Hedging Oil and Gas Production: Issues and Considerations

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This Note discusses the benefits and limitations of oil and gas price hedges from the perspective of an oil and gas producer and analyzes the main types of hedging instruments oil and gas producers use, including their principal differences, advantages, and disadvantages.

The recent and dramatic decline in the price of oil illustrates the risk that every oil and gas producer has to energy commodity price volatility. This Note discusses the methods and transactions oil and gas producers use to "hedge" or reduce this price risk and transfer some or all of this risk to a party that is willing and able to assume and manage this risk.

Hedges are a risk mitigation mechanism and are distinguishable from speculative commodity transactions in which a party assumes, rather than transfers, price risk related to a commodity in hopes that the future increase or decrease in price is in its favor and result in trading profits. A discussion of these speculative transactions is beyond the scope of this Note. This Note also focuses on mechanisms oil and gas producers use to hedge price risk associated with the production and sale of oil and gas and not other types of risks the producer may face, such as interest rate or currency risk.

This Note:

- Discusses the benefits and limitations of oil and gas price hedges.
- Analyzes the main types of hedging instruments oil and gas producers use, including their principal differences, advantages, and disadvantages.
- Discusses the factors that oil and gas producers should consider when implementing a hedging strategy.

Hedging is a crucial component of any oil and gas producer's risk and financial management program. There are many ways a producer can achieve its hedging objectives. Oil and gas producers should be familiar with the risks and benefits of the hedging strategies typically used in the oil and gas sector to mitigate price risk. Planning ahead with the assistance of experienced financial and legal advisors that can identify the advantages and shortfalls of various hedging structures can prepare an oil and gas producer to better manage volatility inherent in the oil and gas markets.

WHY HEDGE OIL & GAS PRODUCTION?

A well-implemented oil and gas hedging strategy can provide an oil and gas producer with important benefits. The primary benefit of hedging oil and gas production is the producer's ability to reduce the impact of unanticipated price declines (known as price risk) on its revenue. Several methods exist that allow an oil and gas producer to hedge its expected production against price risk. Some methods, such as swap contracts, fixed-price physical contracts, and futures contracts, have the effect of locking in the price the producer receives in the marketplace for all or a specified portion of its future oil and gas production, but they prevent the producer from benefiting if prices rise.

Other hedging methods, such as put option contracts, establish the minimum price an oil and gas producer receives in the marketplace for its future oil and gas production. These methods protect the oil and gas producer from price declines while allowing it to benefit if prices rise. But they also require the producer to pay an upfront premium, which may be significant.

Regardless of which method is chosen, hedging all or a portion of a producer's oil and gas production against price risk can reduce the extent to which the producer's revenue erodes in a downward oil and gas market.

FINANCIAL CERTAINTY

The ability to lock in or establish a minimum price **in advance** that the oil and gas producer will receive in the marketplace for all or a portion of its expected oil and gas production gives the producer the advantage of predictable revenues in a future period and some measure of financial certainty. This certainty enables an oil and gas producer to:

- Ensure steady and reliable revenue to service its debt.
- Budget for drilling operations under its existing oil and gas leases.
- Plan for and fund future exploration and production activities and growth opportunities, even during a period of declining or volatile prices.

Hedging is, therefore, a powerful financial management tool.

In some cases, an oil and gas producer may not have a choice about whether to enter into hedging transactions. Oil and gas producers are often required to hedge a specified portion of their expected production by their lenders or investors. Lenders, whose loans are secured by

a producer's oil and gas reserves (for example, reserve based loans (RBLs)), often require the producer to hedge a portion of its oil and gas production, so that the producer has steady and reliable revenue from its production that it can use to meet its debt service obligations. For more information on this requirement and RBLs more generally, see Practice Note, Reserve Based Loans: Issues and Considerations (*http://us.practicallaw.com/4-618-2271*) and What's Market: Credit Agreements in the Oil & Gas Industry (*http://us.practicallaw.com/9-525-1178*).

Equity investors may also require producers to hedge a portion of their oil and gas production to maintain the producer's revenue and increase the likelihood that these investors receive adequate returns on their investment.

LIMITATIONS OF OIL AND GAS HEDGING TRANSACTIONS

During extended periods of low oil and gas prices, previously executed hedges are instrumental in keeping oil and gas producers afloat. However, at some point, the hedges start to expire or "roll off" and the producer must decide whether to replace the hedges or to become exposed to future price movements. If oil and gas prices are above what is needed to ensure profitability for a producer to produce suitable rates of return, many producers may elect (or may be required by lenders or investors) to extend their hedging program in an effort to secure oil and gas prices at the higher market prices. If, on the other hand, these prices are below what is needed to ensure profitability, producers may be less inclined to extend their hedging program because it may not make sense to "lock-in" uneconomic activity. In other words, producers lose the ability to enter into meaningful hedges once oil and gas prices fall below what is needed for producers to operate profitably.

Furthermore, since many producers provide collateral for their hedge obligations in the form of liens on their oil and gas reserves, efforts to enter into new hedge transactions can be limited because hedge counterparties are less willing to transact as producers' collateral for a proposed hedge becomes less valuable during periods of low oil and gas prices.

If producers enter into hedges and then market prices start to fall, some producers are tempted (and in some cases encouraged by lenders) to close out or terminate their hedges in order to monetize the then-current value of the hedges to pay for short term expenses and to service their debt. Producers typically do this if they believe that prices have bottomed and will rise. While this may work out in some cases, closing out hedges exposes producers to the risk that commodity prices continue to fall.

TYPES OF OIL AND GAS HEDGING TRANSACTIONS

In broad terms, hedging transactions can be separated into two major categories:

- Over-the-counter (OTC) transactions.
- Exchange-traded transactions.

An oil and gas producer's decision to hedge using one or both of these types of hedging transactions must be made on a case-by-case basis depending on:

- The sensitivity of its business plan and capital structure to revenue fluctuations.
- Its appetite for risk.
- Its liquidity.
- Any lender- or investor-imposed restrictions or requirements.
- The timing, location, and amount of its expected oil and gas production.
- Its degree of confidence in engineering projections of its future oil and gas production. Producers typically prepare or engage independent petroleum engineers to prepare reserve reports to determine the expected ultimate recovery of reserves from its wells and oilfields and the value of its oil and gas assets (see Practice Note, Reserve Based Loans: Issues and Considerations: Valuing the Borrower's Oil & Gas Assets (*http://us.practicallaw.com/4-618-2271#a000012*)).

DIFFERENCES BETWEEN OVER-THE-COUNTER (OTC) TRANSACTIONS AND EXCHANGE-TRADED TRANSACTIONS

OTC transactions are bilateral transactions that are intended to meet each counterparty's specific risk and financial management strategies. While these transactions allow the parties to establish the exact terms of their agreement, their customization limits the parties' ability to transfer these agreements.

By contrast, exchange-traded transactions are standardized, one-size-fits-all instruments that require the parties to implement hedging strategies based on a narrow range of contract terms. While these transactions offer many advantages and benefits, including greater transferability, they limit a party's flexibility to hedge risk.

OTC transactions are especially useful to oil and gas producers because they allow producers to hedge all or some of their expected oil and gas production farther into the future than may be practical with exchange-traded transactions. This allows parties to structure a hedge that is highly correlated to the volatility of oil and gas prices, the nature of a producer's oil and gas reserves, and an oil and gas producer's business model.

