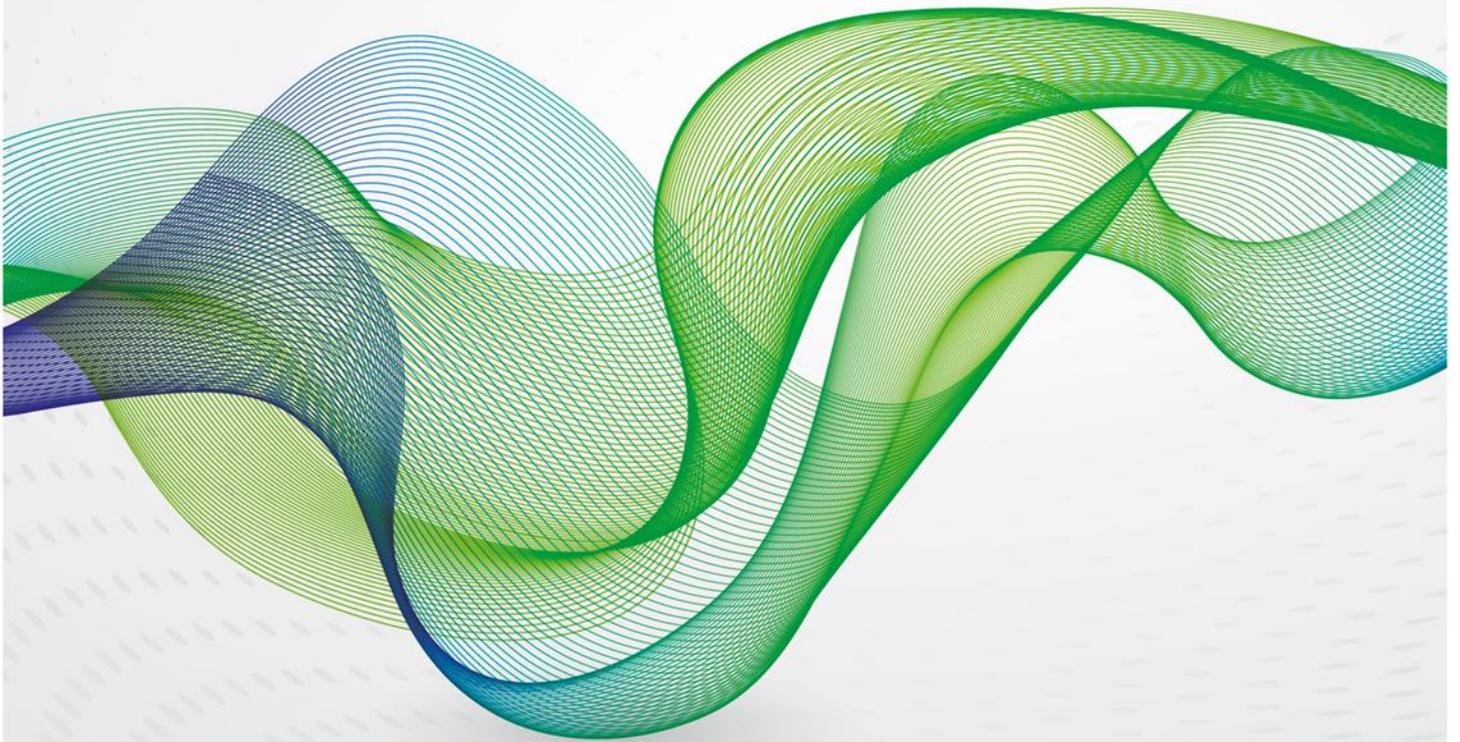


March 2022

The Future of the Brent Oil Benchmark A Radical Makeover





Introduction

Brent is the world's most important crude oil benchmark. Arguably, it is responsible for pricing almost seventy percent of globally traded crude oil¹ and long-term LNG.² Over time however, the falling production of Brent has forced the price reporting agencies (PRAs) to introduce new grades in the 'basket' of crudes eligible for delivery as 'Brent' and widen the loading dates that can be used in their assessments. Currently, in any given month, only a couple of cargoes of the grade Brent are loaded³ and there have even been calls for the removal of the grade from the benchmark altogether. Brent has become just a brand name in a price assessment process that must be one of the most complex in the global commodity space. Even now, the five grades that make up the Brent basket namely Brent, Forties, Ekofisk, Oseberg and Troll (BFOET), are not sufficient to provide the necessary liquidity for the world's most important oil benchmark.

