30.0	12.5	3.7	15.0	11.1	0.3	0.0	14%	70%
VLCC	Ships	713	143	97	41	12	48	36	1	0	14%	68%
	Mn Dwt	381.2	78.4	50.0	23.5	7.4	26.0	15.2	1.0	0.5	15%	64%
lotal Dirty	Ships	2002	437	250	120	39	131	69	7	4	15%	57%



Comment:

• OB/Fleet ratio suggests how much fleet growth we could expect, while the OB/ 15+Yrs old fleet indicates how scrapping could improve the situation.

		Existing Fleet	>14 Yrs old	On order	Del. 2017	2017	2018	2019	2020	2021	OB/ Fleet	OB/ 15+Yrs
Handysize S	Mn Dwt	21.9	6.1	1.3	0.5	0.3	0.6	0.3	0.1	0.0	6%	22%
	Ships	598	171	36	13	9	17	7	3	0	6%	21%
Medium Range	Mn Dwt	75.6	10.7	7.5	2.8	1.0	3.4	2.4	0.6	0.0	10%	70%
	Ships	1590	236	152	57	21	68	49	13	1	10%	64%
	Mn Dwt	27.2	1.5	2.4	1.2	0.4	1.3	0.4	0.1	0.2	9%	154%
LR1	Ships	372	22	32	16	6	18	5	1	2	9%	145%
	Mn Dwt	38.3	5.1	6.2	3.6	1.4	2.3	1.4	0.8	0.5	16%	121%
LKZ	Ships	355	50	55	32	12	20	12	7	4	15%	110%
Total Class	Mn Dwt	163.0	23.5	17.4	8.0	3.2	7.5	4.5	1.6	0.7	15%	74%
Iotal Clean	Ships	2915	479	275	118	48	123	73	24	7	15%	57%



Comment:

- OB/Fleet ratio suggests how much fleet growth we could expect, while the OB/ 15+Yrs old fleet indicates how scrapping could improve the situation.
- Coated tankers included in the table below, but numbers mentioned for LR1 and LR2 under the totals.

	Fleet		Orderbook			2017 YTD	2017	2018	2019	2020	2021
	(Mn Dwt)	(No. of Ships)	(Mn Dwt) (N	o. of Ships)	On Order as % of exist. fleet			(No.	of Vessels	.)	
Handysize	21.9	598	1.3	36	6.0%	13	9	17	7	3	0
Medium Range	75.6	1590	7.5	152	9.9%	57	21	68	49	13	1
Panamax / LR1	32.3	446	2.7	36	8.3%	19	7	19	7	1	2
of which LR1.	27.2	372	2.4	32	8.7%	16	6	18	5	1	2
Aframax / LR2	109.6	1015	15.5	137	14.2%	58	21	64	33	11	8
of which LR2.	38.3	355	6.2	55	16.3%	32	12	20	12	7	4
Suezmax	86.5	555	10.4	67	12.0%	50	17	38	10	2	0
VLCC	218.4	713	30.0	97	13.8%	41	12	48	36	1	0
Grand Total	544.2	4,917	67.5	525	12.4%	238	87	254	142	31	11

New Contracts								D	emolition		
	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	2016 Ytd	2017 Ytd	Sold for Scrap	2016 Ytd	2017 Ytd
Handysize	0	0	0	0	0	0	5	4	2	7	2
Medium Range	15	3	10	7	3	3	19	48	2	8	9
Panamax / LR1	0	2	0	0	1	0	3	3	1	1	3
of which LR1:	0	1	0	0	1	0	3	2	0	1	3
Aframax / LR2	6	6	4	8	0	6	14	43	6	7	15
of which LR2:	4	4	4	8	0	4	3	36	2	1	2
Suezmax	0	2	10	0	6	0	11	18	2	0	8
VLCC	13	13	0	4	0	7	14	46	5	0	6
Grand Total	34	26	24	19	10	16	66	162	18	23	43
							Y-O-Y%	145%		Y-O-Y%	87%
							cnange			change	



OIL TANKER FLEET









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COULD SCRAPPING BE THE ANSWER?







Some owners will avoid scrapping this or next year, expecting to achieve higher prices from 2019 onwards.

- A higher number of potential candidates for scrapping is expected to push scrap values lower in 2018, before recovering from 2019 onwards.
- Owners will have an eye on costs linked to new regulation, such as BWMS, while life expectancy is expected to decline closer to 20 years.



COULD SCRAPPING BE THE ANSWER?

Aframax/LR2 ships by age - currently older than 15 years old





MEDIUM RANGE TANKERS

Medium Range vessels are defined as being between 40,000 Dwt - 55,000 Dwt.