OVER-THE-COUNTER (OTC) TRANSACTIONS

The ability to negotiate all aspects of an OTC transaction gives an oil and gas producer control over:

- The structure of the hedging transaction.
- The exact quantity of oil or gas production to hedge.
- The index price used.
- The collateral requirements securing the parties' obligations (see Collateral Requirements).
- The remedies available to the parties in the event of a default.

OTC transactions are either physically settled or financially settled (also referred to as cash settled). The method of settlement (meeting its obligations under the transaction) is usually specified in a master-type agreement and any transaction confirmation entered into under the agreement.

PHYSICALLY SETTLED OTC OIL AND GAS TRANSACTIONS

Physically settled transactions involve the actual delivery of physical commodities that have been purchased and sold. For a physically settled transaction to constitute a hedge, the underlying commodity

must be sold at some time in the future for a fixed price. All producers sell their oil and gas production by using physically settled transactions. However, all producers do not use physically settled transactions to hedge against price risk for several reasons. These include:

- Oil and gas is typically sold at an indexed price rather than a fixed price.
- Many first purchasers of oil and gas (companies that first purchase and take title to the production, such as companies engaged in the business of transporting oil and gas from the oilfields) are generally not in the business of accepting the price risk associated with a fixed-price transaction.
- First purchasers may be unwilling or unable to post sufficient credit support to secure the performance of their payment obligations under a fixed-price transaction.

As a result, a large percentage of oil and gas is sold "in the field" at daily or monthly indexed-based prices. To the extent desired, hedging is then accomplished using a separate, financially settled transaction. For example, see Swap Contracts.

Because physical settlement requires the actual delivery of oil or gas, these transactions present several additional issues that must be considered. These issues include:

- Ensuring the producer has sufficient oil and gas production to meet its obligations (see Production Risk).
- Determining when title to the oil or gas is transferred from the producer to the counterparty (see Standard Clause, General Contract Clauses: Title to Goods (*http://us.practicallaw.com/3-531-0246*)).
- Determining when the oil or gas is to be delivered and which party bears the transportation costs.
- Ensuring the oil or gas meets the quality standards set out in the contract.
- Specifying which party bears the risk of loss (see Standard Clause, General Contract Clauses: Risk of Loss (*http://us.practicallaw.com/2-532-9289*)).
- Defining force majeure (see Standard Clause, General Contract Clauses: Force Majeure (*http://us.practicallaw.com/3-518-4224*)).
- Addressing any credit risk presented in the transition.

For more information on physical settlement, see Practice Note, Credit Derivatives: Physical Settlement (*http://us.practicallaw.com/0-386-8130#a1023537*).

FINANCIALLY SETTLED OTC OIL AND GAS TRANSACTIONS

Financially settled transactions result only in payment obligations between the parties and do not involve the actual delivery of a physical commodity. The parties' payment obligations in a financially settled oil and gas transaction are derived from the value of the underlying oil or gas, as determined based on an agreed pricing mechanism. Because these transactions do not involve issues that must be considered with physically settled transactions, they are less complicated than physically settled transactions. But they present some of the same issues that must be considered (see, for example, Credit Risk).

For more information on financial settlement, see Practice Note, Credit Derivatives: Overview (US): Cash Settlement (*http://us.practicallaw.com/0-386-8130#a1023537*).

TYPES OF OTC PRODUCTS USED IN OIL AND GAS TRANSACTIONS

The most common OTC products used in oil and gas transactions are:

- Swap contracts.
- Option contracts.
- Fixed-price physical contracts.

SWAP CONTRACTS

Swap contracts (known as swaps) are bilateral contracts that provide for the exchange or swapping of a series of cash flows at defined intervals (known as settlement periods). They are attractive to oil and gas producers because:

- They require no upfront costs (such as a premium).
- There are a relatively large number of counterparties willing to enter into swap transactions. This creates an active trading market that increases the liquidity of these contracts.
- They give the producer predictable revenues and some measure of financial certainty.

Several types of swaps are available to help oil and gas producers meet their hedging objectives. This Note focuses on oil and gas price swaps that oil and gas producers use to hedge price risk.

These price swaps involve swapping, at defined intervals for a specified period into the future, a floating price for a fixed price based on an agreed notional quantity of oil or gas. The fixed price established in the swap contract is fixed for each settlement period during the term of the swap. The fixed price can be different for each settlement period or the same for the entire term of the contract. The floating price varies from month-to-month during the term of the contract based on a published index selected by the parties.

These price swaps (whether oil or gas) are always financially settled by comparing, on agreed periodic dates, the floating price of the oil or gas (as published by an index selected by the parties) to the fixed price agreed on in the swap contract. In an oil price swap, if the floating price is:

- Greater than the fixed price, then the producer is obligated to make a payment to its swap counterparty equal to the difference between the floating and fixed price **multiplied by** the notional quantity of oil specified in the contract.
- Less than the fixed price, then the producer receives a payment from its swap counterparty equal to the difference between the fixed and floating price **multiplied by** the notional quantity of oil specified in the contract.

Swap counterparties exchange a single payment at each defined interval, which is the net amount owed by one party to the other. The swap ensures that the net effective price for the producer's oil or gas production is locked in at the fixed price agreed in the swap contract and guarantees the producer a steady, predictable, and consistent stream of revenue. However, if prices rise, the producer gives up the potential upside of increased revenue that would otherwise be realized from the sale of its oil and gas.

For more information, see Practice Notes, Derivatives: Overview (US): Swaps (*http://us.practicallaw.com/3-387-5073#a976076*) and Derivatives: Commercial Uses: Managing Commodity Risk: Commodity Derivatives (*http://us.practicallaw.com/6-386-9004#a241770*).

Illustration of an Oil Swap

To understand how oil and gas producers use price swap contracts to hedge prices, consider this example. Assume an oil and gas producer that expects to produce 25,000 barrels (bbls) of oil in February has contractually committed to sell this production at indexed-based spot prices, and desires to hedge 100% of this amount at a fixed price of $50.00 per barrel and thus lock in $1.25 million of revenue from its oil production for that month ($50.00/bbl x 25,000 bbls = $1.25 million). Under the oil price swap hedge, the producer must make a payment to its swap counterparty equal to the floating, indexed price of oil specified in the contract multiplied by the notional quantity of oil specified in the contract in exchange for receiving a payment from the swap counterparty equal to the fixed price of oil **multiplied by** the notional quantity of oil specified in the contract.

If the index price of oil is:

- $65.00 per barrel at the time specified for valuation in the swap contract, the producer owes its swap counterparty $375,000 under the hedge contract or the product of the spot price ($65.00/bbl) **minus** the fixed price ($50.00/bbl)) **multiplied by** the notional quantity (25,000 bbls). Assuming that the producer's contract to sell its production in February is tied to the same index, then the producer is entitled to receive the spot price ($65.00/bbl) **multiplied by** the number of barrels to be sold (25,000 bbls) or $1.625 million.

  As a result, the producer receives enough revenue from the purchaser of its oil production to pay the settlement obligation to the swap counterparty and still net a $50.00 per barrel price or $1.25 million ($1.625 million - $375,000).