In February 2021, S&P Global Platts announced the decision to introduce West Texas Intermediate (WTI) Midland in the Brent benchmark, and the latest version of S&P Global Platts proposal has been presented to the industry for consultation until early April 2022. The proposal will make the already complicated benchmark and price discovery process even more so. The purpose of this Energy Comment is to outline the reasons for the proposed change and discuss the possible consequences for the market and the industry if the latest proposal is adopted.

The Problem

In essence, the problem facing the Brent benchmark is simple. Volumes of oil that can trade as 'Brent' have been falling (see Figure 1). To counter this decline, other sweet North Sea grades were gradually introduced into the Brent delivery mechanism, forming what we now call the 'BFOET'⁴ or the 'Brent basket'. Forties crude oil was introduced in 2002 (with the Buzzard field entering production and feeding into the Forties stream in 2007), Oseberg in 2002, Ekofisk in 2007, and Troll in 2017.

For the same reason, the loading 'window' was widened over time essentially expanding the number of cargoes which qualify for the price assessment of Dated Brent. From 1987 to 2002, this loading 'window' included oil that was loading from 7 to 15 days ahead of the date of assessment. In 2002, the window was expanded to 10–21 days ahead; in 2012 it was expanded to 10–25 days ahead. Finally, in 2015, it was extended yet again, to 10–30 days or one calendar month ahead 'window'.

Additionally in 2001, Platts started accepting offers for and transactions of Brent crude oil (and consequently BFOET) via ship-to-ship (STS) transfers at Scapa Flow in Scotland.⁵ Each of these changes added to the volume of oil included in the assessment.⁶

On February 25, 2019, S&P Global Platts announced the inclusion of delivered, or CIF (Cost, Insurance and Freight), Rotterdam offers of North Sea oil cargoes into its flagship Dated Brent benchmark starting from 1 October of the same year. The price reporting agency Argus was already publishing its 'New North Sea Dated' assessment which included delivered assessments of non-North Sea grades including WTI Midland.

¹ Directly and indirectly (including Dubai, which is often priced off Brent). PIW, Friday, 29 May 2020.