- → The fleet consists of 1,587 vessels, with a total capacity of 75.43 Mn Dwt.
- → The Medium Range fleet has an average age of 9 years.
- → The orderbook is currently 10.2 per cent of the existing fleet, totalling 156 vessels or 7.7 Mn Dwt.
- \rightarrow On average, a MR was demolished after 25.5 years in 2016.
- \rightarrow There are 101 vessels (totalling 4.55 Mn Dwt) in the MR fleet older than 20 years.
- → 31 MRs scheduled to be delivered this year are under construction and are expected to be completed by the end of the year, while 41 are currently under construction to be delivered next year.
- → As indicated by the decreased YoY percentage change of the fleet, the growth of the MR sector is slowing down, although oversupply remains a problem.



HANDYSIZE TANKERS

Handysize vessels are defined as being between 30,000 Dwt - 40,000 Dwt.



- → The fleet consists of 596 vessels, with a total capacity of 21.84 Mn Dwt.
- → The Handysize fleet has an average age of 11.7 years.
- → The orderbook is currently 6.5 per cent of the existing fleet, totalling 38 vessels or 1.4 Mn Dwt.
- → On average, a Handysize was demolished after 27.7 years in 2016.
- → There are 59 vessels (totalling 2.12 Mn Dwt) in the Handysize fleet older than 20 years old. Just under half of these vessels are over 25 years old.
- → 10 Handysizes scheduled to be delivered this year are under construction and are expected to be completed by the end of the year, while 15 are currently under construction for delivery next year.



SUPPLY SIDE: THE CONCLUSIONS

The tanker fleet still growing – less than before but still growing. 2016 fleet growth 5.7% for crude and 6.5% for products. This year 5.5% is expected for the combined market, but the situation is now worse for crude than products (5.9% crude / 4.5% products).

- 256 ships (30.9 Mn Dwt) were delivered in 2016.
- 43.1 Mn Dwt is due for delivery in 2017 (including 103 ships of 13.7 Mn Dwt already delivered).
- Orderbooks: VLCC 13.5% (52 this year/44 in 2018), for Suezmax 15.8% (71 this year/33 in 2018), and for Aframax 14.4% (85 this year/47 in 2018).
- In total, 227 ships of 29.5 Mn Dwt are scheduled to deliver during the rest of 2017.

Scrapping is affected by the current age profile of the fleet. Most segments are generally very modern.

- Only 4.4% of VLCCs are over 20 years old, 6.4% of Suezmaxes and 7.1% of Aframaxes
- The total tanker fleet capacity over 20 years old is only 28.5 Mn Dwt.
- Vessels younger than the historical average will have to be scrapped.
- The current average age of demolition is 24 years old for VLCCs, and 26 for both Suezmaxes and Aframaxes.
- Aframaxes have the oldest age profile (with 8.2% of the fleet over 20 years), while the VLCC fleet is the youngest (with only 4.4% over 20 years).
- In 2016, 30 vessels were scrapped (combined capacity of 2.2 Mn Dwt). The average size demolished was 73,500 Dwt. Compared to deliveries, net fleet growth was 5.9%.
- So far in 2017, 1.25 Mn Dwt has been scrapped, with 1.2 Mn Dwt sold for scrap but not yet demolished. Annual levels could reach 6

Min Dwt.

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OIL TANKER 2. ASSET VALUES



OIL TANKER ASSET VALUES

Focusing on oil tanker values from the investors' point of view:

- Assets are historically cheap. 2nd hand ships are significantly more discounted to NB than the historical average at a time of (in real terms) the lowest NB prices in at least a generation. These are the lowest NB prices in nominal terms since 2003. If 2nd hand is more discounted than normal against these low levels, that has to represent value.
- Low interest rates = extremely low financial holding costs potentially the lowest ever. Low prices x low interest rates = low financial cost.
- Regulatory changes are adding pressure on older tonnage, supporting scrapping – BWTS in the short term and SoX regulations in 2020 should accelerate obsolescence of older, more thirsty, tonnage
- Pricing and earnings are well below long term averages, so a future recovery in earnings would make owners a lot of money based on current entry point, as even weak spot rates cover OPEX and period rates give a living wage so underwrite a potential investment.
- We are currently at the bottom of both a shipping cycle across all sectors and a longer term deflationary shipbuilding cycle. The long term pricing pressure on ships is up as cheap labour China ceases to be cheap and there's no cheaper labour nation to move on to. The migration of shipbuilding capacity from Europe to Japan to Korea to China has nowhere else to go.
- Investors are considering particular value in the 5-10-year-old ships (deeply discounted to NB). It is much easier to make returns as the capital cost burden is much lower. 5 and 10 year olds have the same technology so we tend towards the older vessels – also more availability. But tight supply of quality



200

150

100

50

120 100 80 60 40 20 0 2007 2008 2010 2011 2000 2001 2002 2003 2004 2005 2006 2009 2012 2013 2014 2015 2016 2017

Crude Oil Tanker – Newbuilding Prices (in USD Mn)

— Aframax —— Suezmax —— VLCC

AFFINITY lock in the bottom

tonnage at today's prices means that NB might be the only way lock in the bottom of the cycle – and has the **Berket/tAoT Bei**&gCONFIDENTIAL