- $40.00 per barrel at the time specified for valuation in the swap contract, the swap counterparty owes the producer $250,000 under the hedge contract or the product of the fixed price ($50.00/bbl) **minus** the spot price ($40.00/bbl) **multiplied by** the notional quantity (25,000 bbls). That payment, combined with the amount the producer receives from the purchaser of its oil production (assuming that the physical contract price for that period is determined on the same index), results in the producer receiving its targeted $50.00 per barrel.

  The hedge swap payment ($250,000), therefore, **supplements** the producer's sale of oil at the spot price ($40.00/bbl x 25,000 bbls = $1 million). This provides the producer with $1.25 million of revenue during the month of February ($1 million + $250,000 = $1.25 million).

Benefits and Limitations of Oil Swaps

As the examples above illustrate, the producer's per-barrel net effective revenue is equal to the agreed fixed price ($50.00/bbl) set out in the oil price swap ($1.25 million / 25,000 bbls = $50.00/bbl), regardless of whether the spot price of oil is higher or lower than the fixed price specified in the price swap contract for that month. The swaps can be transacted without the upfront payment of a premium by the producer. For these reasons, price swaps are commonly used by producers to protect against falling oil and gas prices.

However, as these examples also illustrate, the producer gives up the potential upside of increased revenue if oil prices rise. Therefore, while there are benefits to these transactions, they come at a cost. Nevertheless, producers often make the decision to hedge using price swaps because certainty and predictability for a period of time may be more valuable than the potential upside of oil and gas prices.

OPTION CONTRACTS

Option contracts provide the holder of the option the right, but not the obligation, to either purchase (a call option) or sell (a put option) a specified quantity and quality of an underlying commodity at a specific location and on a specific date (or series of dates) in the future at a price specified for each such date (the strike or exercise price). For example, in the case of oil and gas, a producer can:

- Sell a call option to collect a premium to finance the premium paid to the writer of a put option.
- Buy a put option to hedge against the possibility that oil and gas prices will fall in the future.

OTC option contracts are often financially settled and do not involve the actual physical delivery of the underlying commodity. Financially settled option contracts do not give an oil and gas producer holding a put option the right to sell physical oil or gas to the option writer. Instead, in the case of an oil OTC option contract, if the floating price drops below the strike price in the put option contract (and the producer exercises its option in a timely manner), the option contract entitles the producer to receive a payment from the option writer equal to the **difference** between the strike price and the floating price of the oil **multiplied by** the notional quantity of oil specified in the contract.

Thus, in this scenario, while the producer must still sell its physical oil production at the spot price, it receives from the option writer a payment offsetting the difference between the strike price and the floating price of the oil **multiplied by** the notional quantity of oil specified in the contract. To ensure that the payment received under the OTC option contract adequately hedges the producer's price risk, the producer should attempt to identify the floating price in the option so that it mirrors the spot price at which the physical oil will be sold. Importantly, if the floating price equals or exceeds the strike price it would not be in the option holder's interest to exercise its put option. Therefore, no payment would be made by the put option writer.

The option holder pays a premium to the option writer for entering into the oil OTC option contract at the time the contract is entered into.

Depending on the movement of oil prices, an option holder will do one of the following to close out and liquidate its position in an OTC option contract:

- Exercise the option.
- Resell or offset the option.
- Let the option expire.

Exercise of the Option

American-style options may be exercised at any time on or before the option expires, while European-style options may only be exercised on the date they expire. If and when the holder properly exercises the option, the seller of the option (the option writer) is obligated to fulfill its contractual obligations under the option contract.

For more information on European-style vs. American-style options, see Practice Note, Derivatives: Overview (US): Types of Options (*http://us.practicallaw.com/3-387-5073#a433527*).

OTC options commonly used in the energy business do not require option buyers to exercise the option. Rather, on a particular date, the floating price is compared against the strike price and the option writer makes a payment if the option is in the money for the option buyer.

Reselling the Option

Depending on the exercise price and the terms of the OTC option, the oil and gas producer may have the right to sell the option. When considering whether an OTC option is an appropriate hedging strategy, oil and gas producers should consider how liquid and robust the market is for the assignment of options in the event the producer wants to sell or offset the option contract before the option expires.

Expiration of the Option

The oil and gas producer may elect to let a put option expire if it does not make economic sense to exercise or sell the option. In most cases, this happens when the floating price settles higher than the strike price in the option, in which case the put option has no value to the producer.

Illustration of Oil Put Option Contract

Continuing the example from the swaps section above, assume that instead of locking in prices with an oil price swap, the oil and gas producer desires to hedge all of its oil production to ensure it receives at least a **minimum amount** of revenue from its oil production during the month of February, while still retaining the benefit of the upside if oil prices rise. Assume that the producer has also determined, based on a review of its budget, that it needs to protect itself from oil prices generating revenue below $40.00 per barrel, or net revenues of $1 million ($40.00/bbl x 25,000 bbls = $1 million) during the month of February. In all cases, the producer will sell 25,000 barrels of physical oil at the then-current spot price.

To achieve these goals, the oil and gas producer buys a financially settled put option contract with a strike price of $45.00 per barrel at a premium of $5.00 per barrel or $125,000 ($5.00/bbl x 25,000 bbls = $125,000). (The strike price **minus** the premium gives the producer its revenue target of $40.00 per barrel.) If the floating price of oil:

- Remains at or above the strike price during the term of the put option contract, the option is out of the money. Assuming the floating price of oil is $60.00/bbl, the oil and gas producer can choose not to exercise its option (and allow it to expire). The producer's cost for the unexercised put option contract is the premium paid to the option writer ($125,000). The option premium of $125,000 will offset the producer's revenue from the sale of the oil (25,000 bbls x $60.00/bbl = $1.5 million), so the total net proceeds received by the producer are $1.375 million ($1.5 million- $125,000 = $1.375 million) or $55.00 per barrel ($1.375 million / $25,000 = $55.00/bbl).
- Falls below the strike price during the term of the put option contract, the option is in the money. Assuming the floating price of oil is $30.00 per barrel at the time the producer exercises its put option, the option writer will owe the oil and gas producer $375,000. This is equal to the strike price ($45.00/bbl) **minus** the floating price ($30.00/bbl) **multiplied by** the notional quantity (25,000 bbls).

The option payment ($375,000) supplements the producer's sale of oil at the spot price ($30.00/bbl x 25,000 bbls = $750,000) leaving the producer with $1,125,000 of revenue during the month of February ($750,000 + $375,000 = $1.125 million). The producer's cost for the put option contract is the premium paid to the option writer ($125,000). Thus, its net revenue during the month of February is $1,000,000 ($1.125 million - $125,000 = $1 million) or $40.00 per barrel ($1 million / 25,000 bbls = $40.00).

Benefits and Limitations of Oil Options

As the examples above illustrate, an oil and gas producer's put option contract is intended to ensure that its net revenue from its oil production during the month of February never falls below $40.00 per barrel (or $1 million) after considering the premium paid for the option contract, while simultaneously allowing the producer to benefit from an increase in oil prices.

The oil and gas producer is protected from changes in a price in one direction while retaining the ability to benefit from movement of the price in the other direction. If an oil or gas option contract is out of the money, the producer's only cost is the premium paid for the option. Thus, an oil or gas put option protects against downside risk of oil and gas prices while preserving the opportunity to benefit from increased revenue if oil or gas prices rise to the extent that they exceed the option premium.

