



Intercontinental Exchange® (ICE®) became a center for global petroleum risk management and trading with its acquisition of the International Petroleum Exchange® (IPE®) in June 2001, which is today known as ICE Futures Europe®. IPE was established in 1980 in response to the immense volatility that resulted from the oil price shocks of the 1970s.

As IPE's short-term physical markets evolved and the need to hedge emerged, the exchange offered its first contract, Gas Oil futures. In June 1988, the exchange successfully launched the Brent Crude futures contract. Today, ICE's FSA-regulated energy futures exchange conducts nearly half the world's trade in crude oil futures. Along with the benchmark Brent crude oil, West Texas Intermediate (WTI) crude oil and gasoil futures contracts, ICE Futures Europe also offers a full range of futures and options contracts on emissions, U.K. natural gas, U.K power and coal.

THE BRENT CRUDE MARKET

Brent has served as a leading global benchmark for Atlantic Basin crude oils in general, and low-sulfur ("sweet") crude oils in particular, since the commercialization of the U.K. and Norwegian sectors of the North Sea in the 1970s. These crude oils include most grades produced from Nigeria and Angola, as well as U.S. Gulf Coast (USGC) sweet crude oils such as Louisiana Light Sweet (LLS) and U.S. benchmark West Texas Intermediate (WTI). This degree of substitutability for refiners in the USGC, U.S. East Coast (USEC) and Northwest Europe explains why Brent is useful as a pricing basis.

The Brent field, located in the U.K. sector of the North Sea and delivered by pipeline to the terminal at Sullom Voe, is the namesake of the Brent futures and options market. However, the name has lapsed into shorthand for BFOE, or Brent-Forties-

Oseberg-Ekofisk family of North Sea crude oils, each of which has a separate delivery point. Many of the crude oils traded as a basis to Brent actually are traded as a basis to Dated Brent, a cargo loading within the next 10-21 days (23 days on a Friday). In a circular turn, the active cash swap market for the differentials (contracts for differences, or CFDs) between Dated Brent and various crude oils traded on a BFOE basis in the so-called 21-day Brent market determine where Dated Brent is assessed. If the forward curve of the Brent market is in backwardation, the condition wherein each successive futures contract is priced lower than its predecessor, the CFD should be a positive value. If the forward curve of the Brent market is in contango, the condition wherein each successive futures contract is priced higher than its predecessor, the CFD should be a negative value.

Even though Dated Brent itself is not an actual spot market, but rather a short-term forward market affected by CFDs derived from the forward curve of Brent futures and short-dated cash market options, it is the basis used to price approximately 65% of the world's trade in crude oil, including deals done for immediate delivery.

A second forward market, the 21-day BFOE market, involves the actual cash market trade in the cheapest-to-deliver crude from the BFOE market. This historically was Brent itself, but that has changed with time to make Forties the cheapest-to-deliver crude oil more often than not. The 21-day BFOE index is used to compile the Brent Index on a daily basis and then used to cash-settle the Brent futures contract.

THE WTI MARKET

While Brent is a waterborne cargo market where crude oil arrives in discrete quantities over a short period of time, WTI is a mid-continent pipeline market where crude oil flows continuously at near-constant rates. The crude oil industry in the U.S. began in western Pennsylvania and eastern Ohio; in Canada it started in southern Ontario. However, the respective industries soon discovered much larger sources of crude oil elsewhere. In Canada, the industry soon centered in Alberta, which is a long way by pipeline or railcar from major refining centers. In the U.S., the industry first boomed in Southern California, followed in quick succession by discoveries along the U.S. Gulf Coast, Oklahoma, and then both West and East Texas.

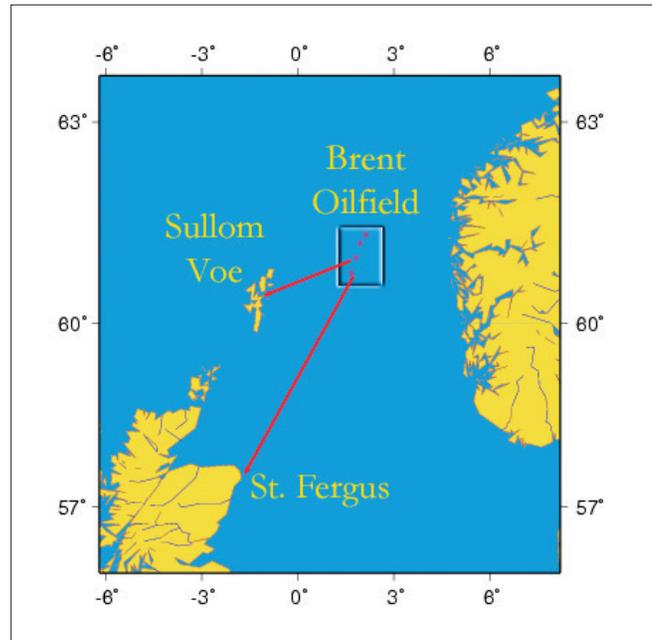
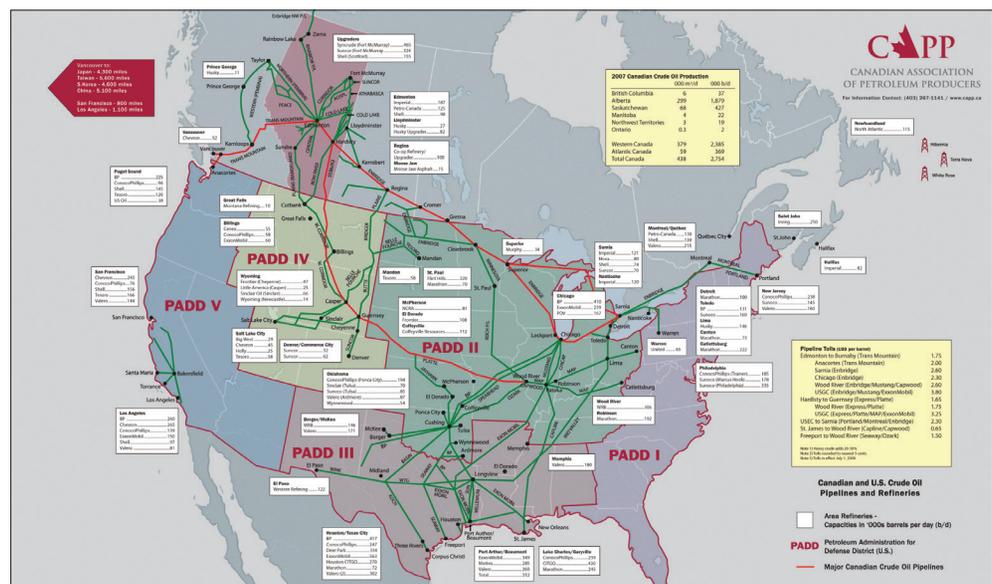