² Brent remains on top for LNG term contracts' Argus 17 January 2022

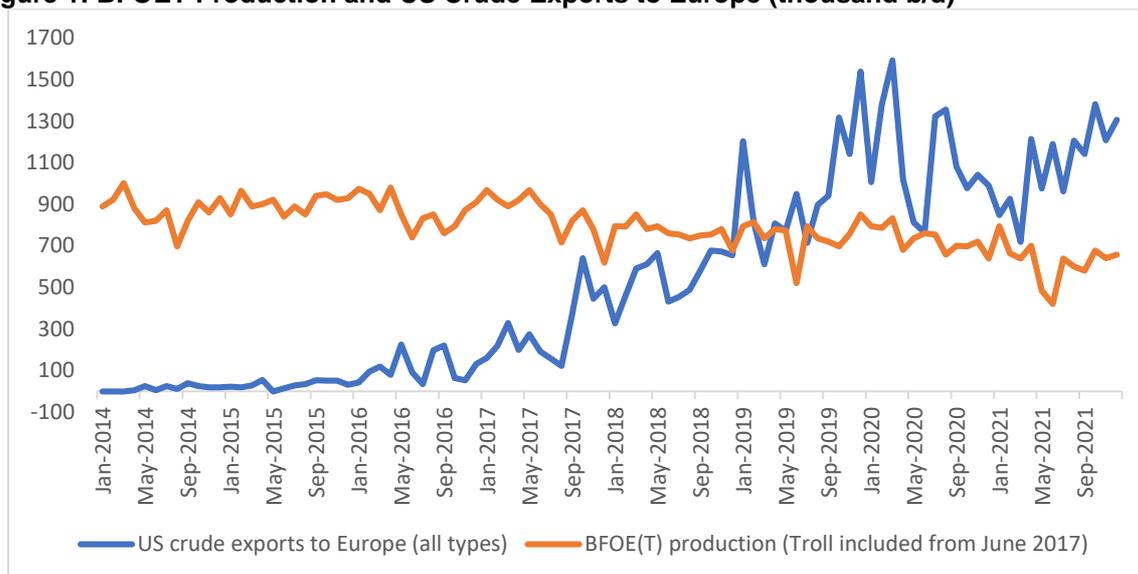
³ Only 40 kb/d in April 2022, as reported by Reuters: 'North Sea benchmark crude oil supply to fall in April' - Reuters News 28-Feb-2022

⁴ For brevity, 'T' is often omitted so in the literature, it is often referred to as 'BFOE'.

⁵ '... provided the seller agrees to cover all additional costs incurred by the buyer lifting oil on an STS basis. Platts also considers any STS offers and resulting transactions wherein a seller commits to deliver crude oil from a vessel that has itself loaded via STS transfer (a daughter vessel loaded from a mother vessel).' See <https://www.spglobal.com/commodity-insights/plattscontent/assets/files/en/our-methodology/methodology-specifications/emea-crude-methodology.pdf>

⁶ For a detailed discussion, see A. Imsirovic: 'Trading and Price Discovery for Crude Oils', Chapter 11, Palgrave, 2021.

Figure 1: BFOET Production and US Crude Exports to Europe (thousand b/d)



Source: EIA, Argus

Despite these efforts, daily volume of 'Brent' crude has fallen to about 700 kb/d in 2021 (see Figure 1) implying that even if all the cargoes were traded in the spot market, there would be only one cargo worth of oil available for trade at any one time.⁷ As many cargoes are committed on long-term basis and are not necessarily traded, this volume seriously impairs the liquidity of the underlying 'Brent' contract.

