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Forties pipeline outage opens way to US Gulf benchmarking

Shutdown highlights vulnerability of Dated Brent

- A hairline crack on a single pipeline has exposed the vulnerability of Dated Brent, the world's most widely used oil benchmark price. An abrupt halt to the flow of North Sea Forties crude, the most important grade that feeds into the benchmark and usually sets the BFOE price, has hiked outright and relative prices despite the wider market remaining well supplied, and thrown the Brent complex's shaky foundations into sharp relief.

- It is now clear that Dated Brent is no longer fit for purpose. The spot market is dwindling and market power is concentrated in too few hands. Worse, any possible solutions will be anathema to regulators, relying as they must on either subjective assessments rather than hard data, or on handing control of the benchmark to traders of Russian crude.

- The EU's new benchmark regulation takes effect on 1 January 2018, in an atmosphere where the Libor scandal and other abuses have made regulators hyper-sensitive to benchmarks deemed open to distortion.

- This paper highlights the weaknesses of the Dated Brent benchmark, and draws attention to an alternative global benchmark, WTI Houston, which is backed by high and transparent levels of liquidity and linked to CME WTI futures, the world's most traded oil contract.

Force majeure in the North Sea

It is a term more commonly heard amid extreme weather or violent strife, and rarely heard at all in the North Sea. But Forties pipeline operator Ineos has indeed declared force majeure on loadings of Forties crude, flows of which were previously some 445,000 b/d, or around half of the UK's total output. A fine crack 10cm long and growing on an onshore section of the pipe was reported on 11 December, and the operation to repair and test the infrastructure is likely to take several weeks.

This is important because Forties is the largest of the five crude streams that set the North Sea benchmark, which is used in much of the world as the measure of the price of light sweet crude.

Dated Brent, or North Sea Dated in Argus' terminology, is set according to a complex methodology involving the gathering of price signals from forward and other derivative markets, as well as the reported trade in cargoes of Brent, Forties, Oseberg, Ekofisk and now Troll — North Sea crudes of varying qualities. The forward contract stipulates that any of these grades can be delivered to satisfy it, so this is usually the lowest-quality crude owing to its higher sulphur content — Forties. This makes it the benchmark-setting grade, and its absence from the market pushed the price of North Sea Dated above $65/bl on 11 December for the first time since May 2015. The surge in the Brent complex lifted crude prices around the world, and will make it more difficult for sellers of Brent-linked crudes to compete in markets linked to rival benchmarks WTI or Dubai.

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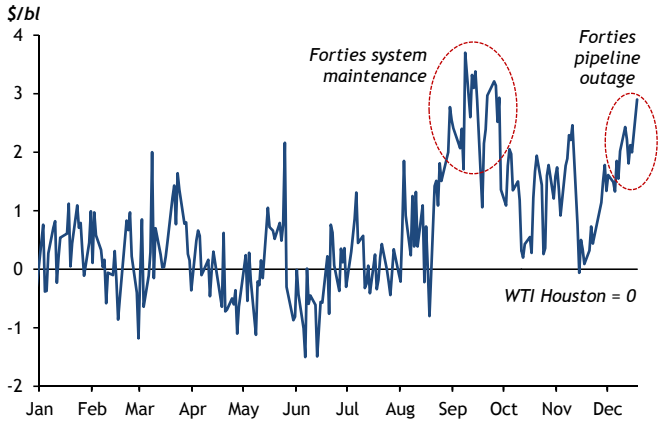
Figure 1: North Sea Dated differential to WTI Houston



Aside from the price effects, the market is now in the extraordinary position of benchmarking against a crude that is not available. Trade in an already sporadic market has dried up amid a lack of confidence that sellers will be able to meet loading dates.

The issue is not whether Dated Brent accurately reflects the balance of supply and demand in the North Sea — it generally does — but whether it is appropriate as a benchmark for crude being produced and consumed around the world.

