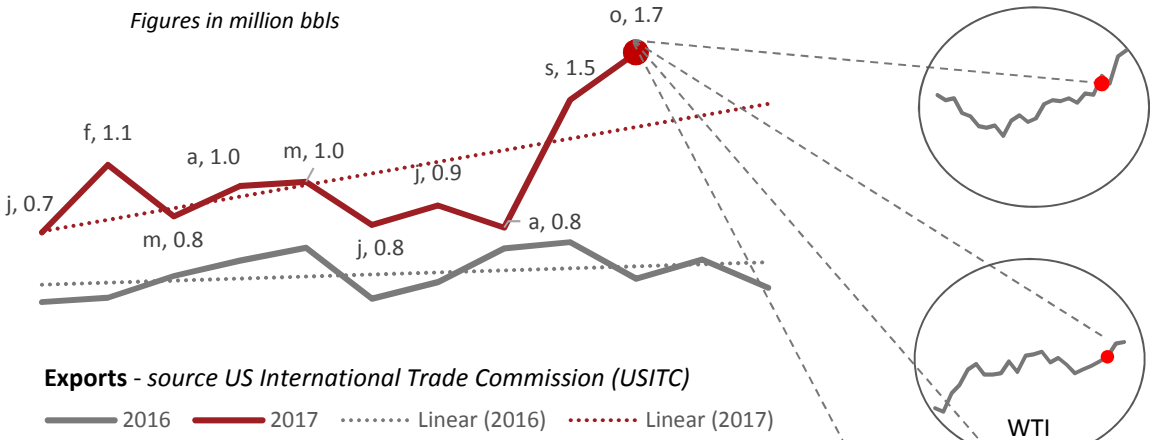
Weber US Crude Oil Trade Report

Q4 2017

In this quarter's Charles R Weber US crude oil trade report we provide readers with the latest developments in the US crude oil trade, based on trade data up to October 2017. This includes identifying the fastest growing trades by country and import district.



Having averaged just under 1Mnbd in the first eight months of the year, the fledgling US crude oil export trade found an extra gear in Sep (1.5Mnbd) and Oct (1.7Mnbd). Indeed, in the last week of Oct exports broke through the 2Mnbd barrier. Although failing to match this high point since then, exports for the week ending 15 Dec were up to 1.9Mnbd. Exports were equivalent to 22% of imports in Oct, up from just 9% at the start of the year.

The strength of US shale production coupled with the attractiveness of US exports because of WTI's significant discount to other international benchmarks has powered the export surge. With production breaking records in each of the last nine weeks, partly due to domestic PADD 3 refinery closures due to hurricanes, further strong export growth is on the cards, although export infrastructure issues will hamper progress.

During the first ten months of 2017, 30% of US exports have gone to Canada, but in Sep/Oct, Canada (18%) was displaced by China (22%) as the primary destination. The geographical spread of US exports is remarkable with the next largest destinations in Sep/Oct being UK, Netherlands, South Korea, Italy, Singapore and Japan.

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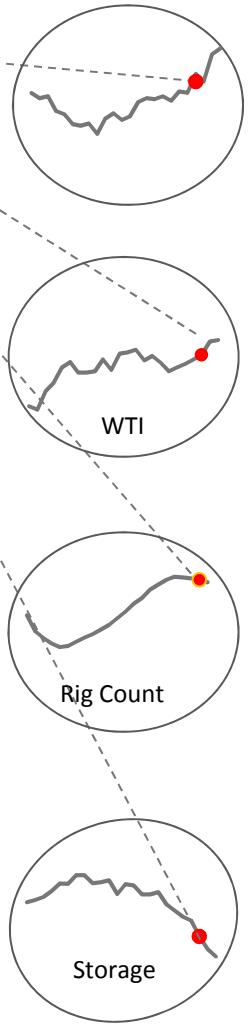


Production fell through 1H16 to reach a low of 8.4Mnbd in Jul 16. Thereafter, it picked up steadily. In Nov 17 production surpassed the Jun 15 record level of 9.6Mnbd. Thereafter, new production records were set for 9 consecutive weeks to mid Dec.