Option contracts are appealing to producers that are willing to pay a premium for downside price protection without having to give up the potential upside of increased revenue if oil and gas prices rise (as they would in an oil and gas price swap) by an amount greater than the option premium. However, depending on the amount of this premium, an option contract may not be practicable.

Put Options in a Low Price Environment

In some cases, it may make sense, even in a very low price environment, for an oil and gas producer to consider buying a put option contract. The benefit of buying a put option contract is that the producer retains the potential upside of rising prices. Once the producer pays the put option's premium to the option writer, the producer would receive a payment if market prices fall below the strike price in the put option (and the producer exercises its option in a timely manner). If prices stay at or above the strike price, no payments are made by the option writer to the producer and the option would eventually expire.

The economic impact of an option is very different than that of a swap agreement, which eliminates any benefit of market prices rising above the fixed price in the swap. However, with low prices and limited liquidity, some producers may not be able to afford to pay the option premiums.

For more information, see Limitations of Oil and Gas Hedging Transactions.

FIXED-PRICE PHYSICAL CONTRACTS

Fixed-price physical contracts are traditional purchase and sale transactions and can be used to hedge price risk in lieu of swap or option contracts. The primary distinguishing features of fixed-price physical contracts are:

- The use of a fixed price rather than a floating price. The use of the term "fixed price" does not necessarily mean that there is one price during the term of the contract. Rather, the price per unit is specified in advance for each delivery period (usually monthly) during the term of the contract.
- Considerations related to physical delivery of the commodity.

For example, an oil and gas producer that expects to produce 25,000 barrels of oil during the month of February can enter into a fixed-price physical contract with a counterparty willing to purchase and take actual delivery of this February oil production at an agreed location for a fixed price. The oil and gas producer is, therefore, hedged against price risk by the certainty of its predictable future revenue.

However, as with all fixed-price contracts, the producer gives up the potential upside of increased revenue if oil prices rise. As with all physically settled contracts, the producer must consider issues such as force majeure, title transfer, credit risk, quality, and risk of loss (see Physically Settled OTC Oil and Gas Transactions).

While fixed-price physical oil and gas contracts eliminate price risk, they do not eliminate all other risks that the oil and gas producer faces. Because these contracts involve the actual delivery of oil or gas and a fixed price at which the oil or gas is purchased, the producer is subject to:

- The risk that the counterparty takes delivery and fails to pay for all or part of the production, known as settlement risk (see Settlement Risk).
- The risk that the counterparty may refuse to perform the contract, if the spot price of oil or gas is less than the fixed price under the contract, known as mark-to-market risk (see Mark-to-Market Risk).
- The risk that it may not produce enough oil and gas to meet its obligations under the contract (see Production Risk).

For more information on these risks, see Managing Risks Associated with OTC Transactions.

Benefits and Limitations of Fixed-Price Contracts

First purchasers of oil and gas are often reluctant to enter into fixed-price physical oil and gas contracts with producers, because assuming the producer's price risk may be outside the first purchaser's core business and beyond its risk tolerance. First purchasers may also be unwilling or unable to post sufficient credit support to secure the performance of their payment obligations under such a contract.

As a result, fixed-price physical oil and gas contracts are infrequently entered into between producers and first purchasers. Instead, oil and gas producers often enter into floating-price physical oil and gas contracts with first purchasers, and separately hedge exposure to price risk using financially settled transactions (for example, swaps) with large, financially sophisticated counterparties such as commodity trading companies, banks, and financial institutions. These counterparties are more willing and able to manage the price risk associated with such transactions and are often in a better position to post the credit support needed to ensure the performance of their payment obligations.

HOW ARE OIL AND GAS OTC TRANSACTIONS TRANSACTED?

OTC transactions are not traded on or supervised by organized exchanges. They are instead bilaterally negotiated in private contracts tailored to each counterparty's specific risk and financial management strategies. Three of the most widely used types of oil and gas OTC contracts are:

- The general terms and conditions (GTCs) of individual energy companies (see General Terms and Conditions).
- The Base Contract for Sale and Purchase of Natural Gas (Base Contract) published by the North American Energy Standards Board (NAESB) (see NAESB Base Contract).
- The Master Agreement published by the International Swaps and Derivatives Association, Inc. (ISDA) (see ISDA Master Agreement).

GENERAL TERMS AND CONDITIONS

The purchase and sale of physical oil has traditionally been transacted under the GTCs of individual oil companies. Every time a new relationship is established for the purchase and sale of physical oil, the parties must first determine which party's GTCs to use. Problems sometimes arise because each party's GTCs differ and the parties must review and negotiate each provision of the GTCs until it is acceptable to both parties. Although GTCs are widely accepted as the market standard for transacting in physical oil, it has been argued that the use of GTCs:

- Is an inefficient way to conduct business, leading to increased expense and unnecessary delay in entering into a new transaction.
- Results in GTCs that are different between one party and each of its other counterparties, which may raise operational and contract management issues.

Fortunately, as OTC transactions have become increasingly sophisticated over the years many trade associations have emerged. With the help of industry professionals, these associations have standardized many of the contractual provisions required in physical oil transactions, which greatly simplifies the contracting process. For example, ISDA published the U.S. Crude Oil and Refined Petroleum Products Annex (Crude Oil Annex), which addresses transactions for the purchase or sale of physical oil (see ISDA, U.S. Crude Oil and Refined Petroleum Products Annex Pt. (a)(i)(2008)). However, the Crude Oil Annex has yet to be widely adopted by the energy industry for purposes of documenting physical oil transactions.

NAESB BASE CONTRACT

The Base Contract is commonly used in the energy industry to document physical gas transactions. The Base Contract is a preprinted document that contains general terms and conditions governing the purchase and sale of physical gas including:

- Transportation.
- Nominations.
- Imbalances.
- Quality and measurement.
- Title to the gas.
- Force majeure.

The preprinted text is tailored by the parties to meet their specific needs by entering each party's information on the first page of the Base Contract and selecting the appropriate boxes on the second page with respect to, among other things:

- Transaction procedures.
- Confirmation deadlines.
- Performance obligations.
- Payment dates.
- Netting.
- Additional events of default.
- Early termination damages.
- Setoff.

The Base Contract may be further amended and tailored to each party's needs through the negotiation of the Special Provisions, which are attached to and become part of the Base Contract. The Special Provisions contain other elections, additions, and amendments to the Base Contract specifically agreed to by the parties, such as additional representations and warranties, payment obligations, and termination events. However, the Base Contract's focus on physical gas transactions limits its use by parties.

ISDA MASTER AGREEMENT

The ISDA Master Agreement is the standardized, preprinted form agreement published by ISDA and is used to document OTC derivatives transactions. The preprinted text contains general terms and conditions governing OTC transactions, including payment provisions, representations and warranties, events of default, and termination events.

The parties add to or modify the terms of the ISDA Master Agreement using the Schedule, which forms part of the ISDA Master Agreement and contains important elections, amendments, supplemental terms, notice information, and closing deliverables. The ISDA Master Agreement, along with the Schedule (collectively known as the ISDA Master Agreement), are umbrella documents that parties typically use to govern their relationship, often covering many transactions (each of which is evidenced by a confirmation) of different types. The confirmation confirms the economic deal terms of each transaction and automatically forms part of and is governed by the terms of the ISDA Master Agreement. Without a master-type agreement structure, the parties must enter into a separate legal agreement each and every time a physical or financial transaction is consummated.