The Solution

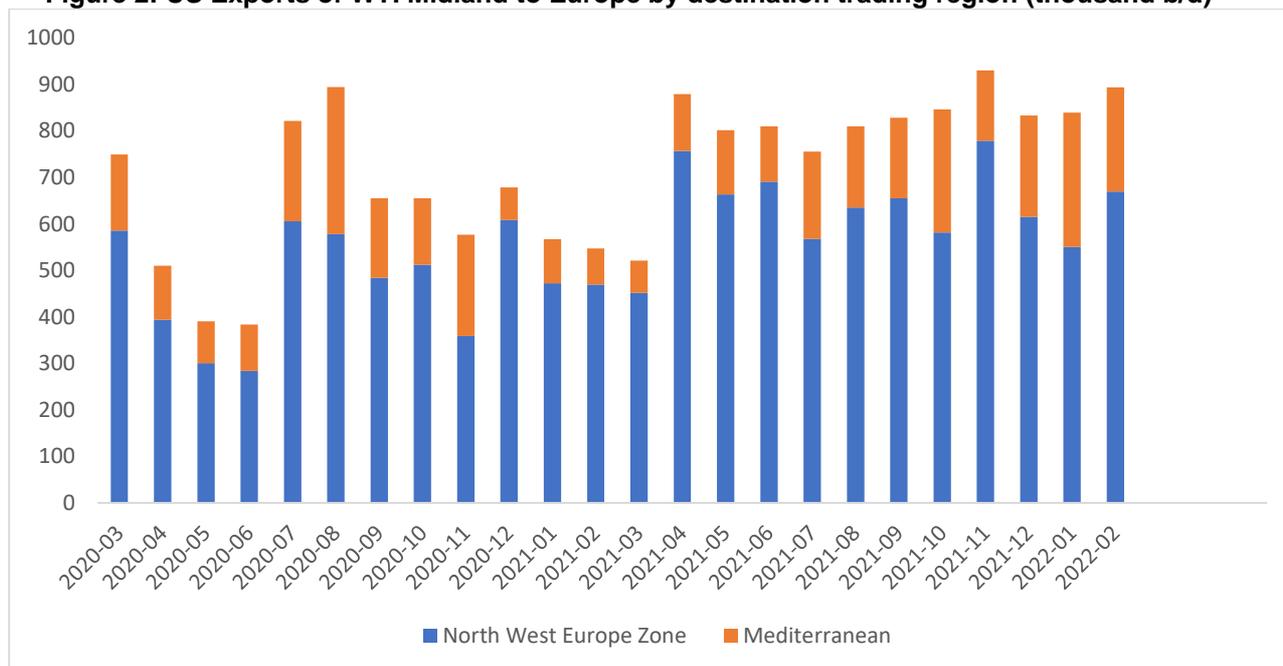
Following the well-established practice, a typical solution to the problem is the addition of yet another grade of oil that would fit within the 'Brent basket' and provide a sizeable volume of additional liquidity. An obvious grade is WTI Midland. After the repeal of the US crude oil export ban in 2015, the volume of the US imports into Europe has steadily grown and now (see Figure 2) often exceeds the volume of the 'Brent basket' oil. The grade has become the base slate for many European refineries both in the Northwest Europe and the Mediterranean. With the export volume of 2.98 mb/d (during 2021)⁸ and well over 700 kb/d of that volume arriving in Europe, it would significantly increase the 'Brent' liquidity, possibly for some time to come.

As soon as it 'hits the water', WTI Midland destined for Europe is bid and offered on a Brent-related basis, naturally making it a part of the basket. What is more, the volumes of the crude shipped to Asia are traded on Dubai-related basis which is also linked to Brent. Also, in Europe, WTI Midland (with density of 42 API and sulphur content of 0.2%) directly competes with Norwegian Ekofisk (with density of 38.5 API and 0.19% sulphur).

⁷ Of course, the same cargo can be traded several times, but it is unlikely to happen on the same day.

⁸ EIA data: <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>, page 68.

Figure 2: US Exports of WTI Midland to Europe by destination trading region (thousand b/d)



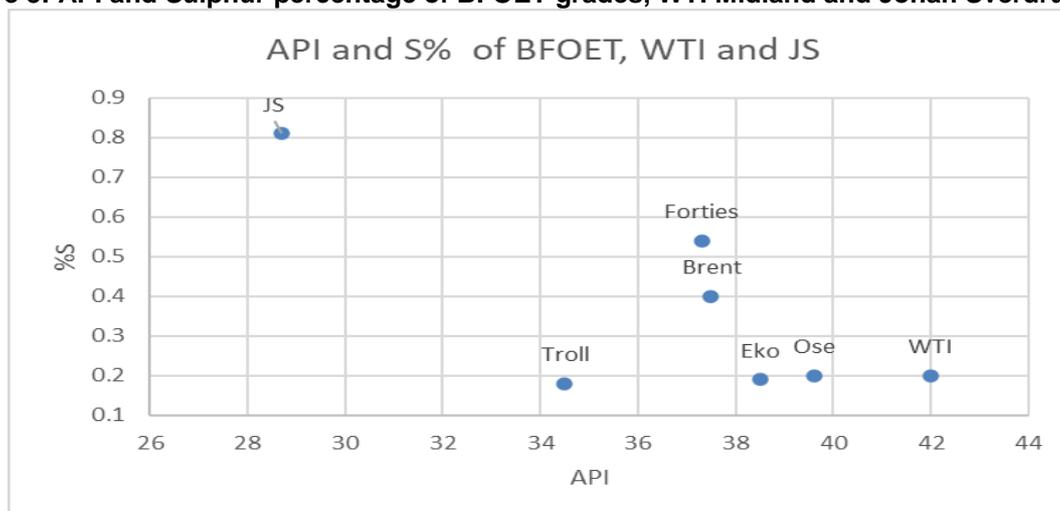
Source: Kpler

Johan Sverdrup as an alternative?