Concerns about the liquidity and transparency behind some of the regional benchmarks being used in Asia-Pacific, such as Malaysian Tapis and Indonesian Minas, led to their being supplanted by Dated Brent in recent years. Dated Brent came to be regarded as a global marker, not just a benchmark for supplies from countries such as Nigeria and Russia that were competing with North Sea crudes in the northwest European market.

The rationale for this replacement was that the number of cargoes of Tapis and Minas available for spot trade had declined to a point where they were unable to generate a reliable price signal for the crucial Asia-Pacific market.

This criticism is now applicable to Dated Brent itself. The number of Forties cargoes released to the spot market has been reduced by falling production, and ironically, by exports to Asia-Pacific. An EU free-trade agreement with South Korea, and historically low freight rates, have led many holders of Forties and other North Sea cargoes to ship them east rather than trade them in the spot market, leading to a dwindling pool of liquidity on which to base the assessment of the benchmark.

Periodic attempts to patch up the benchmark have only served to paper over cracks in the Dated Brent edifice.

A sulphur de-escalator mechanism was added in 2007 to make Forties appear to be sweet even though the addition of the Buzzard field had made it sourer. Further quality adjustments were incorporated for the Oseberg and Ekofisk streams in 2013. And now Troll has been added to the Dated Brent basket. But a closer look shows that this cannot be sustained.

More than half of the buying of BFOE spot cargoes is done by just one or two companies in a typical month, and a similar pattern is seen on the sell side, as shown in the charts below:

Figure 2: BFOE physical buyers by market share

Based on reported spot market trades in November 2017

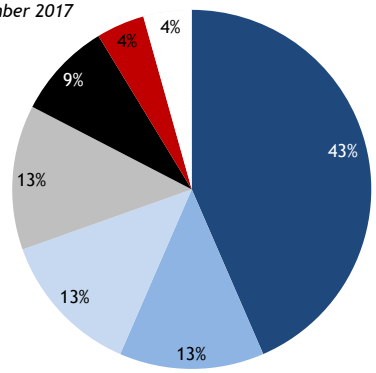
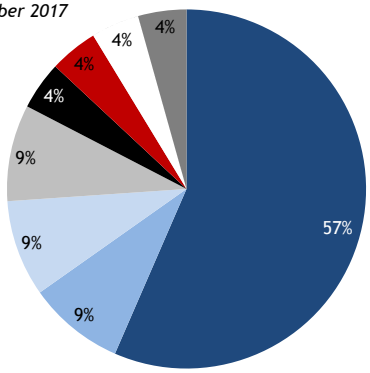


Figure 3: BFOE physical sellers by market share

Based on reported spot market trades in November 2017



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Compare this market concentration with that in the WTI Houston market, as shown in the charts below:

Figure 4: WTI Houston buyers by market share

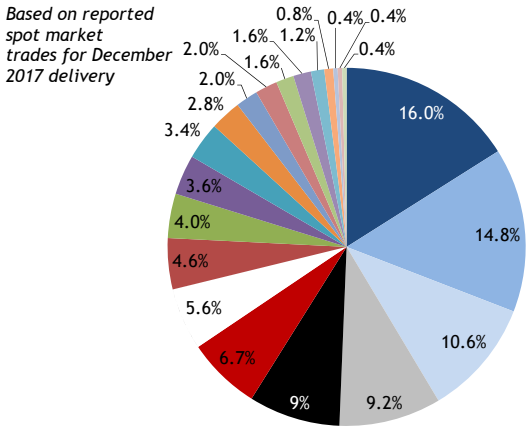
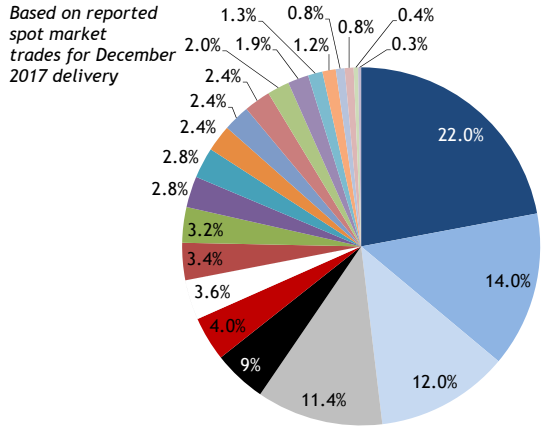
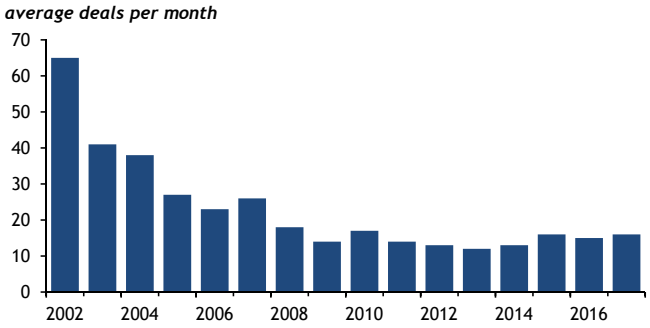