The ISDA Master Agreement is sometimes supplemented by the Credit Support Annex (CSA), which forms a part of the ISDA Master Agreement and governs margin collateral posting matters relating to transactions entered into under the ISDA Master Agreement. For more information on the ISDA Master Agreement, see Practice Notes, ISDA Documents: Overview (US) and The ISDA Master Agreement and Schedule.

There are two versions of the ISDA Master Agreement that market participants can use to document OTC transactions: the 1992 ISDA Master Agreement and the 2002 ISDA Master Agreement. The primary differences between the two versions relate to settlement (or close-out) procedures, force majeure, termination events, events of default, and setoff. For more information on the differences between these two agreements, see Practice Note, Comparison of 1992 and 2002 ISDA Master Agreements (*http://us.practicallaw.com/3-506-3774*).

Unlike the Base Contract, however, ISDA's documentation architecture allows parties to enter into both physical and financial transactions under a single agreement. The benefits inherent to a single-agreement structure often prompt OTC market participants to use the ISDA Master Agreement and its various commodity annexes instead of or in addition to the Base Contract.

ISDA Commodity Annexes

The preprinted text of the ISDA Master Agreement is primarily drafted for financial transactions. The requisite provisions regarding physical energy transactions are found in ISDA's various commodity annexes that may be attached to and form part of the ISDA Master Agreement, such as:

- The ISDA Crude Oil Annex.
- The ISDA North American Gas Annex (Gas Annex).
- The ISDA Global Physical Coal Annex.
- The ISDA North American Power Annex.

The commodity annexes were drafted with the support of their respective industries. For example, the Gas Annex was drafted with the assistance and input of NAESB and incorporates most of the Base Contract's terms relating to the purchase and sale of physical gas transactions that are not otherwise found in the preprinted text of the ISDA Master Agreement. Because the Gas Annex contains provisions similar to the Base Contract, parties using the Gas Annex can purchase and sell gas on terms that align with industry-standard NAESB provisions, while receiving the benefits of trading various physical and financial energy products under a single agreement. These similarities advance greater efficiency in the gas marketplace and streamline the documentation of gas transactions. These benefits have also caused the ISDA Master Agreement and its commodity annexes to become more widely accepted and used in the energy industry.

ISDA Collateral Requirements

There are many ways an oil and gas producer can secure its obligations under the ISDA Master Agreement. The producer may:

- Grant liens to its counterparties on its oil and gas reserves and other assets, subject to the terms of its security documents with its lenders.
- In combination with or in lieu of a lien on its assets, use the CSA, which governs the exchange and management of collateral to secure a party's payment obligations under the ISDA Master Agreement. Similar to the preprinted text of the ISDA Master Agreement, the CSA contains preprinted terms that are tailored through negotiation of a separate instrument, known as the Paragraph 13. The Paragraph 13 contains terms such as:
  - Types of collateral that may be used.
  - Treatment and use of collateral by the secured party.
  - Return of collateral.

For more information on the CSA, see Practice Note, The ISDA Master Agreement: Negotiating the 1994 ISDA Credit Support Annex (CSA). (*http://us.practicallaw.com/1-422-4430*)

MANAGING RISKS ASSOCIATED WITH OTC OIL AND GAS TRANSACTIONS

Hedging oil and gas production with OTC products does not result in a risk-free transaction. Though a properly executed hedge eliminates an oil and gas producer's exposure to price risk for any hedged production, it is important to keep in mind that price risk is replaced by other risks that the producer assumes and should consider, which are discussed below, namely:

- Credit risk.
- Production risk.
- Basis risk.
- Bankruptcy risk.

CREDIT RISK

Credit risk is generally the risk that a counterparty will fail to meet its payment obligations. In a hedge transaction, this risk of non-payment manifests itself in two ways: settlement risk and mark-to-market risk.

Settlement Risk

In an oil and gas transaction, settlement risk is the risk that a counterparty takes physical delivery of the producer's oil or gas and fails to pay for any or all of the delivered product. Settlement risk is, therefore, unique to physically settled contracts, including fixed-price and floating-price contracts. An oil and gas producer's exposure to settlement risk can be estimated in advance of delivery by multiplying the quantity of oil or gas to be delivered by the price to be paid by the purchaser. The oil and gas producer can mitigate its settlement risk by:

- Obtaining a guaranty or a letter of credit.
- Requiring that a portion of the purchase price be prepaid.
- Requiring the delivery of certain cash or other liquid collateral in advance of delivery in an amount equal to its settlement risk exposure.

Failure by a purchaser to pay under a physically settled oil and gas contract can impact the producer's ability to satisfy its obligations under a financially settled hedging contract. When a producer enters into an oil or gas swap contract it relies on its physical purchaser to take, and pay in a timely manner for, the oil or gas produced. When the oil or gas index price specified under the swap is greater than the fixed price under the swap for any specified period, the producer owes the difference to the swap counterparty (see Swap Contracts). The producer often secures the funds to make payment under the financially settled hedging contract from funds received under the physically settled oil and gas contract.

The physical oil and gas transaction and the swap transaction are separate and distinct transactions. As a result, failure of a purchaser to perform under its contract does not excuse the oil and gas producer's obligation to make payment under the swap. The resulting necessity to fund the producer's swap obligations from other sources may create liquidity problems which, in some cases, may be severe.

Mark-to-Market Risk

Mark-to-market risk arises for an oil and gas producer when the spot price of oil and gas is less than the fixed price agreed to in the swap contract. This may incentivize the counterparty to walk away from the contract and default on its obligations. Mark-to-market risk is, therefore, unique to fixed-price contracts, whether financially settled or physically settled.

A producer's exposure to mark-to-market risk can be estimated at any time by determining the price at which it must sell oil or gas to a third party to induce the third party to enter into a replacement transaction having the exact terms of the transaction in question. In other words, if the price under a fixed-price contract is $50.00 per barrel and spot prices drop to $40.00 per barrel, the purchaser may be tempted to stop buying from the producer and go out in the market and buy oil at $40.00 per barrel. In that event, the producer would be required to go into the market and find a replacement buyer. Theoretically, the producer should be able to find a replacement buyer at or near $40.00 per barrel, but that might be complicated if the original contract contains non-standard terms.

Mark-to-market risk is forward looking and is an estimate of the difference between the fixed price and the future spot price **multiplied by** the notional quantity and discounted back to a present value based on a reasonable discount rate determined by the producer. Both counterparties to a fixed-price contract are exposed to mark-to-market exposure as spot prices fluctuate during the term of the contract.

Mitigating Credit Risk

Provisions designed to mitigate credit risk can be just as (or even more) complex than the commercial terms of the underlying OTC transaction and must be customized to accommodate the specific needs of the parties. Factors to consider include:

- The type of credit risk the parties are exposed to in the transaction.
- The maximum potential credit exposure created by the transaction.
- The liquidity of any collateral to be provided by a counterparty under the terms of the contract.
- Whether collateral is required at the time of execution of the OTC contract or only if the credit exposure of a party increases during the term of the contract.
- The possibility that the posted collateral may change in value over the term of the contract.
- The likelihood that a party will be able to realize on the collateral in the event the posting party fails to make a required payment.