The Johan Sverdrup (JS) oil field off the coast of Norway began production in October 2019. Within a year it was producing over 500 kb/d. Phase two development to be completed by end 2022 will see production increase to over 700 kb/d—similar to the volumes of Midland WTI currently being imported into Europe. Historically, most of JS has been sold on delivered basis to Asia. This flow may change with curtailment of Russian crude oil and redirection of Urals towards Asia as JS could become substitute to Urals. However, JS quality is significantly different from the rest of the ‘Brent basket’ of crudes (see Figure 3). It is far heavier and has a higher sulphur content. It is possible to devise a quality premium (QP) (in this case a discount) like those used for the other grades in the Brent basket and/or a sulphur de-escalator similar to the one used for Forties. But there is also the issue of concentration. Equinor is by far the largest equity holder and the dominant lifter.⁹ Benchmark integrity and transparency require a diluted level of concentration with multiple participants. Equinor’s ownership in JS along with existing positions in Troll, Oseberg and Ekofisk could possibly restrict trade. Thus, the combination of quality factors and concentration of ownership seems to have contributed to the industry’s preference for inclusion of WTI Midland rather than JS as a new grade in the ‘Brent basket’.

⁹ Out of some 750 kb/d of oil lifted from Mongstad (where JS and Troll load), some half is normally lifted by Equinor. Kpler data.

Figure 3: API and Sulphur percentage of BFOET grades, WTI Midland and Johan Sverdrup



Source: S&P Global Data¹⁰

February 2021 Proposal

In February 2021, S&P Global Platts announced the inclusion of WTI Midland in the Dated Brent and Forward Brent assessments from July 2022 crude oil deliveries. WTI Midland was chosen due to its superior quality specification. WTI crude is often blended in and around Cushing, Oklahoma, using heavy Canadian grades and light condensates from across the region. While these blends can meet the contractual specifications of the CME exchange,¹¹ they do not necessarily yield the same volume and quality of valued products, making it less desirable for European refiners. WTI Midland, on the other hand, is a well-established grade with origins and quality well known and accepted by refiners.

The overwhelming significance of this proposal was the change in the new Brent assessment to delivered basis, turning both Dated and Forward Brent assessments into cost, insurance, and freight (CIF) Rotterdam prices rather than Free on Board (FOB). Following the announcement, the Dated Brent curve shifted higher, reflecting an average, expected freight rate¹² that the new assessment would include. This violated the 'unwritten rule' that the PRA should assess and not influence markets. But the real implications went much deeper. The backbone of the Brent futures contract is Forward Brent, which would have likely been materially changed due to the move to a CIF assessment.¹³ A huge volume of the outstanding futures and other derivative contracts would have had to be repriced or become illiquid.¹⁴ The market reacted negatively to the S&P Global Platts proposal and the PRA went back to the market for further extensive consultations.

¹⁰ Data from https://www.spglobal.com/commodity-insights/plattscontent/assets/files/downloads/crude_grades_periodic_table/crude_grades_periodic_table.html. Note that the usual sulfur content of Forties should be higher according to other sources: <https://www.ineos.com/businesses/ineos-fps/business/forties-blend-quality>

¹¹ See: <https://www.cmegroup.com/trading/energy/nymexs-physically-delivered-light-sweet-crude-oil-futures-faq.html>

¹² As much as \$0.70/barrel.