PRICES COMPARISON

% Change in NB Prices: January – December 2016 ■ Tanker ■ Dry Bulk ■ Container 14% 0% 10% -4% -8% 6% -12% 2% -16% -2% -12% -8% -20% -6% VLC Handysi Ultramax LR1 Capesize MR LR2 Supramax Panamax k teu RΒ Aframax Suezmax Kamsarmax TEU Handysize Handysize TEU Б Ц 乱 20 k 3.8 1.7 2.5 σ 4 Ь



% Change in NB Prices: January – August 2017



■ Tanker ■ Dry Bulk ■ Container

Depreciation (5-yr-old vs NB Price)





PRICES COMPARISON



VLCC Depreciation: Resale vs NB and 5-yr-old vs NB Price





AFRAMAX PRICES COMPARISON





Aframax Depreciation: Resale vs NB and 5-yr-old vs NB Price





OIL TANKER 3. EARNINGS



VLCC EARNINGS

Challenging spot market in both crude and products in the short term

- Spot market rates have slumped this year, wilting beneath the size of the VLCC and Suezmax fleet. A high volume of deliveries, particularly at the beginning of the year from slippage from 2016, have pressured rates; several routes have fallen well below their 2016 lows.
- Time charter earnings are also struggling at multi-year lows. The fact that the 1-Yr TC has fallen below the longer terms reveals just how strongly negative the short term outlook is.
- Nevertheless, we expect rates to improve gradually over the next few years, fuelled by more scrapping due to the implementation of new policy.











SUEZMAX EARNINGS

Challenging spot market in both crude and products in the short term

- Barring a spike in March, Suezmax spot earnings have been on a gradual decline since the turn of the year. Ongoing disruptions to crude oil output in West Africa, in particular Nigeria, have had a significant impact on the market.
- A steady stream of newbuildings have also hampered the market, while low VLCC rates have resulted in charterers turning to their attention to the larger ships.
- Time charter earnings are struggling at multi-year lows. The 1-Yr TC has fallen well below the longer terms, which reveals just how strongly negative the short term outlook is.
- All hopes remain on scrapping, although the delay to the implementation of the BWTS will likely push back expectations.





Suezmax – 1, 3, 5-Yr TC (USD per day)



AFRAMAX EARNINGS

Challenging spot market in both crude and products in the short term

- Aframax spot earnings are now at multi-year lows. Excess tonnage lists in both the Baltic and the Med have pressured rates, while production outages in Libya have also played their part.
- The Baltic Exchange Aframax TCE is, at the time of writing, is only just above USD 0 per day.
- As with both VLCCs and Suezmaxes, the 1-year TC rate has fallen well below that of the 3-and 5-year rates, emphasising just how negative the short term outlook is.



Aframax – 1, 3, 5-Yr TC (USD per day)

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TD8

TD14



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-10000

THE IMPACT OF SEASONALITY

Methodology

- Basis monthly freight market averages since January 2008, a clear seasonal pattern is apparent, with a strong January giving way to a relatively weak February (probably due to Lunar New Year), a firm March, and a weaker April (likely due to Asian refinery maintenance season). Asian refinery restocking and pre-US driving season ramp-up sees a strong May-June, with a summer lull in July and August followed by the traditional Q4 spike as refiners switch to producing Northern Hemisphere winter products.
- The weaker months of July to September present an opportunity for charterers to take tonnage on period before TC rates follow freight market activity upwards in Q4.

VLCC Monthly TCE / Annual Average TCE



VLCC Earnings (in USD k per Day): Seasonally adjusted freight rate forecast 2017 2017 2017 2017 2018 2018 2018 2018 2019 2019 2019 2020 2020 2020 2021 202° 2021 2021 2019 2020 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q4



PRODUCT TANKER EARNINGS

It is a challenging spot market for products in the short term

- Observations of the relationship between capacity utilisation and MR tanker earnings (here represented by the MR Atlantic Basket reported by the Baltic Exchange) shows 77 per cent correlation.
- The remainder of the freight rate can be explained by "randomness" – sentiment, short-term effects such as weather, politics, strikes, holidays, etc.
- But the correlation remains steady enough to use the trend to create capacity utilisation scenarios using the assumptions.
- We can alter the scenarios to include your own assumptions for supply and demand growth.
- The oversupply of tonnage is largely responsible for the fall in earnings in 2016 and, while a large number of deliveries are expected throughout the year, we expect sufficient demand to

Handysize & MR 1-Year TC forecast (USD per day)





- Observations of the relationship between capacity utilisation and MR tanker earnings (here represented by the Affinity 1y TC rate, annual average) has a 70 per cent correlation.
- The 1 year rate dropped in 2016, but our base case predicts a rise in utilisation in 2017 and an improvement in rates. It remains to be seen if our base case turns out to be right after poor demand growth in 2016.