Image of North Sea where Brent Crude Oil is based

Oklahoma's early prominence, and the need to build long-distance pipelines to refining centers in the Midwest, gave rise to a pipeline terminus at Cushing. When crude oil was discovered in the Permian basin of West Texas and New Mexico in the 1920s, pipelines were laid to Cushing and refining centers along the U.S. Gulf Coast. Gulf Coast crude oil shipped north could connect to this pipeline system, along with Canadian crude oil moving south. The network of pipelines and storage tanks at Cushing made WTI

at Cushing a natural marker price for U.S. pipeline crude oil. The U.S. pipeline market revolves around pipeline scheduling considerations. The window after the 25th day of the previous month and before the start of the next month is the scheduling period. Crude oil priced for the next month's delivery flows is delivered ratably at that price in the following month. That fixed price serves as the basis for swaps against crude oil priced in the daily posting market. The posting, or posting-plus



Source: Canadian Association Of Petroleum Producers

market, involves daily prices set by crude oil resellers and constitutes the floating leg of the pipeline market.

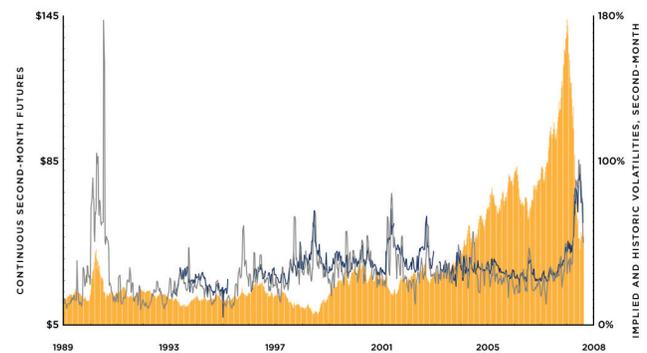
FACTORS AFFECTING PETROLEUM ECONOMICS

Energy markets are highly volatile, and natural gas and electricity tend to be more so than crude oil, yet neither affects the world's economic psyche as much as crude oil. The introduction of petroleum-based fuels for purposes of lighting, space heating, and for transportation in the 19th century, ushered in an acceleration of economic growth the likes of which had been unseen in the history of man. The growing dependence on what has been recognized from the start as a finite resource base of naturally occurring conventional petroleum has led to a fear of depletion. Unlike agricultural commodities, which can be replaced each season, or metals, which can be recycled indefinitely, fossil fuels such as crude oil, natural gas and coal are consumed with little possibility of replacement or recycling. Moreover, the law of diminishing returns applies on the supply side: Producers spend ever-greater amounts of money to discover and bring to market ever-smaller quantities of petroleum. This fear and the strategic importance of crude oil to the global economy assure the permanent interest of governments in the crude oil market. This is true for producers, who formed the Organization of Petroleum Exporting Countries (OPEC) at the behest of Venezuela in 1960, and who have attempted to maintain some measure of control over production ever since as non-OPEC producers in the North Sea, Mexico and Russia have sought increased market share, as well as for consumers interested in secure supply and stable prices.

The inelastic nature of crude oil prices assures price volatility in both the short- and long-term. Income elasticity, or the change in total demand as a function of global growth and recession enters into the picture as well; economic downturns in the early 1980s, in 1998 and in 2008 led to sharp decreases in price. The interplay of the resource base, demand growth, politics and random events leads to an inescapable and highly demonstrable conclusion: Despite more than 150 years of effort, the next person to forecast crude oil prices successfully for any sustained period of time will be the first. Due to these market characteristics, price risk is always present and must be managed. For decades, prices and production levels were controlled by the international oil firms, the so-called Seven Sisters. After the introduction of OPEC and successful attempts by new firms to offer preferential terms to producing nations, pricing and production control began

to shift to the producing nations by the early 1970s. This led to the first oil shock of 1973-1974. A second oil shock came about from the Iranian Revolution of 1979 and the Iran-Iraq War beginning in 1980. This was followed by a price collapse in the mid-1980s as new supplies emerged and as energy consumption habits changed. All of these events took place prior to the introduction of Brent futures in 1988. A new cycle began shortly thereafter with the Persian Gulf War in 1990-1991; realized historic volatility in Brent jumped to its all-time high during this disruption. However, nothing compared to the bull market beginning in 1999 and extending into 2008. Prices surged along with demand from China, India and other newly industrializing countries - and then collapsed as a global financial crisis slashed demand growth.