Fortunately, standardization of OTC contracts has made it easy for parties to establish terms that mitigate credit risk in oil and gas transactions. For example, in an oil price swap, the maximum credit exposure that the producer has to the swap counterparty is the product of the fixed price of oil for each future month **multiplied by** the notional volume of oil for that month. This would occur if the specified index went to zero for the remaining term of the swap contract.

However, the maximum credit exposure that the swap counterparty has to the producer is unlimited, because there is no theoretical limit to how high the index price may rise.

The ISDA Master Agreement, for example, provides several mechanisms to help reduce parties' credit risk to each other in an oil and gas transaction, each of which is subject to negotiation between the parties. These mechanisms include:

- The right to terminate and liquidate all of the transactions under the ISDA Master Agreement when a default occurs.
- The right to setoff obligations owing between the parties.
- The right to withhold payment after the occurrence of an event of default.
- The right to demand collateral from the counterparty under certain conditions.
- The ability to monitor and adjust the exchange of collateral as frequently and as specifically as the parties desire.

In addition to, or in combination with, these risk management tools, the parties can require prepayment, guarantees, letters of credit, or margining from counterparties to OTC oil and gas transactions to secure performance of the parties' obligations. Given that its exposure is potentially limitless, an oil and gas producer in a swap contract needs to pay particular attention to the rights granted to the financial counterparty to demand additional collateral and the impact of these requests on any credit agreements to which it is a party.

PRODUCTION RISK

The foregoing discussion is based on the assumption that the quantity of oil or gas to be produced from a set of properties (in other words, oil wells or oilfields) during future time periods is known. This is, of course, the purview of petroleum engineers. Depending on a vast array of factors, the level of confidence appropriate to an engineering report of projected production is highly variable. For more information on the factors engineers consider when determining the value of the producer's assets, see Practice Note, Reserve Based Loans: Issues and Considerations: Valuing Borrower's Oil & Gas Assets (*http://us.practicallaw.com/4-618-2271#a000012*).

In any event, the farther into the future that projection extends, the lower the confidence level can be. This is a risk for a purchaser under a contract for physical delivery. If a producer suffers any setback with respect to its expected production (for example, operational delays related to its drilling activities, the failure of existing or planned (at the time of the report) wells to produce the volumes reflected in engineering models, or a force majeure event), it may not be able to meet its physical product delivery obligations. Therefore, the purchaser bears production risk that the producer will be unable to produce the specified quantity of oil and fail to deliver all or part of the contract quantity at the time of delivery.

Production risk is critically important to oil and gas producers in the context of any of the financial hedging strategies. For example, the calculation of swap settlements is based on a notional quantity of oil or gas production for the month that is defined in the swap contract. As discussed above, the producer relies on the proceeds of sale of the physical quantity of oil or gas to fund any payment due to the financial counterparty (for example, see Swap Contracts). If actual production is lower than the notional quantity specified for the period in the swap contract, then the producer may lack all or part of the funds needed to pay its swap obligations. In extreme circumstances, the producer could have total oil swap obligations in excess of total physical oil revenue.

If a producer fails to make a full payment under its swap contract, the swap counterparty would have the right to declare an event of default and terminate the swap contract. If the producer is out of money on the swap contract when it is terminated, the producer would have to pay its counterparty a substantial termination amount that could lead to further liquidity issues for the producer. Furthermore, an event of default under the swap contract could trigger a cross-default under the producer's credit agreement that could result in the acceleration of its loans and termination of its credit facility. For this reason, it is unusual for oil and gas producers to enter into (or for lenders to permit producers to enter into) financial hedges for 100% of anticipated oil or gas production (see What's Market: Credit Agreements in the Oil & Gas Industry: Hedging or Swap Agreements (*http://us.practicallaw.com/9-525-1178#a1032109*)).

A producer that enters into transactions for quantities beyond those that it controls is no longer hedging, it is speculating.

BASIS RISK

In financial hedges, oil and gas producers are at risk, if there is not an exact alignment between the price they receive under their oil or gas physical sale contract and the price, usually based on an index, on which the obligations under the hedging contract are determined. Any number of physical and economic factors can occur that disrupt even long, stable price relationships. The subject of basis hedges is beyond the scope of this Note, but is a matter of great importance for oil and gas producers. Any producer with physical sales contracts with pricing mechanisms that do not align with the mechanisms in its hedging contracts is exposed to basis risk.

BANKRUPTCY RISK

While a full discussion of bankruptcy related risk is beyond the scope of this Note, oil and gas producers should anticipate and understand how hedging obligations will be treated in bankruptcy and develop strategies to reduce the risk associated with any such bankruptcy. This is an especially important consideration for producers because the Bankruptcy Code provides valuable tools producers can use to reduce their exposure in the event of a counterparty bankruptcy and allows producers to achieve more certainty and predictability when a bankruptcy occurs.

This Note has discussed several types of energy hedging products, which can generally be broken into two basic categories: physically settled transactions and financially settled transactions. In a bankruptcy, physically settled transactions are commonly known as forward contracts, and financially settled transactions are commonly known as swap agreements. The terms "forward contract" and "swap agreement" arise out of the Bankruptcy Code (11 U.S.C §101(25) (forward contract) and (53B) (swap agreement)).

In the event of a counterparty bankruptcy, forward contracts and swap agreements are afforded special treatment under the Bankruptcy Code, which enable parties to take advantage of the safe

harbor provisions of the Bankruptcy Code to terminate, liquidate, and setoff hedge transactions without the need to obtain relief from the automatic stay or bankruptcy court approval. For more information, see Practice Note, Bankruptcy Code Avoidance Action Safe Harbors (*http://us.practicallaw.com/7-538-9025*) and Guide to Bankruptcy Code Safe Harbors for Financial Contracts: Checklist (*http://us.practicallaw.com/2-535-6287*).

These exemptions to the automatic stay stem from:

- The recognition that financial markets require the expenditure of large amounts of capital to generate a narrow profit margin.
- The fact that much of this capital is committed in reliance on the right to net the amounts owed between the parties.
- The potential for abuse if a bankruptcy trustee were permitted to cherry-pick transactions (for example, accept those transactions favorable to the bankrupt party and reject those that are unfavorable, particularly if the trustee is the debtor in possession).

However, despite the importance of these rights, the Bankruptcy Code does not create new rights to terminate and liquidate forward contracts and swap agreements, or to setoff in connection with forward contracts and swap agreements. Rather, the Bankruptcy Code preserves any **pre-existing right** the parties may otherwise so possess. In other words, a producer risks not having a right to terminate and liquidate forward and swap contracts regardless of the provisions of the Bankruptcy Code, if this right is not specifically created in the hedging agreement. Therefore, properly drafted agreements (for example, the ISDA Master Agreement and Base Contract) permitting the early termination and liquidation of forward contracts and swap agreements by forward contract merchants and swap participants (via, for example, ipso facto clauses) are necessary for producers to be able to take full advantage of the Bankruptcy Code's safe harbor protections.

Furthermore, great care should be taken by producers entering into physically settled contracts. These transactions often contain provisions regarding force majeure, title transfer, credit risk, quality, risk of loss, and other provisions related to the actual delivery of oil or gas (see Physically Settled OTC Oil and Gas Transactions). As physical commodity transactions become more complex and additional provisions are added, some parties may argue that such contracts fall outside the purview of forward contracts. If a contract loses most of the characteristics of a forward contract, the risk exists that a party to that contract may lose its safe harbor protections relating to that contract under the Bankruptcy Code.