Clean Global Spot TCE Forecast (USD per day)



PRODUCT TANKER EARNINGS



Handysize & MR 3-Year TC forecast (USD per day)





Handysize & MR OPEX forecast (USD per day)









CRUDE OIL TANKER DEMAND

Global energy consumption is increasing year-on-year

- Oil's share is reducing as renewables encroach. However, oil demand is still growing due to demand from emerging economies.
- Global oil demand is currently projected to expand by 1.5% in 2017. Crude consumption growth is relatively flat, close to 1.3% y-o-y over the last five years. Tanker demand is slightly higher as trade routes have evolved. Non-OECD Asian oil demand is expected to increase by 4% in 2017, mainly driven by demand in China and India.
 - Strategic stock building could increase trade in excess of consumption, leading markets to boom again as happened in 2015.
 - Indian oil demand during the first quarter of 2017 was negatively affected by currency controls implemented at end of 2016.
 - But still 2017 oil demand in India is projected to grow by 5%.
- US energy independence is transforming trade flows in crude, adding tonne-miles to the total demand.
- There has been a lack of significant arbitrage opportunities this year, as a result of surpluses in both the US and Europe, but demand for different grades of gasoline may increase potential during the driving season.
- In the middle of Q2, the first flows of crude oil started on the delayed Myanmar-China pipeline with capacity to transport 440,000 bpd. The refinery can now import crude from the Middle East and Africa, without shipping cargoes via the Straits of Malacca, reducing voyage distances and risk of pirate attacks.





Crude & product seaborne trade volumes (in Mn T)

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CRUDE OIL TANKER DEMAND



Mn T of Crude Oil Loaded on VLCC in NW Europe by Destination









CRUDE OIL PRICE UPDATE

- At the end of November 2016, Opec reached a decision to collectively cut 1.2 Mn bpd of production from October 2016 levels, with compliance expected by 1 January 2017.
- A further 0.6 Mn bpd was agreed to be cut by non-Opec producers, including Russia, in what was a historic agreement. Prices spiked on the news, as can be seen in the chart opposite.
- However, with the agreement quickly priced in, there has been little else since to encourage any upward movement in prices.
- Nigeria, Libya and, to a certain extent Iran, have been exempt from the deal and their rising crude oil outputs have been enough to spook the market, weighing on prices.
- And then there is the threat posed by US shale. The US oil rig count has increased for 23 consecutive weeks, rising by 225 (nearly 50 per cent) in that time. Since the beginning of the year, total US crude oil production has risen by over 0.4 Mn bpd, from slightly below 9.0 Mn bpd at the turn of the year.
- Towards the end of May, those participating in the deal agreed to extend the cut beyond the provisional six months, pledging to hold production for a further year.
- However, market participants were disappointed by this, hoping that the cut would be made deeper, rather than longer. Since then, a combination of Libya boosting production to just shy of 900,000 bpd, with the aim of reaching 1 Mn bpd by the end of July, Nigerian production rising, Iraq's unwillingness to comply with its cut quota, and the US shale situation, have all dragged prices back down to levels below that at which they languished before the cut deal.



Brent WTI

Crude Oil Prices: Brent and WTI (USD per barrel)

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CRUDE OIL DEMAND

- Chinese crude oil imports hit a record high in March 2017, bringing in just shy of 9 Mn bpd. Imports have since eased slightly, but as can be seen from the chart opposite, imports are still far higher than during the same months last year.
- The EIA has estimated that Beijing intends to build storage for 500 Mn barrels of strategic crude oil reserves by 2020.
- Indian crude oil demand is also on the rise, but the slump in imports at the beginning of the year can be explained by the 'cash crisis', when Prime Minister Modi banned the 500 and 1,000 rupee notes, which accounted for 86 per cent of all cash in circulation.
- US oil demand, according to the EIA's data, remains fairly flat, traditionally peaking during the summer driving season.



Chinese Crude Oil Imports (K bpd)





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CRUDE OIL TANKER DEMAND - AFRAMAX









OPEC CUT COMPLIANCE

For the most part, Opec and its other partners have hit a high level of compliance with the agreement.

- According to Bloomberg, the compliance among participating Opec countries was 106 per cent in May cutting 1.237 Mn bpd, with the target of 1.164 Mn bpd.
- Non-Opec countries hit 86 per cent compliance, the highest yet, cutting 481,000 bpd of the targeted 558,000 bpd.



Source: Bloomberg



OIL MARKET FUNDAMENTALS

Opec's cut has paved the way for demand to exceed supply, thus relieving pressure on prices.

- According to a combination of IEA data and our own estimates, the oil market is actually currently in a demand deficit. The cut agreement has removed over 1.6 Mn barrels from daily production, while output from the likes of Canada and China, among others, the latter for which output fell to 3.83 Mn bpd in May, its lowest level since records began in 2011.
- We currently estimate daily global production to be around 96.5 Mn bpd, with Opec accounting for around one-third of this.
- The IEA estimates that Chinese crude oil demand is still set to increase this year, by 3.36 per cent to average 12.32 Mn bpd from last year's 11.92 Mn bpd.
- Indian growth is set to be even more impressive, rising by 4.44 per cent to average 4.48 Mn bpd in 2017.
- Global oil demand is forecast to grow by just shy of 1.3 Mn bpd in 2017 – 1.33 per cent.
- Global crude output, meanwhile, is set to decline on the year, shedding 0.24 per cent down to 96.73 Mn bpd.
- According to our estimates, demand will exceed supply by over 2 Mn bpd in 4Q17.