Figure 5: WTI Houston sellers by market share



The number of reported Forties deals in a month has halved since 2010 to around eight. And the total monthly trade of BFOE cargoes has dropped by three-quarters from the height of the benchmark's liquidity in 2002, when Forties and Oseberg were first added to the basket to support Brent (*see figure 6*).

Figure 6: BFOE physical trade



A market where more than half of the selling can be done by a single counterparty is no basis for a benchmark. Some proffered solutions involve the addition of more crude streams, hence the inclusion of Norwegian grade Troll. But Troll is produced by a single company, and mostly consumed by that same company within its own refinery. Troll is not a solution, but yet another sticking plaster.

The only regional crude stream that has sufficient volume to bolster the benchmark is Russian Urals. Exports from the Baltic ports of Primorsk and Ust-Luga alone are greater than the combined production of BFOE. Current geopolitical realities make the handing of benchmarking power to Russia hard to imagine. And the Urals spot market is even less transparent than the North Sea. Large volumes are tied up in pre-finance deals. This is to say nothing of the inevitable question mark over the power of monopoly pipeline operator Transneft.

Another widely discussed solution is the addition to the Dated Brent basket of a range of imported crudes from other sources, such as Nigeria, Algeria, Azerbaijan and Kazakhstan. But there is no transparent delivered market in Europe for these crudes. The absence of reliable market data means that informed judgments about the relative values of these grades are difficult to make, certainly with the degree of measurable accuracy that regulators will demand.

The US Gulf coast solution

The North Sea benchmark's small club of participants and vulnerability to local events such as pipeline maintenance make it unsuitable as a global marker. It was adopted in parts of Asia-Pacific as the best available benchmark at the time. But an alternative has emerged since the US relaxed its regulations on exporting crude in late 2015.

The market for physical crude at the US Gulf coast has long been connected to the global marketplace through the import of more than 3mn b/d of crude. With the relaxation of US export rules, prolific trade at the US Gulf coast represents a competitive interface for global crude markets. US crudes, such as light sweet Permian-quality WTI, can be refined at the Gulf coast or exported to Europe, Asia-Pacific or elsewhere. This means that, while Opec and its non-Opec partners are constrained by self-imposed output limits, US crude has become the effective marginal barrel in global oil markets. As such, it is the fundamentals of US physical crude, not BFOE or other markers, that is determining the price of crude in today's market.

The Argus price assessment of unblended Permian-quality WTI at Houston represents a single grade that should

grow from nearly 700,000 b/d to more than 1mn b/d of supply as new pipelines reach capacity. The WTI Houston price is based on the volume-weighted average of trades done during the entire trading day, reported to Argus as differentials to CME's WTI futures contract at Cushing.