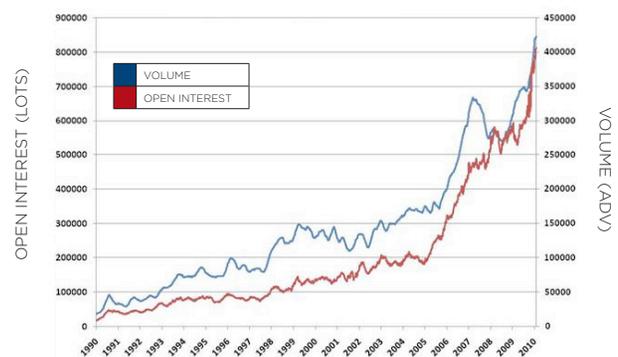
BRENT VOLATILITIES ROSE AS MARKET SPIKED



Source: Bloomberg

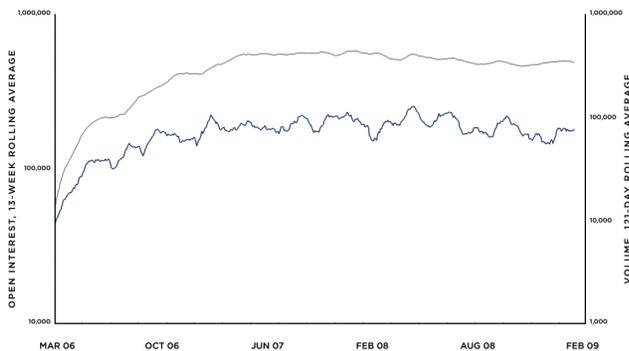
With the profile of Brent steadily rising, traders have increasingly turned to Brent for managing price risk in the global oil market. The best measure of any contract's success is whether volume is independent of events and price trends.

LONG-TERM SUCCESS OF BRENT FUTURES



In February 2006, a cash-settled WTI futures contract began trading at ICE Futures Europe. The contract was an immediate success and soon reached a strong level of volume and open interest.

INSTANT SUCCESS OF WTI FUTURES



Source: CRB-Infotech CD-ROM

BRENT TRADES AND ISSUES

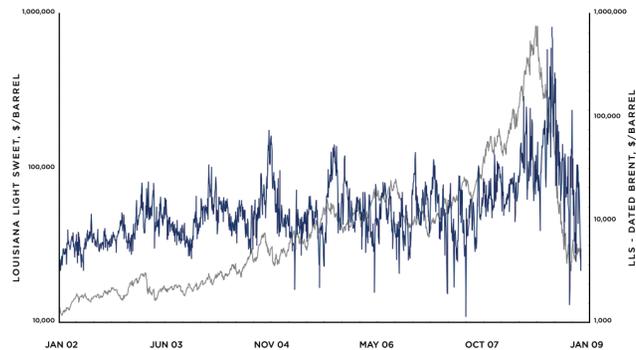
Traders quickly learn to focus on the spread between WTI and Brent, usually expressed as the easier-to-say “Brent-TI spread” even though the number is WTI minus Brent. That this number is the focus of trade is a tribute to the importance of the ICE Brent and WTI contracts — the spread between a waterborne cargo in the North Sea and ratable pipeline delivery in mid-continent Cushing, Oklahoma always requires explaining.

The pipelines running into Cushing flow in a northerly direction from Texas and points along the USGC, although they obviously flow in a southerly direction for crude oil coming in from Canada. This means WTI at Cushing cannot be delivered back out to the USGC when inventories at Cushing rise and depress the price of WTI. Those storage conditions will be addressed later. A better comparison for the incentive to bring Brent-basis waterborne cargoes into the USGC refining markets is the LLS-Brent spread.

A second consideration rises, and that is voyage time. It takes a cargo moving across the Atlantic approximately two weeks to get to the USGC, during which time its price should either increase or “ride up” the forward curve in the case of a backwardated market or decrease or “ride down” the forward curve in the case of a contango market. Accordingly, the price of Dated Brent should be adjusted by one-half of the spread between first- and second-month Brent futures to afford a proper comparison for refinery economics. The LLS-Brent

spread has exhibited mean-reverting tendencies for much of recent history. The only major exception here was a delayed expansion of this spread during the final rally in 2008 and another delayed reaction to the downside once prices of LLS turned lower.

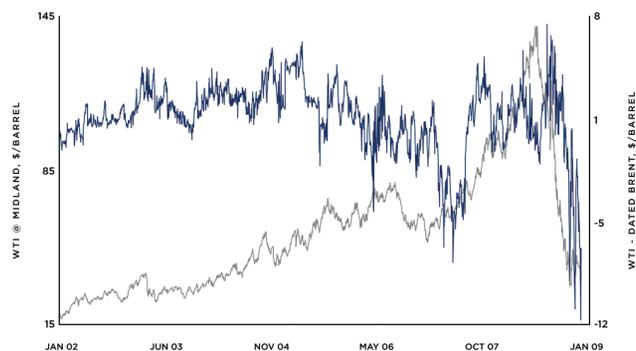
THE LSS - BRENT SPREAD AND LLS PRICES



Source: Bloomberg

Contrast this spread to the one between WTI at Midland, Texas, a point with pipelines to both Cushing and the USGC. The spread has put in some rather large moves, particularly to the downside, as storage conditions at the Cushing market pushed WTI prices there higher and lower.