OPEC OIL PRODUCTION

After Opec's move to limit production at the end of last year, it will be interesting to see how exports are affected in the mid to long term.

- Opec led an oil production cut which began in January 2017. The agreement has since been extended, set to remain in place until March 2018.
- Production increased leading up to January, followed by a severe reduction from December to January. The initial decrease accounts for around 1 Mn bpd of production, down from 33 Mn bpd.
- Production then fell further in February and March, with average production decreasing by 1.26 Mn bpd from December to March.
- Larger producers are asked to shoulder more responsibility for the cuts than smaller producers. The largest contributions were from Saudi Arabia, who were targeting a 486,000 bpd decrease. Other larger producers such as Iraq and the UAE were to accept larger responsibility for the cuts.
- Libya and Nigeria were never part of the agreement, both have plans to increase their oil production in order to increase revenues from exports following long periods of instability. This has put excess pressure on participating nations, and explains the rise in production from April to May.
- The production from Libya and Nigeria increased by 326,000 bpd between December and May 36.6 per cent ______of the total Opec decrease.



Opec Oil Production (Mn bpd)

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OPEC OIL EXPORTS

- Total Opec exports between Jun 2016 and May 2017 were greater than exports between Jun 2015 and May 2016. Exports in Q4 2016 leading up to the production cut were on average 2.65 Mn bpd higher than the preceding year.
- Total Opec exports for Jan-May 2017 were higher (20.05 Bn bbls) than Jan-May 2016 (20.02 Bn bbls).
- Only three out of the five months between Jan and May saw reductions in exports on the preceding year. So despite a production cut, there has been increased oil supply coming out of the Opec countries over the past 12 months.
- · Saudi Arabia, UAE, and Iran all saw large growth in exports during the past 12 months compared to the previous year, while there were annual reductions on Nigeria, Qatar and Venezuela.
- · Saudi Arabia, having led the production cuts, have surpassed their 486,000 bpd target. The Saudi Arabia reduction from December to February was 646,000 bpd.
- · However, Saudi exports didn't follow the same trend. Oil exports were



Opec Seaborne Oil Exports (Mn bpd)



Opec Member Oil Exports (Mn bbls)



2015-16 2016-17

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US OIL PRODUCTION & EXPORTS

- US crude oil production fell strongly during the first half of 2016 as producers were deterred by falling prices.
- As prices recovered, it took several months to ensure prolonged recovery before production began to increase again in November 2016.
- The US are now producing over 835,000 bpd more than in October last year.
- US exports increased 158,000 bpd on average from January 2017, compared to before the Opec production cut was implemented.
- US exports to North Asia increased over 275,000 bpd from January to February, showing increased appetite for US oil in China, Japan and South Korea.
- Northern Asia accounted for just 1.5 per cent of US exports between June 2015 and May 2016. So far in 2017 this figure has increased to 20 per cent.



US Oil Production (Mn bpd) vs WTI Price (USD per barrel)





US Oil Exports (k bpd)



OIL PRODUCTS – SEABORNE DEMAND

Global Seaborne Trade - Oil Products 1,200 3,500 — Mn T — Bn T-miles 3,000 1,000 2,500 Мn Т 2,000 1,500 1,000





OIL PRODUCTS – SEABORNE DEMAND





REFINING CAPACITY VS CPP DEMAND

All figures in Mn bpd	Refining Capacity Current	Expected Capacity by End- 2017	Capacity % Growth	Current CPP Demand	Estimated CCP Demand End-2017	Demand % Growth	Current Surplus/Deficit	Estimated -Surplus/Deficit End 2017
US	22.16	22.58	1.90%	19.60	19.68	0.4%	2.56	2.90
EU	17.03	17.03	0%	13.80	13.80	0.0%	3.23	3.23
Middle East	7.80	8.70	11.54%	8.25	8.39	1.7%	-0.45	0.31
Of which Saudi Arabia	2.87	3.28	14.29%	3.27	3.30	0.9%	-0.40	-0.02
Iran	1.37	1.49	8.76%	1.87	1.92	2.7%	-0.50	-0.43
India	4.55	4.92	8.13%	4.28	4.56	6.5%	0.27	0.36
China	11.10	11.90	7.21%	11.68	11.96	2.4%	-0.58	-0.06
Japan	3.91	3.68	-5.88%	3.94	3.86	-2.0%	-0.03	-0.18
Korea	3.70	3.70	0%	2.55	2.62	2.7%	1.15	1.08
TOTAL	70.25	72.51	3.22%	64.10	64.87	11.8%	6.15	7.64

- In the EU, no additional refinery capacity is expected by the end of 2017, and the IEA predicts that demand will hold steady, meaning that the high surpluses in both the US and the EU will endure.
- The completion of Saudi Aramco's 400,000 bpd Jizan refinery in 2017 will contribute significantly to the capacity in the Middle East, increasing its refining surplus by the end of 2017.
- · Between the beginning of 2016 and the end of 2017, five

Japanese refineries will have shut down, removing 231,000 bpd of capacity.