¹³ For detailed discussion, see Imsirovic: 'CIF Brent?' OIES Energy Comment, March 2021.

¹⁴ Examples are Dated to Front Line (DFL), Contracts for Difference (CFDs), and Exchange of Futures for Physicals (EFPs).

February 2022 Proposal (back to FOB)

The idea behind this second proposal¹⁵ is to include cargoes of WTI Midland crude oil in both its Dated Brent crude oil benchmark (starting June 2023 deliveries) and Cash or Forward¹⁶ BFOE contracts, but to maintain their assessment on FOB basis. By sticking with the FOB assessment, the proposal shores up the existing Brent complex. All the futures and other derivative contracts should remain relatively unchanged, not jeopardising the existing open interest in these contracts.

For the Dated Brent assessment, CIF offers for the 'Brent basket' grades and WTI Midland are accepted, but netted-back to a FOB North Sea equivalent. This is done by using relatively liquid cross-North Sea freight assessments, often referred to as a 'Freight Adjustment Factor (FAF), calculated as an evenly weighted average of freight values for the five existing ports of Sullom Voe, Hound Point, Sture, Teesside, and Mongstad.¹⁷

For the usual BFOET grades in the basket, 80% of the assessed freight is applied, making the barrels offered on CIF Rotterdam 20% cheaper than the actual cost of shipping them there. The rationale for this is as follows: FOB purchases are more valuable as they carry greater optionality for the buyer. For example, FOB Forties cargoes can be co-loaded on a very large crude carrier (VLCC) for sale to Korea or sold as individual cargoes in Europe. Being offered a CIF Rotterdam cargo of the same grade, the buyer has far more limited options. Therefore, the 80% FAF adjustment factor compensates the buyer, making up for the lost optionality.

On the other hand, WTI Midland cargoes offered into the Dated contract on delivered basis are netted back using a 40% FAF on a time-adjusted basis, making the US grade 'as if it was delivered from one of the North Sea fields' but with a much larger adjustment factor. Therefore, offering WTI Midland into the Dated Brent basket would be a rather expensive affair for the seller as only 40% of their freight¹⁸ is recognised by the PRA. This arbitrary adjustment factor is only a proposed figure and subject to change if necessary. The logic for this number is as follows. The volumes of WTI arriving to Europe may well overwhelm the benchmark and make WTI Midland a dominant grade in the basket immediately. Indeed, since Argus launched its 'New Dated' assessment in Feb 2019, WTI has set the quote more than half of the time.¹⁹ Giving the seller only 40% of the market freight for the effort of delivering the oil may reduce some of that pressure but not necessarily.²⁰

Once a FOB WTI Midland cargo has been loaded in the US Gulf Coast (USGC), title and risk are to pass from seller to buyer in the international waters. It conveniently gets around any US legislation and oversight leaving the contract based on English law.

Another major proposed change is the size of the cargo. All Dated Brent and Forward BFOE cargo sizes are to be changed from 600,000 barrels to 700,000 barrels, a standard cargo size for the WTI Midland shipped to Europe. On the other hand, with most modern Aframax vessels being able to load this volume (and most major ports in Europe being able to accept them), North Sea oil can be easily

¹⁵ Based on: <https://www.spglobal.com/commodity-insights/en/our-methodology/subscriber-notes/021422-platts-proposes-to-reflect-wti-midland-in-dated-brent-cash-bfoe-from-june-2023-keeps-brent-assessments-on-an-fob-basis>

¹⁶ Cash and forward are often used interchangeably, meaning the same thing.

¹⁷ <https://www.spglobal.com/commodity-insights/plattscontent/assets/files/en/our-methodology/methodology-specifications/dated-brent-cif-rotterdam.pdf>

¹⁸ As it is 'netted back' to the N. Sea FOB values, this is 40% of the hypothetical 'N. Sea freight.