The number of participants, and the number of trades in WTI Houston, and other key US Gulf crudes, far exceeds those for North Sea grades. The Argus WTI Houston price is assessed at the gateway to the new export market, and it benefits from the liquidity and transparency of exceptional volumes of pipeline market trade, a stark contrast to the limited liquidity of seaborne cargo markets. The Argus WTI Houston assessment benefited from an average of 121 deals per month as reported in the third quarter, whereas all trades on BFOE physical cargoes averaged just 16 per month in the same period. Market participation in WTI Houston averaged 20 unique buyers/sellers in each month of the third quarter, whereas there were just 11 unique participants on average in the four grades that comprised the BFOE physical market during this period.

Argus prices for US Gulf coast grades are based on actual deals and not assessments of value for almost every single day.

The use of volume-weighted average pricing creates a coastal WTI price that reflects the broad market consensus of crude prices at the US Gulf coast, which is the most prolific and competitive refining marketplace in the world. Additionally, the link to CME's WTI futures market at Cushing means the coastal price is determined by a liquid and transparent differential to the world's most liquid and transparent crude futures contract. WTI Houston competes with international grades in the competitive US refining market and the international export market, so its price reflects the global value of an incremental barrel of crude supply.

Participants are able to lock in the WTI Houston differential through trade of a swap contract listed on both major oil futures exchanges — CME and Ice — in which open interest has swelled over the past year (*see figure 11*).