THE WTI - BRENT SPREAD AND WTI PRICES

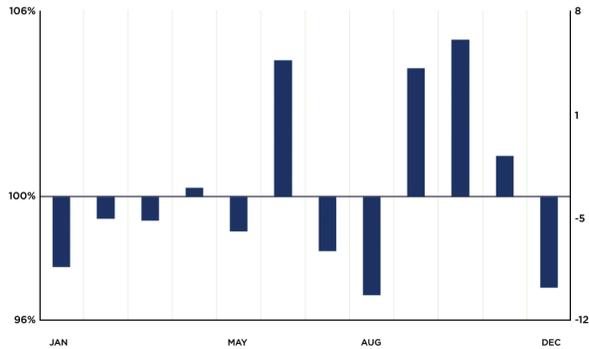


Source: Bloomberg

The Brent-WTI spread tends to be seasonal, albeit not as much as it was before the markets witnesses in the spring of 2007 and the winter of 2008-2009. The divisors for this spread are greater than 1.00 for June, September, October and November, and just slightly so for all other months. Market participants should be aware of this seasonality.

ICE CRUDE OIL

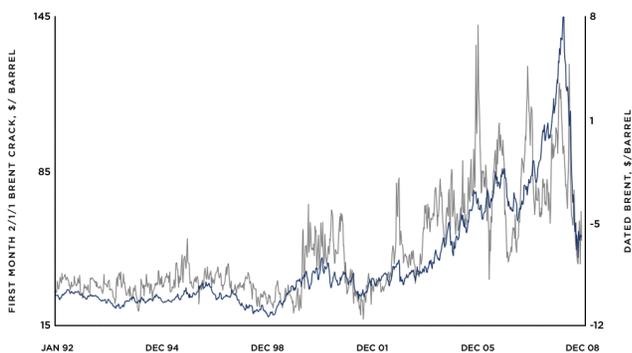
SEASONAL ADJUSTMENT DIVISORS FOR THE BRENT-WTI SPREAD



Source: Bloomberg

Another important relationship, and one that has a more direct effect on the price trend of Dated Brent is the refining margin, or crack spread, between it and second-month New York Harbor heating oil and gasoline prices. Dated Brent prices tend to track the “2/1/1” crack spread, or two barrels of Brent refined into one barrel each of heating oil and gasoline. This close relationship suggests marginal changes in the U.S. refined products market have a profound, and tradable, impact on Dated Brent prices.

THE TRANS-ATLANTIC CRACK

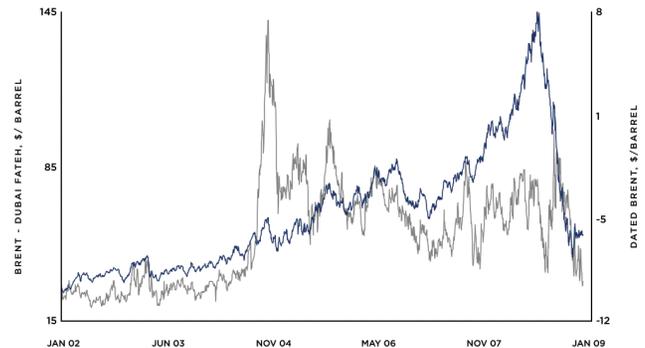


Source: Bloomberg

Another critical spread is the one between Dated Brent and Dubai crude oil. Dubai is a high-sulfur or “sour” crude oil and serves, either by itself or averaged in with Omani crude oils, as the marker grade for many of the Persian Gulf crudes exported eastward into Asian markets. Westbound crude exports from the Persian Gulf to Europe are priced against an average of trades in the ICE Brent crude oil futures contract; this is called the Bwave (Brent Weighted Average). U.S.-bound crudes from

the Persian Gulf are priced against Platts WTI. The Brent-Dubai spread, as is the case with all so-called “sweet-sour” spreads, tends to spike in favor of the more expensive sweet crude oil during times of maximum refinery demand. The value of sour crude oils will also be affected by the relative value of fuel oil. Higher sulfur crude oils typically yield a relatively higher volume of fuel oil.

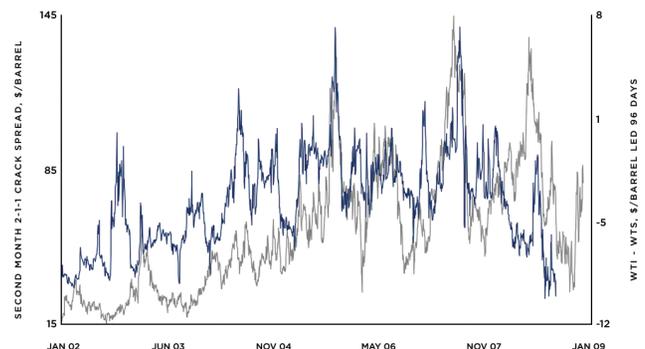
THE BRENT-DUBAI SPREAD



Source: Bloomberg

Sweet-sour spreads, here illustrated by the spread between WTI and West Texas Sour (WTS) at Midland, Texas, are in turn a function of crack spreads. As a spread such as the second-month 2/1/1 rises, refiners find it profitable to bring on incremental processing units only capable of processing the more expensive sweet crude oil. This takes time, as there is a lead of 96 trading days on average between this crack spread and this sweet-sour spread. A similar, less-easy-to-illustrate dynamic takes place in the global crude oil market and drives spreads such as the Brent-Dubai spread.