¹⁹ See: <https://view.argusmedia.com/Brent-Burden-wti.html>

²⁰ Of course, there is no guarantee that even at 40% FAF, WTI Midland will not overwhelm the Dated Brent benchmark. According to Argus, in the first three months of 2022, FAF has been on average \$0.96/bl – so 40pc of that would be around \$0.38/bl, a difference of \$0.58/bl. While the difference between regular Dated and New Dated with WTI was \$1.25/bl on average, more than twice that cushion, and WTI has set New Dated around half of the time. Source: interview with Argus.



loaded in 700,000 barrel parcels. While this shift means 'losing' some five cargoes of 'Brent' North Sea oil, the likely gain is over twenty parcels of WTI Midland.²¹

Changes in the Forward Brent contract

A seller of a Forward Brent contract can declare a cargo of WTI Midland, in line with the established month ahead North Sea nomination, taking into account the equivalent sailing time from North Sea terminals to Rotterdam (based on 17 days sailing after loading dates in US Gulf Coast (USGC), minus one day to account for the equivalent North Sea to Rotterdam transit time²²). Having nominated an FOB WTI Midland cargo, the buyer is to charter a vessel acceptable to both parties. As in the case of Dated Brent, the title and risk would pass from seller to buyer in international waters. The volume tolerance of 1% and other shipping options are to be retained by the buyer, just as in the case of the other 'Brent basket' grades in the forward contract.

A seller would compensate a buyer for receiving an FOB USGC loading cargo through a transatlantic freight adjustment, the average daily difference between the Platts Cross North Sea Aframax freight rate and the Platts Transatlantic Aframax freight rate across the next six publishing dates following the nomination date. There would be no FAF for the cash cargoes and the freight compensation would be at the full 100% assessed value.

The proposal includes a suggestion that the nominations should not be made for cargoes corresponding to North Sea arriving in Rotterdam in the first and last seven calendar days of the month.²³ There is a concern that players in the WTI Midland market with terminal assets could move cargoes around in the programme and affect the number of cargoes available in any given month, thereby impacting the forward price. This stipulation would make it much harder to do so.

Given that the loading programmes in the USGC are not necessarily publicly available, only the cargoes of WTI Midland crude loading from pre-approved terminals which meet the Platts specifications²⁴ will be accepted. Such approved terminals would be expected to provide a loading program in line with those of North Sea terminals.

Finally, new General Terms and Conditions (GT&Cs) for trading forward 'Brent' would need to be written incorporating all the proposed changes as the existing Shell UK (SUKO 1990 with amendments) would not be fit for the purpose.

Clearly, the most complex commodity market in the world would get a bit more complicated.

The Devil is in the detail

From a contractual point of view, it should not be difficult to expand the existing SUKO 1990 GT&Cs or merge them with one of the more popular CIF terms such as BP CIF GT&Cs. Writing a brand new 'Brent' GT&Cs is a possibility as well and one of the more active trading houses in this space may well volunteer to do so, given the prestige of having their name associated with a key global benchmark.

²¹ Assuming BFOET crude of 21 million barrels a month (700,000 a day), a change from 700knd to 600 kbd per parcel is equivalent of a loss of five parcels. Assuming WTI Midland deliveries of 700 kbd (they can be greater as per Graph 2), the contract is gaining 30 parcels in any month (minus perhaps six 'excluded' cargoes early and late in the month).

²² Platt's provide an example: 'For example, for a cargo of WTI Midland loading FOB USGC on May 24-26, the assumed Rotterdam delivery date would be June 10-12, with an equivalent North Sea loading date of June 9-11, and a nomination date of May 9.' <https://www.spglobal.com/commodity-insights/en/our-methodology/subscriber-notes/021422-platts-proposes-to-reflect-wti-midland-in-dated-brent-cash-bfoe-from-june-2023-keeps-brent-assessments-on-an-fob-basis>

²³ So, 'the first declarable cargo in a month would be for delivery Rotterdam 8-10th of the month, equivalent to a cargo loading 7-9 FOB North Sea terminals'. Ibid.