EXCHANGE-TRADED TRANSACTIONS

Exchange-traded transactions use contracts that are traded on organized exchanges, such as the Chicago Mercantile Exchange (CME), Chicago Board Options Exchange (CBOE), and New York Mercantile Exchange (NYMEX). Each exchange uses its own highly standardized processes to govern trading activities, including which commodities are traded on the exchange and the use of its own standardized contracts to enter into hedging transactions. These contracts stipulate a specific set of volumes, grades and quality specifications, definitions, durations, delivery points and dates, and trading and credit procedures for each commodity available on the exchange.

The standardization of exchange-traded contracts enables exchanges and market participants to quickly and effectively facilitate trading by matching, documenting, and processing various commodities in the marketplace under uniform and accepted terms. However, because the terms are standardized, the oil and gas producers cannot modify these agreements to suit their needs. One of the principal disadvantages of standardized exchange-traded contracts, therefore, is their inflexible nature.

TYPES OF EXCHANGE-TRADED TRANSACTIONS USED IN OIL AND GAS TRANSACTIONS

The two most commonly used exchange-traded products in oil and gas transactions are:

- Futures contacts.
- Option contracts.

FUTURES CONTRACTS

Futures contracts are highly standardized, exchange-traded contracts to either take or make delivery of a specified quantity and quality of an underlying commodity (in this case, oil or gas) at a specified location on a future date (or dates) at a price set out in the futures contract. There are six primary energy futures contracts, four of which are traded on NYMEX (West Texas Intermediate (WTI) crude oil, Henry Hub natural gas, NY Harbor ultra-low sulfur diesel, and RBOB gasoline) and two of which are traded on the Intercontinental Exchange (ICE) (Brent crude oil and gasoil). Futures contracts are used by producers to lock in oil and gas prices for a notional quantity of oil or gas production and ensure a steady, predictable, and consistent stream of revenue during a given time period.

For more information on futures contracts, see Practice Note, Derivatives: Overview (US): Forwards and Futures (*http://us.practicallaw.com/3-387-5073#a205174*).

Settling an Oil & Gas Futures Contract

A party entering into a futures contract to purchase oil or gas (such as an end user) has the right and obligation to take actual delivery of the oil or gas (known as the long position) at the price set out in the contract. A party entering into a futures contract to sell oil or gas (such as a producer) has the right and obligation to make actual delivery of the oil or gas (known as the short position) at the price set out in the contract.

In practice, however, it is uncommon for oil and gas futures contracts to settle by physical delivery. This is because of the standardized delivery point(s) set out in these contracts. NYMEX gas futures contracts, for example, require the purchase and sale of gas to take place at the Henry Hub pipeline interchange near Erath, Louisiana. Unless a producer's wells are located near the Henry Hub, it is unlikely the producer will want to incur costs related to transporting its gas to the Henry Hub, or incur costs related to otherwise procuring gas for delivery at the Henry Hub. Therefore, in most cases, a party exits its oil or gas futures positions before the contracts mature and require the actual physical taking or making of delivery of the oil or gas.

This can be accomplished by selling those futures contracts on the open market. For example, a party holding an in the money futures contract typically sells that futures contract as the delivery date approaches rather than delivering the oil or gas on that date.

Consider, for example, an oil and gas producer that enters into a futures contract giving it the right and obligation to make delivery of a specified quantity of gas at a future date at a price set out in the contract. If the spot price of gas is greater than the price set out in the futures contract, then the contract does not have much value to the producer. The producer will not exercise its rights under the futures contract and instead will sell its gas for the higher spot price. Conversely, if the spot price of gas is less than the price set out in the futures contract, then the contract is valuable to the producer. Through the use of the futures contract, the oil and gas producer is able to offset the lower prices it received for its gas.

Benefits and Limitations of Futures Contracts

Entering into futures contracts provides oil and gas producers with the ability to lock in oil or gas prices for expected future production regardless of whether oil or gas prices increase or decrease. However, the oil and gas producer also gives up the potential upside of increased revenue if oil or gas prices rise. One way to avoid this dilemma is to enter into an exchange-traded put option contract allowing the producer to hedge against decreasing prices while retaining the ability to benefit if prices rise (see Option Contracts).

OPTION CONTRACTS

Like futures contracts used in oil and gas transactions, exchange-traded oil and gas option contracts are traded on exchanges under highly standardized contracts. The standardization of option contracts enables exchanges and market participants to trade contracts quickly and efficiently. However, unlike OTC option contracts, exchange-traded option contracts may not be tailored to the parties' specific hedging strategies. Additionally, exchange-traded option contracts differ from OTC option contracts in that:

- The parties enter into trades with the exchange as the counterparty.
- All trades must be booked with a clearinghouse.
- The parties are subject to the exchange's mandatory margining requirements. For more information, see Practice Note, Mechanics of Derivatives Clearing: Clearing and Margin Collateral (*http://us.practicallaw.com/9-505-9203#a330377*).

For more information on options including an illustration of an option contract, see Options.

HOW ARE EXCHANGE-TRADED TRANSACTIONS TRANSACTED?

The purchase and sale of exchange-traded products between market participants are facilitated by exchanges using one of two methods:

- Open outcry.
- Electronic trading.

The basic steps of both methods are essentially the same. Customers (such as oil and gas producers) establish relationships and enter into brokerage agreements with futures commission merchants (FCMs) that, based on a customer's hedging strategy, submit orders (either bids to purchase or offers to sell exchange-traded products) to an exchange where trades are executed with other market participants that take equal, but opposite, positions.

Information about exchange-traded products that have been traded, whether by open outcry or electronic trading, is broadcast to the public and disseminated to various price reporting services. Though electronic trading is significantly faster (often executed in milliseconds) than open outcry, both methods, through diverse market participation and efficient price discovery, give an accurate picture of the oil and gas markets and reflect the marketplace's collective valuation of what purchasers are willing to pay and what oil and gas producers are willing to accept.

Visible and transparent pricing information enables oil and gas markets to be liquid and allows open positions on futures or option contracts to easily be valued and closed out.

OPEN OUTCRY

The traditional method of trading in the US is by the open outcry auction process. An FCM communicates its oil and gas customers' purchase and sell orders to its representative trader standing in the appropriate trading ring on the floor of the exchange. All orders are communicated by open outcry and various hand signals between traders in the same trading ring and are executed when the spread between the ask price (the price at which the traders purchase) meets the bid price (the price at which the traders sell). Executed trades are recorded by traders and submitted to the exchange where the information is entered into the exchange's central computer system. Trades are then booked with the exchange's clearinghouse and customers are notified of completed trades.

ELECTRONIC TRADING

In today's marketplace, however, it is more common for exchange-traded transactions to be executed on an electronic platform where computers handle all trading activity. An FCM that has been pre-approved for electronic trading submits its customers' purchase-and-sell orders directly from its computer to an electronic marketplace offered by the exchange. Sophisticated computer software identifies matching bids and offers and generally fills orders on a first-in, first-out basis. In essence, the trading ring is replaced by a computer screen and the floor traders standing on the floor of the exchange are replaced by electronic market participants.