Oil Prices hit bottom in Feb 16 at just over $30Bbl, but recovered through 2016. Prices struggled once again in 1H17 before embarking on an unexpected period of sustained improvement from July. By December, WTI prices were approaching the $60Bbl level.

Rig numbers started to fall sharply from Dec 14, which was around 6 months before peak production. The rig count started to recover from May 16, which presaged a recovery in output from Aug 16. Rig levels have peaked for now, but recovering oil prices may trigger increased drilling once again.

Storage (combined crude and product storage) has been trending down since Aug 16. The sustained pattern of stock falls has led OPEC to express increasing confidence that OECD stock levels are on course to return to their 5 year avg.

2040

World oil consumption to grow by 11.1 Mnbd 2016-40, but collectively US, Europe & Japan see demand drop by 10.2 Mnbd. *IEA WEO Nov 17 (new policies scenario)*

2025

China +3.0 Mnbd 2016-25 and India +1.9Mnbd to be the main drivers of world oil demand growth (+6.4Mnbd). *IEA WEO - Nov 17 (new policies scenario)*

2017

OPEC renews oil production cut deal until the end of 2018. Strategy finally working with significant fall in global stock levels 2H17 and recovering oil prices.

2016

In Oct 16, OPEC agrees an output cut - thus ending the battle for market share - its hand forced by high stocks and more resilient non-OPEC production than expected e.g. US +0.5Mnbd 2H16.

The changing profile of US crude oil imports

Figures '000 tonnes

Exporter	2017Ytd	2016	e2017	% Chg
Canada	138849	150614	166619	12%
Saudi Arabia	41825	54631	50189	11%
Venezuela	27731	37763	33277	-5%
Iraq	25280	21067	30336	53%
Mexico	23383	29149	28059	3%
Colombia	15101	22645	18121	-20%
Nigeria	12987	10933	15584	33%
Ecuador	8982	12121	10779	-10%
Brazil	8818	7438	10582	28%
Kuwait	6607	11190	7928	-28%
Angola	5438	8094	6526	81%
Other	19206	20388	9316	-26%
Total	334206	386032	387316	7%

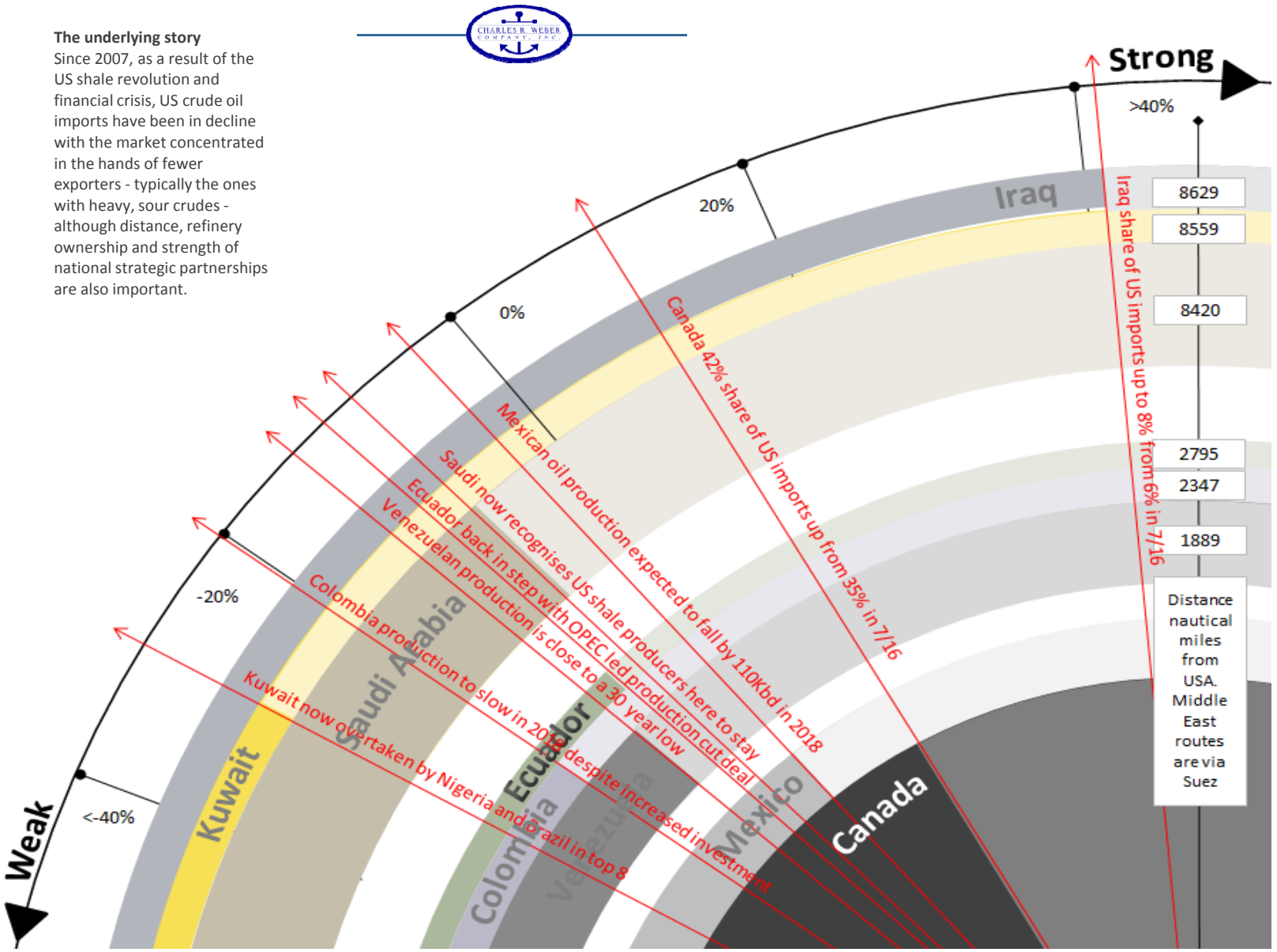
Infographic elemets
Not just a pretty picture, there are three dimensions of data displayed in this "rev counter".