- In South Korea, no change in refining capacity is currently planned, but demand is set to increase by 70,000 bpd (2.7 per cent), reducing the refining capacity surplus.
- Overall, the surplus of refining capacity is expected to increase by 850,000 bpd by the end of 2017.



US AND EU CPP MARKET SUMMARY

The US has, at least on paper, a significant surplus of refining capacity, while the EU remains stagnant.

- Our data suggest that the US has a current refining capacity surplus of 2.56 Mn bpd. By the end of 2017, this will have further increased to 2.90 Mn bpd.
- All 420,000 bpd of the scheduled refining capacity was added by the end of 2016; nothing is scheduled beyond that until 2020. US CPP demand is forecast to rise only marginally, by just 80,000 bpd, according to the IEA.
- US oil demand grew by 2.20 per cent in 2015, before slowing to an estimated 0.72 per cent in 2016. The forecasted 0.31 per cent growth for 2017 is down to increased efficiency and the sales of more environmentally friendly vehicles.
- Demand for gasoline continues to record strong growth, averaging 9.33 Mn bpd in 2016, according to the EIA. That is an annual growth of 1.9 per cent. Monthly consumption peaked in July at 9.69 Mn bpd, the highest on record; demand in April 2017 was 9.26 Mn bpd.
- On the other hand, demand for distillates, particularly diesel, is falling. According to the JODI database, demand for diesel was just 3.579 Mn bpd in July 2016, its lowest monthly figure for three years, although it has since recovered. Weaker industrial demand and stalling sales of heavy duty trucks, which are also switching to natural gas fuels, are largely responsible. Demand in May 2017 was 4.06 Mn bpd.

- The increase in capacity surplus will free up more CPP for export.
- Traditionally, the US has been a strong exporter of diesel, the majority of which is destined for countries in the Americas. However, with European demand for CPP stagnating, the US may be forced to look elsewhere to export.
- According to the EIA, the US exported an average of 4.13 Mn bpd of oil products during 2016, which is a year-onyear increase of 10.31 per cent over 2015's 3.744 Mn bpd.
- No change is anticipated in Europe with regards to both refinery capacity and demand for oil. Capacity is anticipated to remain at 17.03 Mn bpd, and demand is expected to hold steady in 2017 at 14.09 Mn bpd, according to the IEA.
- High EU taxation, high labour costs, and environmental regulation, among others, have resulted in the closure of a significant amount of refinery capacity over the past few years, while deterring the construction of new units.
- A weakening macroeconomic outlook has played a significant role in the IEA's forecast for demand, while improvements in efficiency and more demand for alternative fuel vehicles also will make an impact.



MIDDLE EAST CPP MARKET SUMMARY

The Middle East, led by Saudi Arabia, is significantly increasing its refining capacity.

- The marginal demand increase of 140,000 bpd in the Middle East by the end of 2017 will be substantially offset by the slated 800,000 bpd increase in refining capacity. Refining capacity will rise to 680,000 bpd by the end of 2017. With storage near full capacity, more CPP will be made available for export, once local demand is fulfilled as a priority.
- Saudi Aramco's Rabigh 2 refinery will have been expanded by 50,000 bpd by the end of 2017. Aramco's delayed 400,000 bpd Jazan refinery, which was originally slated to begin operations in late 2016, is now due for completion in 2017. In turn, the Saudi state-owned oil company is set to shut down its 49-year-old, 100,000 bpd refinery in Jeddah, owing to its age and concerns over the environment. Qatar Petroleum's 146,000-bpd Ras Laffan 2 refinery is due for completion early this year; and Oman Refinery Co's Sohar refinery will have added 60,000 bpd to its capacity by the end of 2017.
- Middle Eastern oil demand growth is slowing. Demand in 2016 recorded negligible growth, although the IEA forecasts a 1.89 per cent increase in 2017. The IEA's most recent data reveal that Saudi Arabian oil demand growth in Q4 2016 was negative, settling at 3.05 Mn bpd, down 0.17 Mn bpd year-on-year. Demand growth is again expected to be negative in 2017, with demand falling by 0.03 Mnb bpd to 3.17 Mn bpd.
- Saudi gasoil/diesel demand in 2016 fell by 3.55 per cent year-onyear, while gasoline demand rose by 1.27 per cent.
- A weakening macroeconomic outlook and substantially reduced transport subsidies have been cited as reasons for the 20,000 bpd reduction in demand for 2016, averaging 3.22 Mn bpd.
- · According to the Joint Oil Data Initiative, Saudi Arabia exported

244,000 bpd of gasoline in April 2017, and averaged 210,000 bpd throughout 2016. That is a 26.51 per cent increase over 2015's 166,000 bpd. During the first four months of the year, Saudi Arabia has exported an average of 238,000 bpd of gasoline.