MANAGING RISKS ASSOCIATED WITH EXCHANGE-TRADED TRANSACTIONS

One of the most important differentiating features of exchange-traded transactions is the role of an exchange's affiliated clearinghouse. Once a trade has been executed on an exchange it must subsequently be cleared by the exchange's affiliated clearinghouse in a process known as novation. The clearinghouse steps between the two counterparties to replace and become the other counterparty and creates two independent and distinct transactions. In other words, a party's purchase of an exchange-traded product is a transaction with the exchange's clearinghouse, not another market participant.

With exchange-traded transactions, the clearinghouse is always the counterparty to all other counterparties and their transactions. Thus, an oil and gas producer that desires to enter into futures contracts, option contracts, or other exchange-traded products does not need to evaluate the creditworthiness of another market participant, rather it only needs to evaluate the creditworthiness of the clearinghouse.

The clearinghouse mitigates credit risk that market participants are otherwise exposed to in OTC transactions. The clearinghouse assumes the risk that the other party will lack the financial capability to perform and be unable to meet its payment obligations under the oil and gas transaction. While there is no credit risk between market participants when an oil and gas transaction is cleared, clearinghouses absorb credit risks of all market participants. Therefore, clearinghouses themselves create potential default risks.

For more information on these processes and the role of clearing-houses, see Practice Notes, Mechanics of Derivatives Clearing (*http://us.practicallaw.com/5-386-8222*) and Summary of the Dodd-Frank Act: Swaps and Derivatives (*http://us.practicallaw.com/3-502-8950*)

MARGINING A CLEARED HEDGE

To mitigate counterparty risk, clearinghouses generally require that all market participants post an initial amount collateral, known as initial margin. Market participants are also required to post variation margin throughout the term of the contract depending on the mark-to-market value resulting from the daily fluctuation of oil and gas prices. The clearinghouse either adds or subtracts funds from a market participant's account, depending on how much the contract's price has moved during the day, ensuring that the correct daily mark-to-market value is reflected in each party's account.

If the margin account goes below a certain value set by the clearinghouse, then a margin call is made and the account must be replenished. The daily "true-up" of accounts means that there is usually a small additional payment due when closing out an exchange-traded oil and gas transaction: only the final day's gain or loss, not the gain or loss over the life of the contract. The pooled capital of all market participants of the clearinghouse over-collateralizes the clearinghouse and mitigates counterparty risk.

However, not all oil and gas parties are capable of posting the initial and variation margin collateral required for cleared transactions. An oil and gas producer may find the clearinghouse's initial margining requirements difficult to satisfy. Depending on the magnitude of oil and gas price fluctuations during the term of an exchange-traded contract, the producer may find it burdensome to satisfy the clearinghouse's daily variation margining requirements and periodic margin calls. Therefore, a clearinghouse's margining requirements can be a prohibitive threshold to entering into exchange-traded transactions.

In these circumstances, parties frequently elect to use OTC products (such as oil and gas swaps) and negotiate security or margining requirements that are less burdensome and tailored to the specific creditworthiness of the parties and risk profile of the transaction. For example, a counterparty to an OTC transaction may be willing to allow a producer to secure its obligations to the counterparty by pledging liens on the producers' oil and gas reserves and other assets rather than posting cash collateral, or the counterparty may be willing to accommodate the producer by not requiring the producer to post collateral until and unless the producer exceeds a specific threshold.

For more information on OTC margin, see Practice Note, The ISDA Master Agreement: Negotiating the 1994 ISDA Credit Support Annex (CSA). (*http://us.practicallaw.com/1-422-4430*)

PRACTICAL IMPLICATIONS OF THE DODD-FRANK ACT

The Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) has introduced a sweeping set of regulations to the OTC derivatives market. While an in-depth analysis of the Dodd-Frank Act is beyond the scope of this Note, set out below are some of the important Dodd-Frank issues oil and gas producers must consider when entering into OTC oil and gas transactions.

The Dodd-Frank Act:

- Regulates OTC transactions and the entities that enter into these transactions. Two of the most highly regulated entities are swap dealers (SDs) and major swap participants (MSPs). Most producers are neither SDs nor MSPs and are referred to in Dodd-Frank regulations as Non-SDs/MSPs. For more information, see Practice Note, The Dodd-Frank Act: Swap Dealer and MSP Threshold Calculations (*http://us.practicallaw.com/7-519-5126*).
- Regulates swaps. The term "swaps" is broadly defined to include several different derivatives products, including commodity swaps, commodity options, and options to enter into swaps (also known as swaptions). Many of the derivatives transactions oil and gas producers enter into clearly fall within the swap definition. However, there are oil and gas transactions that may not fit neatly into the definition. These should be closely reviewed by the producer. For more information, see Practice Note, Summary of the Dodd-Frank Act: Swaps and Derivatives: Types of Swaps-trading Entities under Title VII (*http://us.practicallaw.com/3-502-8950#a753865*).
- Requires swaps listed in CFTC clearing determinations to be centrally cleared through a derivatives clearing organization (a DCO), unless the swaps are subject to an exception.
- Subjects swaps to certain mandatory data reporting requirements. The party to the swap that is an SD, MSP, or financial entity must report swap data to a swap data repository (SDR). If neither party to a swap is an SD, MSP, or financial entity, then the parties to the swap must designate the reporting party. Therefore, an oil and gas producer must report swap data to an SDR only if the other party to the swap is not an SD or MSP and the other party and the producer have agreed that the producer report the swap data. For more information, see Practice Note, The Dodd-Frank Act: CFTC Swap Data Reporting and Recordkeeping: Final CFTC Real-time Public Swap Data Reporting Rules (*http://us.practicallaw.com/8-517-5401#a1031636*).
- Non-SD/MSP counterparties must keep full, complete, and systematic records, including all pertinent data and memoranda, with respect to each swap to which they are a counterparty:
  - throughout the existence of a swap; and
  - for five years after termination or expiration of a swap.

- Records may be kept in either electronic or paper form, so long as they are retrievable and the information in them is reportable. For more information on this requirement, see Practice Note, The Dodd-Frank Act: CFTC Swap Data Reporting and Recordkeeping: Final CFTC Swap Data Recordkeeping Rules (*http://us.practicallaw.com/8-517-5401#a917440*).
- Requires every party to a swap to have a legal entity identifier (LEI) for reporting and recordkeeping purposes. Oil and gas producers can register for a legal entity identifier at www.gmeiutility.org. Oil and gas producers that have already registered for LEI should make sure it is annually maintained. For more information, see The Dodd-Frank Act: CFTC Swap Data Reporting Required Data Fields Checklist (*http://us.practicallaw.com/8-518-6918*) and The Dodd-Frank Act: Practical Guide to Swap Data Reporting (*http://us.practicallaw.com/5-522-2710*).

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- What's Market: Credit Agreements in the Oil & Gas Industry (*http://us.practicallaw.com/9-525-1178*)

Articles

- Reserve Based Lending: How Bad Were the Fall 2015 Borrowing Base Redeterminations? (*http://us.practicallaw.com/w-000-7741*)
- Webinar: The Impact of Declining Oil Prices on the US Energy Industry (*http://us.practicallaw.com/w-001-4657*)

Country Q&A

- Oil and gas regulation in the United States: overview (*http://us.practicallaw.com/9-525-1545*)

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