THE SWEET-SOUR SPREAD AND SECONDMONTH CRACK SPREAD A 96 DAY TRADING LEADING RELATIONSHIP

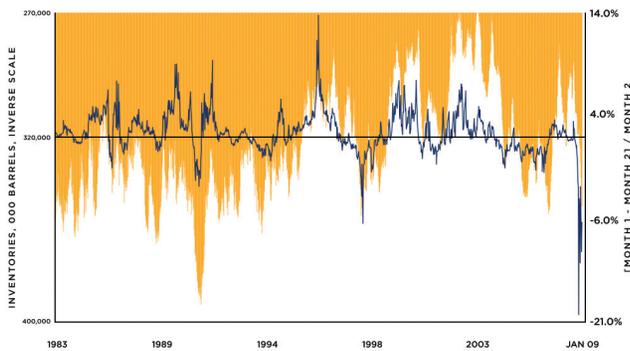


Source: Bloomberg

THE INVENTORY EFFECT

A combination of factors, including slow growth in U.S. refined product demand and financial market participants rolling long front-month positions into succeeding months, has pushed the forward curve of WTI into contango for most of the period since 2004. If a contango, or discount of front-month futures to succeeding months, become large enough, a trader can take delivery of cash crude oil (the ICE WTI contract is cash-settled, but a trader may swap a financial position into a physical position) and sell a future at a price sufficient to cover the physical and financial costs of storage. This cash-and-carry arbitrage trade should lead to inventory builds, and has done so during periods of contango.

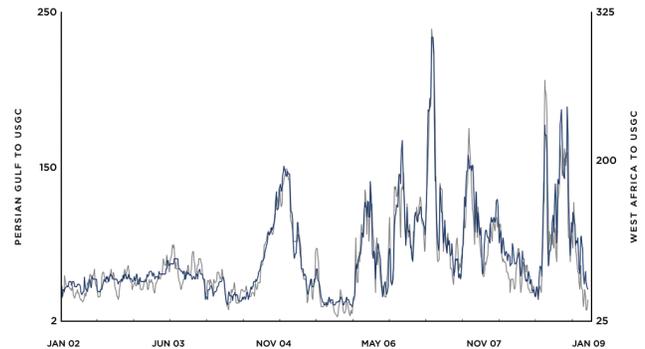
INVENTORIES IN RISING ALONG WITH DEEPENING CONTANGO



Source: Bloomberg

A contango can be difficult to break, as each narrowing of the spread leads to supplies being released from storage, which in turn drive the front-month price lower. Previous episodes of contango have ended with supply shocks, such as the 1990 invasion of Kuwait or the 1999 agreement between Saudi Arabia, Mexico, Venezuela and Russia to restrict output. A second way for a contango to end is when it becomes uneconomic for cargoes to be shipped into the U.S. market. Shipping tariffs, here expressed in Worldscale or percentage of normal, from key markets such as the Persian Gulf or West Africa to the USGC tell a story. They fall when fewer vessels are being nominated to ship crude oil into the U.S. Less floating inventory due to arrive eventually means less inventory at Cushing.

KEY TANKER TARIFFS TO U.S. GULF COAST



Source: Bloomberg

ICE FUTURES EUROPE BRENT FUTURES CONTRACT

The key specifications of the ICE Brent futures contract are:

HOURS	U.K: 01:00 LONDON LOCAL TIME (23:00 SUNDAYS) TO 23:00 LONDON LOCAL TIME U.S. EASTERN: 20:00 (18:00 SUNDAYS) TO 18:00 FOLLOWING DAY CIRCULARS WILL BE ISSUED WHEN U.K. SWITCHES FROM GMT TO BST AND FOR U.S. DAYLIGHT SAVINGS TIME SWITCHES
SYMBOL	B
SIZE	1,000 BARRELS
QUOTATION	DOLLARS AND CENTS PER BARREL
TRADING PERIOD / STRIP	A MAXIMUM OF 72 CONSECUTIVE MONTHS WILL BE LISTED. IN ADDITION, SIX CONTRACT MONTHS CONSISTING OF JUNE AND DECEMBER CONTRACTS WILL BE LISTED FOR AN ADDITIONAL THREE CALENDAR YEARS. TWELVE ADDITIONAL CONTRACT MONTHS WILL BE ADDED EACH YEAR ON THE EXPIRY OF THE PROMPT DECEMBER CONTRACT MONTH.
MINIMUM FLUCTUATION (TICK)	\$0.01 PER BARREL; \$10 PER CONTRACT
SETTLEMENT	DELIVERABLE CONTRACT BASED ON EFP DELIVERY WITH AN OPTION TO SETTLE IN CASH AT THE ICE BRENT INDEX PRICE FOR THE DAY FOLLOWING THE LAST TRADING DAY OF THE FUTURES CONTRACT
GRADE	PIPELINE EXPORT-QUALITY BRENT BLEND AS SUPPLIED AT SULLOM VOE
DAILY PRICE LIMIT	NONE
FIRST / LAST NOTICE DAY	END OF BUSINESS DAY (A TRADING DAY WHICH IS NOT A PUBLIC HOLIDAY IN ENGLAND AND WALES) IMMEDIATELY PRECEDING EITHER THE 15TH DAY BEFORE THE FIRST DAY OF THE CONTRACT MON
LAST TRADING DAY	