The expansive US crude pipeline system offers several

Figure 7: Trade volume underlying benchmark 3Q 2017

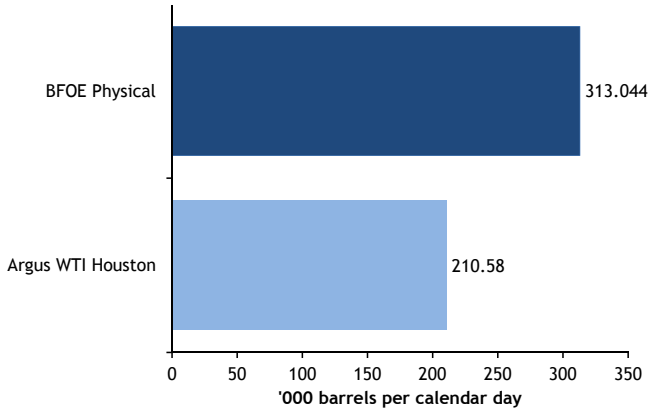


Figure 8: Deal count underlying benchmark 3Q 2017

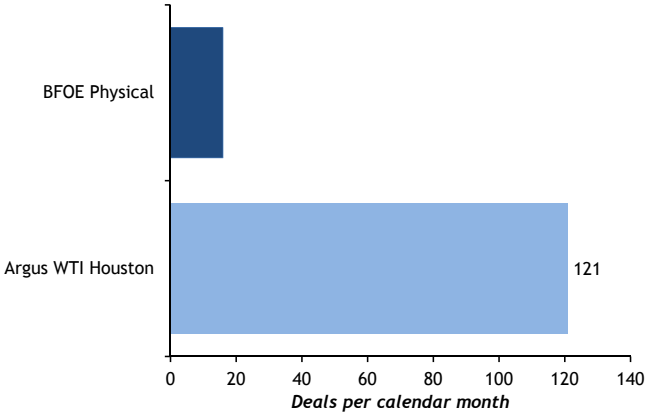


Figure 9: Days without transactions 3Q 2017

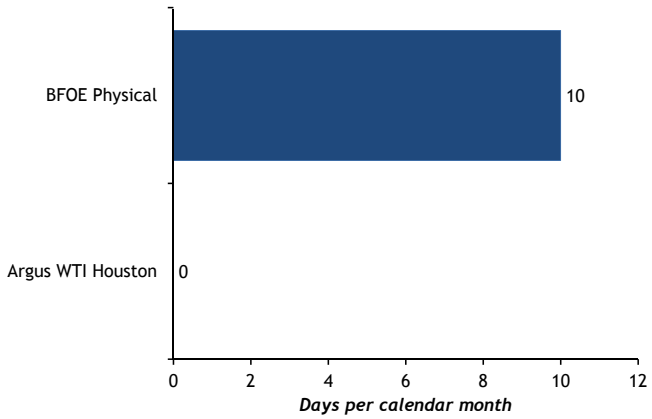


Figure 10: Unique spot market participants 3Q 2017

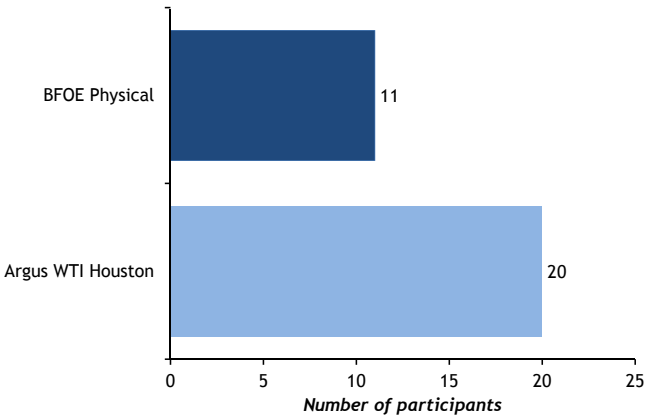


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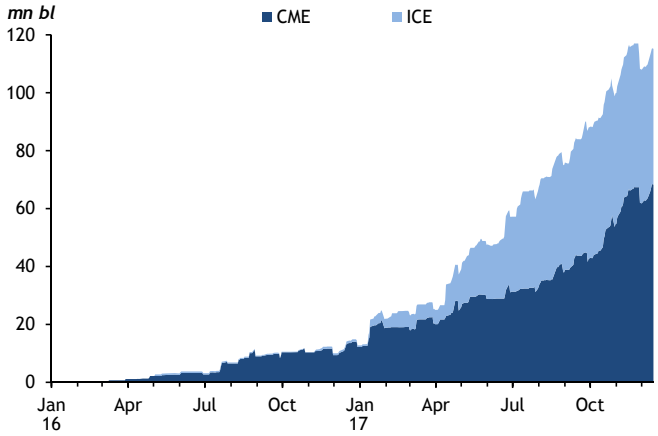
Figure 11: WTI Houston derivatives open interest



routes to market. An outage on a single pipeline cannot have the same impact that the Forties shutdown has inflicted. Indeed, during the recent severe hurricane season, the WTI Houston benchmark continued to react to global fundamentals rather than local conditions (*see figure 1*). Crucially, the WTI Houston price is based on high levels of confirmed daily trade reported by a wide range of market participants.

Argus is already publishing WTI Houston prices with a Singapore timestamp to facilitate comparisons with the Mideast Gulf's Dubai benchmark, so that Asia-Pacific refiners can more easily value the price spread between North American and Asia-Pacific markets.

The adoption of WTI Houston as a marker for light sweet crude in Asia-Pacific would signal a fundamental shift in benchmarking behaviour, acknowledging that US crude as the marginal global supply is now eclipsing Dated Brent as a marker.

Conclusions

- The North Sea benchmark has suffered a long decline in underlying production and spot market liquidity, which has made it fragile and prone to distortion, particularly during periods of scheduled maintenance and unexpected force majeure events.
- Dated Brent has grown as a global benchmark, particularly in Asia-Pacific, only because of the lack of robust and acceptable alternatives.
- This situation has changed dramatically with the relaxation of US crude export rules in late 2015. This transformed the US Gulf coast, already a major refining centre, into a source of marginal crude supply to markets around the world.
- US Gulf coast crude prices, including the key regional light sweet marker WTI Houston, are established through highly liquid and transparent pipeline trade at the gateway to export markets, at differentials to the highly liquid and transparent CME WTI futures contract.
- A robust derivatives market has already grown up around WTI Houston, and it is well suited to become a benchmark for global crude trade.