²⁴ <https://www.spglobal.com/platts/en/our-methodology/subscriber-notes/080320-platts-to-implement-comprehensive-platts-wti-midland-specifications>

Terminals loading WTI Midland in the USG should be keen to meet Platts approval requirements and publish acceptable loading programmes because oil deliverable in the key global oil contract has more value. Some players may rue the loss of optionality having published loading programmes, but the perceived premium associated with the ability to place oil in the Brent benchmark should make up for it. With the introduction of delivered trades, the freight assessments will start to play a very important role.

The proposal that the nominations should not be made for cargoes equating to North Sea arriving in Rotterdam in the first and last 7 calendar days of the month seems excessive. It would eliminate approximately fourteen cargoes from the new 'Brent basket' that can be delivered into the contract. The whole point of the announced changes is to increase liquidity. While preventing the shenanigans of moving cargoes from one month into another is important, excluding the first and last three days should be sufficient.

Most worrisome is the unequal treatment of FAF for Dated and Forward Brent contracts. The FAF for WTI Midland delivered into the Dated Brent contract has been proposed at 40%, while a full 100% freight is being compensated for the buyers of forward cargoes. As the contract matures, the coming together of Forward Brent and Dated Brent is essential. Such widely different freight factors may create a dislocation by elevating the Forward Brent price and preventing appropriate convergence. The result could easily damage the relevance of the Brent futures contract rendering it ineffective as a hedging instrument.

However, these technical details are not insurmountable and ironing them out should go a long way in overcoming the reluctance of the industry to accept WTI Midland in the 'Brent basket'.

Conclusion

Given the falling volumes of oil in the 'Brent basket', some changes are urgently needed and the inclusion of WTI Midland is a potential remedy despite of the complexities involved. Introducing an alternative delivery of a similar grade into any contract not only increases liquidity, but also the depth of the market with new players having interest to get involved. The latest Platts proposal may result in little or no change on the existing futures and other derivative contracts. This makes the proposal difficult to reject in principle.

However, more work is needed to make the change happen: New GT&Cs need to be written; USGC and terminal approvals need to be obtained; and quality inspections need to be implemented. It may be a good idea to exclude nominations for only first and last 3 days. A change of the parcel size from 600,000 to 700,000 barrels should not be a problem from a trading point of view in the North Sea as minimising dead freight is a standard practice already.

Most importantly, the gap between FAF for Dated and Forward WTI Midland cargoes needs to be narrowed. It can be done by using 80% FAF for Dated deliveries, in line with the other BFOET grades. This would ensure the convergence of the forward and physical cargoes at the expiry of each monthly contract. Given the recent Russian invasion of Ukraine, the importance of WTI Midland in Europe should only increase, likely making it a dominant grade in the 'Brent basket' anyway.

This raises an obvious question: If WTI Midland becomes a dominant grade in the Brent benchmark, why bother with Brent at all and not move to a WTI-based benchmark such as one of the FOB USGC assessments?²⁵ Most of the FOB loading points in the USGC continue to trade based on one of the

²⁵ WTI is traded at several points such as Magellan East Houston (MEH), and the Enterprise Houston Echo hub. Argus and CME focused on WTI Houston (Permian), while Platts and ICE focus on WTI delivered in the Magellan East Houston (MEH) terminal

most liquid futures crude oil contracts, the NYMEX WTI Crude Oil futures (CL). But this contract has its own problems, having traded at deep negative prices in April 2020.²⁶

For now, Brent in all its manifestations and derivatives remains a major global oil benchmark and deserves a good and lasting fix. In the long run, it is for the market to decide if Brent is to retain its dominant status as a global oil benchmark.

²⁶ For a detailed discussion, see A. Imsirovic: 'Trading and Price Discovery for Crude Oils', Chapter 13, 'WTI Goes Negative' p196, Palgrave, 2021.