HELPFUL LINKS

[Complete list of specifications](#)

[Description of the Brent Index](#)

[Guide to the Exchange of Futures for Physicals \(EFPs\) for ICE Brent Futures](#)

[Schedule of exchange fees](#)

Brent crude oil futures can be [traded at settlement \(TAS\)](#). As in the case of all such markets where a TAS facility is available, this is an invaluable feature for traders who are trying to match cash market deals to the ICE Futures Europe settlement price. A related facility, also designed with the needs of the cash market hedger in mind, is the 16:30 afternoon minute marker. ICE Futures Europe sets out an official marker price for the front-three contract months at 16:29 – 16:30 London local time to coincide with Platts Market on Close window. [Click here](#) for more information on the minute marker program.

Options trade on the Brent futures contract as well. Options are available for thirteen consecutive months plus the four subsequent June/December expiries for a total of 17 listed expiries. A new contract is added immediately following the expiry of the front option month. Each American-exercise option settles into the underlying futures contract. Strikes are listed in increments and decrements of 50 cents per barrel, with a minimum of five strike prices listed for each contract month. Trading ceases three days prior to the scheduled cessation of trading for the relevant contract month of Brent futures.

The key specifications of the ICE Futures Europe WTI futures contract are:

ICE FUTURES EUROPE WTI CRUDE FUTURES SPECIFICATIONS

HOURS	U.K: OPENING TIME MONDAY MORNING - SUNDAY EVENING 23:00 LONDON LOCAL TIME U.S. EASTERN: OPENING TIME MONDAY MORNING - SUNDAY EVENING 18:00 LOCAL TIME
SYMBOL	T
SIZE	1,000 BARRELS
QUOTATION	DOLLARS AND CENTS PER BARREL
TRADING PERIOD / STRIP	A MAXIMUM OF 72 CONSECUTIVE MONTHS WILL BE LISTED. IN ADDITION, SIX CONTRACT MONTHS CONSISTING OF JUNE AND DECEMBER CONTRACTS WILL BE LISTED FOR AN ADDITIONAL THREE CALENDAR YEARS. TWELVE ADDITIONAL CONTRACT MONTHS WILL BE ADDED EACH YEAR ON THE EXPIRY OF THE PROMPT DECEMBER CONTRACT MONTH.
MINIMUM FLUCTUATION (TICK)	\$0.01 PER BARREL; \$10 PER CONTRACT
SETTLEMENT	THE WEST TEXAS INTERMEDIATE LIGHT SWEET CRUDE OIL FUTURES CONTRACT IS CASH SETTLED AGAINST THE PREVAILING MARKET PRICE FOR US LIGHT SWEET CRUDE. IT IS A PRICE IN USD PER BARREL EQUAL TO THE PENULTIMATE SETTLEMENT PRICE FOR WTI CRUDE FUTURES AS MADE PUBLIC BY NYMEX FOR THE MONTH OF PRODUCTION PER 2005 ISDA COMMODITY DEFINITIONS.
DAILY PRICE LIMIT	NONE
FIRST / LAST NOTICE DAY	END OF BUSINESS DAY (A TRADING DAY WHICH IS NOT A PUBLIC HOLIDAY IN ENGLAND AND WALES) IMMEDIATELY PRECEDING EITHER THE 15TH DAY BEFORE THE FIRST DAY OF THE CONTRACT MONTH
LAST TRADING DAY	TRADING SHALL CEASE AT THE CLOSE OF BUSINESS ON THE 4TH US BUSINESS DAY PRIOR TO THE 25TH CALENDAR DAY OF THE MONTH PRECEDING THE CONTRACT MONTH. IF THE 25TH CALENDAR DAY OF THE MONTH IS NOT A US BUSINESS DAY THE FINAL TRADE DAY SHALL BE THE TRADING DAY WHICH IS THE FOURTH US BUSINESS DAY PRIOR TO THE LAST US BUSINESS DAY PRECEDING THE 25TH CALENDAR DAY OF THE MONTH PRECEDING THE CONTRACT MONTH.

HELPFUL LINKS

[Complete list of specifications suggest](#)

[Guide to the ICE Brent-WTI Futures Spread](#)

[Guide to the Exchange of Futures for Physicals \(EFPs\) for ICE WTI Futures](#)

[Schedule of exchange fees](#)

Like ICE Brent crude, ICE WTI crude oil futures also can be [traded at settlement \(TAS\)](#).

Options trade on the ICE WTI futures contract as well. Options are available for thirteen consecutive months plus the four subsequent June/December expiries for a total of 17 listed expiries. A new contract is added immediately following the expiry of the front option month. Each American-exercise option settles into the underlying futures contract. Strikes are listed in increments and decrements of 50 cents per barrel, with a minimum of 41 strike prices listed for each contract month. Trading ceases on the second day prior to the scheduled cessation of trading for the relevant contract month of WTI futures.

TRADING ICE BRENT AND WTI FUTURES AND OPTIONS

Futures markets exist for the purposes of price discovery and risk transfer. Price discovery is the more straightforward. Buyers and sellers meet in a competitive market place, and the prices resulting from each transaction signal to other traders what a given commodity might be worth. This process is vastly different from the fundamental analysis approach to a market, in which a theoretical market clearing price is deduced from supply and demand data. There is no theory involved in price discovery: It is what it is.