1 Performance 2016 compared with 2017 YTD for each exporter is shown by the distance the coloured band moves around the "rev counter". Also see table.

2 Size of exports to US in 2017 - is shown in the width of each band i.e. Canada is the largest exporter, while Saudi is the second largest.

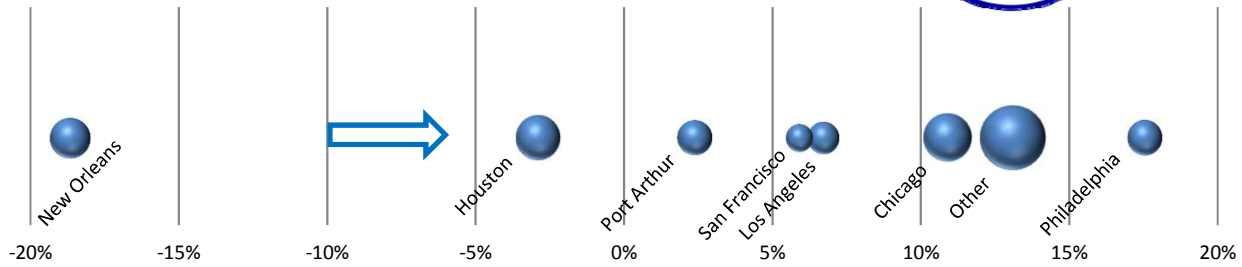
3 The average haul of each trade is shown by the distance from the centre of the dial.

The underlying story
Since 2007, as a result of the US shale revolution and financial crisis, US crude oil imports have been in decline with the market concentrated in the hands of fewer exporters - typically the ones with heavy, sour crudes - although distance, refinery ownership and strength of national strategic partnerships are also important.



US crude oil imports by district & country

Q4 2017



The chart (left) shows the relative size of the main import districts and the best performing Jan-Sep 2016 v Jan-Sep 2017. It shows Philadelphiia was the best, while New Orleans was the worst.

This map provides a detailed insight into US crude oil imports by linking countries that export crude oil to the US with their preferred entry districts.