- A good proportion of this is to meet local UAE demand, which goes some way to explaining the current overall Middle Eastern deficit.
- Following the relaxing of sanctions at the beginning of 2016, Iran has begun to export CPP as well as crude. Last year, Iran exported an average of just 19,400 bpd of diesel, with most coming in the last five months of the year. During the first four months of the year, Iran has averaged 24,750 bpd of diesel exports. The largest buyers are Iraq, Afghanistan, Pakistan, and Armenia.
- This year, Iran's National Iranian Oil Company intends to both improve the quality of its diesel as its refineries are upgraded, while also increasing its exports.
- Having been a large importer of diesel before 2014, Iran is switching to natural gas as a feedstock for its power plants. More phases are undergoing completion at the South Pars Gas Field, which will further reduce Iran's reliance on diesel.
- At the end of 2015, Iran's deputy petroleum minister said that the country would halt import of gasoline, saying that Iran would become self-sufficient in gasoline production this year. In April 2016, the 360,000 bpd Persian Gulf Star refinery is expected to come onstream.
- Demand has fallen because of sweeping changes concerning government subsidies throughout the Middle East. During last year, the UAE has changed its fuel prices; Abu Dhabi has raised utility tariffs; Saudi Arabia has cut fuel subsidies; and Oman is considering removing their subsidies altogether.



CHINESE CPP MARKET SUMMARY

Both Chinese refinery capacity and CPP demand are expected to grow.

- China is expected to add 850,000 bpd refining capacity by end-2017. In 2016, the 60,000 bpd Luqing Petrochemical refinery in Shandong came on-stream, and in 2017 Saudi Aramco and CNPC's delayed 200,000 bpd refinery in the Kunming province will also come on-stream.
- Four refineries are due to be expanded; the 60,000 bpd expansion at CNOOC's Taizhou refinery is expected to be completed soon. Expansions of 90,000 bpd and 100,000 bpd are expected in 2017 at CNPC's Daqing Heilongjiang and Huabei's refineries respectively; in 2017 CNOOC's key Huizhou refinery will finish its 200,000 bpd expansion.
- Chinese CPP exports are on the rise. In 2016, China exported an average of 1.042 Mn bpd of CPP, 0.253 Mn bpd more than 2015's 0.789 Mn bpd (a 32.07 per cent increase). Exports peaked at 1.361 Mn bpd in December. Before that, November had held the previous record at 1.258 Mn bpd. So far this year, exports of CPP have been around the 1 Mn bpd mark.
- The Chinese government in 2016 more than doubled the amount which refineries can export. A number of independent refiners ('teapots') began exporting their own products as competition heats up at home.
- China's refinery capacity growth is expected to outpace demand by the end of 2017, reducing the deficit of

capacity to 100,000 bpd. We can expect the amount of CPP left for export to increase.

- According to the IEA, China's CPP demand was 11.90 Mn bpd in 2016 – a 3.12 per cent gain. Demand growth is expected to be 2.86 per cent in 2017, up to 12.24 Mn bpd. Although showing signs of slowing, China's economic growth is still impressive; GDP growth in Q2 2017 was a strong 6.9 per cent.
- Chinese refinery throughput remains high. In March 2017, CPP refinery output reached 12.732 Mn bpd, the highest on record. Output in May 2017 was 12.435 Mn bpd. Refinery output averaged 11.42 Mn bpd in 2016, a 5.59 per cent increase over 2015's 10.81 Mn bpd.
- During 2016, China exported an average of 225,256 bpd of gasoline, a 64.29 per cent increase over 2015's 137,105 bpd. The US and Singapore are the largest recipients of Chinese gasoline.
- Refined products in China are highly regulated; domestic refined product prices are capped, which incentivises refineries to export, particularly with crude oil prices as low as they are. In January 2016, the government announced a policy which would not allow fuel prices to fall, regardless of any drop in the price of crude oil.



CHINESE CPP MARKET EXPECTATIONS

Chinese Oil Exports by Cargo Type



Chinese Oil Products Exports by Destination



Asia RoW



INDIAN CPP MARKET SUMMARY

Surging Indian demand growth for CPP will likely result in declining CPP exports.