Once accepted by a clearing firm or other licensed futures brokerage, it is possible to participate in the markets. For regulatory and reporting purposes, a market participant not in the petroleum business will be classified as non-commercial, and a market participant in the petroleum business will be classified as a commercial or hedging trader. Hedgers tend to utilize Brent crude oil options. Producers can put a floor underneath their selling price with long put options, and buyers can put a ceiling over their costs with long call options, among other strategies.

In a futures trade, the trader and the counterparty to the trade will post initial or original margin a futures commission merchant or clearing member. Minimum margins are set by ICE Futures Europe, but the clearing futures commission merchant can demand additional funds. Visit our [on-line guide to current margin rates](#) for more information.

There are no margin requirements for long option positions. The margin requirements for short option positions vary according to the relationship between the option strike price and the futures price.

If the market moves in favor of the trader - higher for a long position (or commitment to take delivery of Brent crude oil or to offset the contract by selling it prior to delivery), or lower for a short position (or commitment to deliver Brent crude oil or to offset the contract by buying it prior to delivery) - equity in the trader's account increases. The trader may withdraw these funds down to the "initial margin" level, depending on the account agreement.

If the market moves adversely - lower for a long position or higher for a short position - the trader will be required to post additional funds, called "variation margin", with the futures commission merchant to sustain the "initial margin". These "margin calls" assure both the futures commission merchant and the ICE Clear Europe exchange clearinghouse of perform. All futures accounts are marked-to-market daily, and participants deficient in the margin obligations can have positions liquidated involuntarily.

As the designated clearinghouse for ICE Futures Europe, ICE Clear Europe stands as the financial counterparty to every futures contract traded on the exchange. The clearinghouse matches long and short positions anonymously and guarantees financial performance.

What do the financial flows look like in a futures trade? Let's say a five-contract June futures position is initiated at \$45.00 per barrel and the market rises to \$46.50 per barrel on the following trading day.

- For the long position, the gain is:
 $- 5 \text{ contracts} \times [46.50 - 45.00] / \text{contract} \times \$10 \text{ per } .01\text{¢} = \$7,500$

- For the short position, the loss is equal and opposite:
 $- 5 \text{ contracts} \times [45.00 - 46.50] / \text{contract} \times \$10 \text{ per } .01\text{¢} = -\$7,500$

If we reverse the price path, we reverse the gains and losses. Let's change the starting price to \$44.75 per barrel and have the market decline to \$43.50 per barrel the next day.

- For the long position, the loss is:
 $- 5 \text{ contracts} \times [43.50 - 44.75] / \text{contract} \times \$10 \text{ per } .01\text{¢} = -\$6,250$
- For the short position, the gain is equal and opposite:
 $- 5 \text{ contracts} \times [44.75 - 43.50] / \text{contract} \times \$10 \text{ per } .01\text{¢} = \$6,250$

Options traders see the same directional profit and loss profiles relative to price, but the actual profit and loss is subject to a host of factors including the volatility of the market, time to expiration, interest rates and the relationship between the current futures price and the option's strike price.

RISK TRANSFER

Risk transfer is the second purpose of a futures market. Any producer of Brent-basis crude oil, any holder of Brent-basis inventories or any party at risk if the price of Brent-basis crude oil declines is long the market. These participants can offset risk by going short a futures contract. A refinery or any user at risk if the price of Brent-basis crude oil increases is short the market and can offset risk by going long a futures contract.

The mechanics and financial flows are identical to those outlined above. A Brent-basis crude oil producer at risk to prices falling can acquire a financial asset, the short futures position, which will rise in value as the market declines. The opposite is true for a refinery at risk to prices rising; there a long futures position will rise in value as the market rises.

While the financial flows should offset the economic gains and losses of the physical Brent-basis crude oil position, there are two important things to remember. First, even though futures prices converge to cash prices at expiration, the convergence process is subject to what is called "basis risk", or differences due to changes in hedging demand, location of the crude oil and quality differentials.

Second, while the economic gains on, for example, a storage tank of crude oil are real, they are not realized until the crude oil is sold. If this inventory is hedged with a short futures position and the market rises, the storage operators will have to keep posting additional funds in the margin account.

Nothing in the above discussion of hedging reveals when or at what price to hedge. This is one of the reasons options are valuable to hedgers. While the Brent-basis crude oil producer may wish to have downside protection or price floor, that same producer probably wants to participate in any future price increases. The producer concerned about a decline in the value of Brent-basis crude oil between now and the time he expects to be able to deliver that crude oil in June could buy a June \$44 put option, which is the right, but not the obligation, to receive a short position in a June future at \$44 for \$5.22, or \$5,220. The purchased put guarantees the producer the right to sell the June future for an effective price of \$38.78 per barrel (the \$44 strike price less the premium paid of \$5.22). This right gives him protection if Brent crude oil prices have fallen by the expiry of the June option, but at the same time preserves his ability to profit should the price of Brent crude oil move higher over the period.

The refiner wishing to cap the price of Brent-basis crude oil but not be exposed to margin calls should the price continue to rise can do an opposite trade and buy a June \$44 call option for \$5.49, which is the right, but not the obligation, to receive a long position in a June future at \$44 for \$5.49, or \$5,490. The purchased call gives the refiner the right to buy the June future at an effective price of \$49.49 per barrel (again, the strike price of \$44 plus the premium paid of \$5.49), offering protection against an unfavorable rise in the price of Brent crude oil while preserving the ability to take advantage if prices in fact decline.