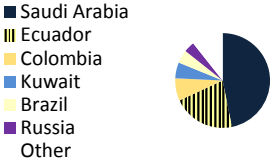
For example: Saudi is the 2nd largest exporter to the US. Its main entry point is via LOOP (New Orleans), but it is represented in each of the top 6 entry points.

By contrast, Ecuador's exports to the US are more targeted. It is the third largest exporter to the USWC. On the east coast, Nigeria is focused on serving Philadelphia, while Venezuela is a major player across the US Gulf. Colombia, like Saudi Arabia, exploits diverse points of entry.

Orange dots indicate notional loci for US import and export zones. The most important import zones have an associated pie chart.

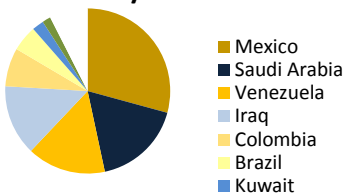
Seattle
Pembina
Great Falls
Duluth
Minneapolis
Ogdensburg
St Albans
Buffalo
Boston
Detroit
Chicago
Cleveland
New York
Philadelphia
Baltimore
Washington
St Louis
San Francisco
Los Angeles
Dallas
Savannah
Port Arthur
Mobile
Houston/Galveston
New Orleans
Tampa
Laredo
Miami

San Francisco



Los Angeles

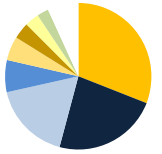
Houston/Galveston



Port Arthur

Philadelphia

New Orleans



Source USITC

Prospects for US shale revolution

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Infographic - this infographic provides a high level view of the US oil production industry in the context of global supply and demand.

The primary image is a stacked bar chart showing US liquids production (crude oil/other liquids + shale) in 2007, 2016, 2025 (short term forecast), and 2040 (long term forecast).

It shows the sharp growth in US production - although it should be noted that US production is scheduled to peak around 2025-30.

Source data:

IEA World Economic Outlook - Nov 2017.

US Energy Information Agency (EIA) Short Term Energy Outlook Dec 2017 and Annual Energy Outlook 2017.

IEA Oil Market Report, Nov 2017.

2007

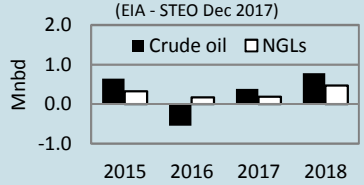
Crude/Other 5.1Mnbd

2016

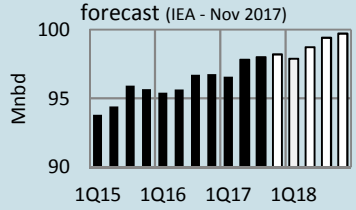
Shale Production 4.1 Mnbd

Crude/Other Production 8.4 Mnbd

Production change
(EIA - STEO Dec 2017)



World crude oil demand forecast (IEA - Nov 2017)



2025

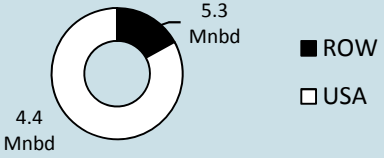
Shale Production 8.3 Mnbd

Forecast for combined US crude oil and NGLs production in 2025 is 16.9Mnbd

IEA WEO Nov'17 news policies scenario p186 up from 14.7Mnbd Nov'16

Crude/Other Production 8.6 Mnbd

US share of world liquids production growth 2016-2025



The pie chart shows how important US production growth is in 2025 in terms of meeting expected demand growth.

2040

Shale Production 7.0 Mnbd

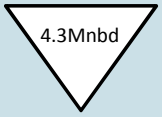
The IEA anticipate a 2Mnbd drop in US crude/shale production between 2025-2040 from 16.9Mnbd to 14.9Mnbd.

By contrast, the EIA sees US production virtually plateauing over this period, declining by just 0.1Mnbd from 17.6Mnbd in 2025 to 17.5Mnbd in 2040.

Crude/Other Production 7.9 Mnbd

US liquids demand set to fall 4.3Mnbd 2016-2040

IEA WEO Nov'17 news policies scenario p163 up from 4.7Mnbd Nov'16



US crude oil imports by country

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US crude oil imports by country (continued)

Q4 2017

US crude oil exports by country

Q4 2017