- India is now the world's fourth largest consumer of oil, and has emerged as the key driver behind global oil demand growth. The IEA estimates that Indian oil demand averaged 4.28 Mn bpd in 2016, and that it will rise to 4.47 Mn bpd in 2017.
- According to the Indian Oil Ministry's petroleum planning and analysis cell, Indian oil demand in 2016 rose by 11 per cent on the year, to the highest on record. Gasoline demand rose by 12 per cent, while diesel rose by 5.6 per cent.
- India has the fourth-highest refinery capacity in the world. IOC opened a new 200,000 bpd oil refinery in Paradip at the end of 2016, while its Panipat refinery will undergo a 60,000 bpd expansion this year. Nagarjuna Oil's Cuddalore refinery completed the first phase of its expansion at the end of 2016, increasing its capacity by 120,000 bpd.
- Indian vehicle sales continue to rise as the country's economy grows and the middle class expands. For 2016, vehicle sales grew by an estimated 7.6 per cent, to around 2.2 Mn, before growth eases slightly to 6.5 per cent in 2017.
- In 2016, India averaged CPP exports of 1.413 Mn bpd, a 13.40 per cent increase over 2015's 1.246 Mn bpd. Significant volumes are exported to the Middle East and Asia.
- In October 2015, BMI Research published a report which estimates that India's net gasoline exports will decline by 97.8 per cent between 2014 and 2019. By 2020, India will become a net importer of gasoline, second in the world only to Indonesia. From our point of view, UMS exports during 2016 does not suggest any significant dwindling of exports.
- Although India's refineries were built in part to earn foreign currency through products exports, increased CPP demand at home is taking up a larger share of production. India is likely to increase refinery capacity for export, but this would have to be done with the full understanding of the increased competition from foreign developed refineries, particularly in the wake of the significant ramp up of refining capacity in the Middle East, particularly in Saudi Arabia.



NE & SE ASIA CPP MARKET SUMMARY

Comments on countries in Northeast and Southeast Asia (namely Japan, Korea, Australia, and Singapore) CPP demand and refining capacity.

- In this region, completion of PetroVietnam's 200,000 bpd refinery in Nghi Son, Vietnam, has been delayed into Q3 or Q4 2017. While In Taiwan, CPC's Talin refinery is set to undergo a 150,000 bpd expansion, due for completion some time this year. In Japan, a total of five refineries have been or are due to be shut down; two were closed in 2016 and three more have followed and will suit this year. No additional capacity is scheduled to be added to offset the expected loss of 231,000 bpd of capacity.
- Japan's demand is shrinking owing to its declining population and its increasing energy efficiency. As a result of its shrinking refining capacity, Japan may be yet forced to increase imports of gasoline and other distillates in the future
- In May 2017, Japanese CPP demand was just 3.643 Mn bpd, according to JODI, the second-lowest on record, 'bested' only by June 2016's 3.628 Mn bpd.
- Between May and October 2016, Japanese refined oil product demand was consecutively below 4 Mn bpd for a 6-month period for the first time since JODI records began in 2002. According to JODI, Japanese CPP demand averaged 4.125 Mn bpd in 2016, a decrease of 2.78 per cent from 2015's 4.243 Mn bpd. The IEA predicts demand to fall yet further in 2017, down to 3.91 Mn bpd in 2017.
- According to Japan's Ministry of Energy, imports may supply 36 per cent of the country's gasoline demand by 2020. The structure of these imports (term or spot) will go a long way to determining the CPP freight market to Japan.
- According to JODI, during 2016, South Korean refinery output rose by 3.32 per cent on the year, by around 100,000 bpd to a daily average of 3.11 Mn bpd.
- JODI data reveal that South Korean CPP demand rose in 2016, up on the year by 6.03 per cent to 2.762 Mn bpd. However, any future demand growth will likely be tempered by Seoul's new, strict greenhouse gas emissions policy. Demand in May 2017 was 2.73 Mn bpd.
- South Korea currently exports around 1.25-1.30 Mn bpd of CPP, which equates to more than a third of its total refining capacity.
- Singapore exported 2.238 Mn bpd of CPP in May 2017, the highest monthly average since 2011, as it seeks to cement itself as a storage and export hub.



Carbon taxes, anyone?

COP22

- Paris meeting (COP21) led to 197 country agreement to limited global temperature rise to 1.5 Celcius
- Rise of renewables now appears unstoppable for electricity generation if not for transport, but possibly three upcoming Co2 regs IMO, EU and COP22.
- Marrakech meeting 7-18 Nov 2016 (COP22) had an elephant not in the room the US.

Low sulphur fuel oil

- From 01 Jan 2020 you have three options: fit scrubbers, burn compliant fuel, cease trading
- Other fuels: LNG / Residue thickened distillate / vacuum gasoil / desulphurised IFO / hydrocracker bottoms
 but how to understand and monitor spec? What works in which engines?
- How to police it? How to ensure fuel availability? Unlike Tier III and BWMS, no "carriage requirement"

BWM Convention

- Ratified 08 Sep 2016, enters force 08 Sep 2017 with 7 years for implementation
- Shipyards in dark will contracting and fleet renewal be affected?



CRUDE OIL TANKERS – BASE CASE SCENARIO









AFRAMAX DEMAND IN THE MED



CRUDE OIL DEMAND IN THE MED





Crude Oil loaded in the Med (Mn T)





AFFINITY 🎁

AFFINITY GLOBAL OFFICES



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