It should be noted that the risk profile for sellers of options is dramatically different than for buyers of options. For buyers, the risk of an option is limited to the premium or purchase price paid to buy the option. For sellers, the risk profile is unknown and can be potentially quite large.

Options trading can become complex quickly and involves the interplay of time remaining to expiration, the volatility of the commodity, short-term interest rates and a host of expected movements collectively called “the Greeks.”

BENEFITS OF BRENT CRUDE ON THE ICE PLATFORM

1. ICE Clear Europe offers competitive initial margins and inter-month spread charges, including a 90% margin offset between Brent and WTI, the most liquidly traded arbitrage market on any exchange.
2. Swaps traders in the crude markets can mark to market their positions against a liquid Brent tradable marker at 16:30 London time. Because European product prices are set at this time, traders and refiners who need to lock in a crack spread can do so.
3. Several Middle East producers use the exchange derived Brent Weighted Average Price (BWAVE) to price crude oils for European customers. Customers exposed to the BWAVE price are able to hedge exposure on a liquid exchange using the liquid ICE Brent Crude futures contract.
4. Gasoil Crack: Trading the Gasoil crack will result in two separate positions in the underlying futures markets for Brent and Gasoil. The settlement of each leg will be respective expiry of the Brent and Gasoil futures contracts as made public by ICE Futures Europe. Upon expiry of the Brent leg, holders of a Gasoil crack trade will then be left with a long or short position in the Gasoil market which will then be settled on expiry of the relevant underlying ICE Gasoil futures contract.
5. ICE is increasing its OTC Cleared offerings in the Brent market. A large family of related OTC instruments have emerged that price in relation to the ICE Brent futures contract. Current products include Dated to Front-Line swaps, Brent CFD swaps, Dated Brent swaps and WTI/Brent 1st line swaps as a differential. For more information, visit [ICE's Product Guide](#).
6. Futures style Options on ICE Brent Crude futures are also available with plans for additional contracts in 2009. For more information, visit [ICE's Product Guide](#).

ABOUT ICE

Intercontinental Exchange® (NYSE: ICE) operates leading regulated exchanges, trading platforms and clearing houses serving the global markets for agricultural, credit, currency, emissions, energy and equity index markets. ICE Futures Europe® trades half of the world's crude and refined oil futures. ICE Futures U.S.® and ICE Futures Canada® list agricultural, currency and Russell Index markets. ICE offers trade execution and processing for the credit derivatives markets through Creditex and clearing through ICE Trust™. A component of the Russell 1000® and S&P 500 indexes, ICE® serves customers in more than 50 countries and is headquartered in Atlanta, with offices in New York, London, Chicago, Winnipeg, Calgary, Houston and Singapore.

LEADING ELECTRONIC TRADING PLATFORM

ICE's electronic trading platform provides rapid trade execution and is one of the world's most flexible, efficient and secure commodities trading systems. Accessible via direct connections, telecom hubs, the Internet or through a number of front-end providers, today, ICE offers a 3 millisecond transaction time in its futures markets – the fastest in the industry. ICE's platform is scalable and flexible – which means new products and functionality can be added without market disruption. ICE offers numerous APIs for accessing futures and OTC markets, including a FIX API.

INTEGRATED ACCESS TO GLOBAL DERIVATIVES MARKETS

ICE's integrated marketplace offers futures and OTC, cleared and bilateral products on a widely-distributed electronic platform that provides quick response times to participants' needs, the changing market conditions and evolving market trends.

TRANSPARENCY

Price transparency is vital to efficient and equitable markets. ICE offers unprecedented price transparency and ensures that full depth of market is shown. Trades are executed on a first-in/first-out basis, ensuring fair execution priority. ICE also displays a live ticker of all deal

terms and maintains an electronic file of all transactions conducted in its markets.

ICE FUTURES EUROPE REGULATION vs ICE FUTURES U.S.

ICE Futures Europe is a Recognised Investment Exchange in the UK, supervised by the Financial Services Authority under the terms of the Financial Services and Markets Act 2000. As a consequence, the ICE platform supports an orderly, regulated futures market thanks to its wide availability, open participation and complete documentation of all orders. ICE operates its sales and marketing activities in the UK through ICE Markets which is authorized and regulated by the Financial Services Authority as an arranger of deals in investments and agency broker.

ICE OTC REGULATION

ICE operates its OTC electronic platform as an exempt commercial market under the Commodity Exchange Act and regulations of the Commodity Futures Trading Commission, (CFTC). The CFTC generally oversees the trading of OTC derivative contracts on the ICE platform. All ICE participants must qualify as eligible commercial entities, as defined by the Commodity Exchange Act, and each participant must trade for its own account, as a principal.

As an exempt commercial market, ICE is required to comply with the access, reporting and record-keeping requirements of the CFTC. ICE's OTC business is not otherwise subject to substantive regulation by the CFTC or other U.S. regulatory authorities. Both the CFTC and the Federal Energy Regulatory Commission have view-only access to the ICE trading screens on a real-time basis.

GETTING INVOLVED

To learn more about ICE markets, products, and services, view a list of ICE Education programs or download a copy of the ICE capabilities brochure. To contact ICE, choose from a complete list of ICE contacts or call ICE Futures Europe.

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