

**Long-term Contracting for Natural Gas:
Examination of the Issues that Affect the Potential for the
Increased Use of Contracting
to Stabilize Consumer Prices**

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Executive Summary

One important feature of current natural gas markets is a heavy reliance on relatively short-term contracts for the purchase of the commodity. When contrasted with the contract practices that existed 25 or 30 years ago, the extent of the changes in the nature of the market becomes clear. Prior to the restructuring of the industry, gas supply contracts often had terms of 10 years or more whereas today they are typically less than three years.

The reasons behind the shift to a heavy reliance on relatively short-term contracts for the purchase of the commodity are complex. Restructuring of the industry has resulted in a much more liquid gas commodity market that allows participants to enter into and exit commodity positions easily and at relatively low cost.

In recent years, gas market participants, regulators, and other stakeholders have once again given attention to the appropriate role for long-term contracts in gas markets. At least some of the attention has related to the opportunity for long-term contracts to promote price stability for natural gas.

As part of a diversified portfolio, long-term contracts can be a tool to manage and mitigate adverse impacts from short-term price movements. But the degree to which the contract serves the function depends upon the structure of the contract and the pricing terms that are included. Long-term contracts can serve as a “hedge” on price movements for consumers. Like other forms of hedges and price management tools, there are implications for parties entering into such

contracts in terms of future obligations and liabilities. These implications have significance to all types of natural gas contract participants (e.g., gas producers, marketers, industrial consumers, etc.) but can have particular implications for regulated electric utilities and local gas distribution companies (LDCs).

Some long-term contracts codify a business relationship between parties that agree to buy and sell gas at a published gas price or index. There are often sound business reasons for such contracts, including reductions in transaction costs and managing risks with a portfolio of supply contracts. That said, it is clear that contracts of this type, which use the index as a verifiable reference for the prevailing short-term market price, do nothing to enhance price stability for either party.

To serve the function of providing price stability, the pricing of a long-term contract must diverge from the underlying “market price” in the daily or monthly market. The deviation between the contract price and the prevailing market price can create impediments for the use of such contracts since there is a temptation for “after the fact” analysis that evaluates the contract in terms of whether there was a “loss or gain” that resulted from the contract compared to the *ex post* market outcome.

For regulated entities, the standard of review is whether the utility acted prudently given the information available at the time of the decision. As such, a comparison between the contract price and the *ex post* market prices is generally thought to be an inappropriate factual basis for a disallowance. Nevertheless, in most proceedings, exhibits are presented that make just such comparisons.

While disallowances are relatively rare, there is no doubt that the potential for disallowance has an impact on utility decision making. While not the only reason, the potential for such disallowance is a major inhibitor to the use of contracts that provide increased price stability through longer terms. Without some opportunity for pre-approval, there is an inherent tendency and incentive for regulated electric utilities and LDCs to forgo a portfolio that includes long-term contracts even if they provide some element of price stability. At the same time, pre-approval can create risks for regulators (and the customers they represent) because they are in the position

of approving management decisions without having access to all the information available to the utilities. It is this balancing of risks and opportunities that forms the basis for evaluating the benefits of a portfolio that includes an element of contracts (and other forms of hedges) that can provide increased price stability for gas market participants.

Introduction

One important feature of current natural gas markets is the heavy reliance on relatively short-term contracts for the purchase of the commodity. When contrasted with the contract practices that existed 25 or 30 years ago, the extent of the changes in the nature of the market becomes clear. Prior to the restructuring of the industry, gas supply contracts often had terms as short as 10 years.

In recent years, gas market participants, regulators, and other stakeholders have once again given attention to the appropriate role for long-term contracts in gas markets. At least some of the attention has related to the opportunity for long-term contracts to promote some degree of increased price stability for natural gas. The purpose of this research paper is to examine this issue to consider whether there is a potential for increased use of long-term contracts to influence natural gas price stability.

The reasons behind the shift to relatively short-term contracts for the purchase of the commodity are complex. As natural gas commodity prices were deregulated, new sources of gas became available to the market. Buyers of gas had an opportunity to shift away from gas supplied as a bundled service by the interstate pipelines and seek other supply sources that offered lower “market” prices than prices for the pipeline supplies. The restructuring of the industry has created a much more liquid gas commodity market that allows participants to enter into and exit commodity positions easily and at relatively low cost. This feature, which will be discussed in more detail later in the paper, has important implications for common contracting practices in all commodity markets.

Common Contract Terms

Contracts for natural gas are entered into by buyers and sellers to determine the parameters that determine how the title to gas will be transferred between the parties. Through negotiations, the parties determine mutually agreeable terms for the agreement. Generally these terms will include:

- Contract Term – the length or duration of the contract.

- Volume – Quantity, delivery variability, e.g., whether a flat base, a variable “swing” or combination of both. Natural gas contracts specify the base volume that will be delivered each day. Often, however, the contract will also specify a swing volume. The purchaser can choose to purchase each day all of the swing volume, a portion of the swing volume or none of the swing volume. Swing gas is generally priced higher than the price of the base volume of gas.
- Delivery obligations – whether firm, or best efforts. The contract will often describe the recourse of gas that is not delivered by the seller or not taken by the buyer.
- Price – fixed, formula, indexed or hybrid.
- Title transfer point(s) – the location where title to the gas is transferred between the seller and the buyer.
- Re-openers – When and/or under what conditions can the contract be subject to renegotiation at the election of one or both of the parties.
- Others – default, *Force Majeure*, arbitration, etc.

Price varies with the negotiated contract terms. While there is no inherent limitation on the terms that can be negotiated between parties, there is a tendency for parties to gravitate towards contract structures that are common within the industry. This should not be surprising to observers since contracts that deviate significantly from industry norms can present risks that the parties may conclude are excessive.

The pricing terms and the length of the contract are arguably the most important elements of a natural gas commodity purchase contract, at least from an economic perspective. But other terms also affect price: delivery obligations and delivery patterns, e.g., base volumes and swing volumes.

Historical Context for Long-Term Gas Commodity Contracts

Prior to the restructuring of the natural gas industry, there was little liquidity in the natural gas market. Pipelines purchased gas from producers and resold the gas to LDCs or end use customers on a bundled basis. Moreover, in order to certificate an interstate pipeline, FERC required that the pipeline demonstrate sufficient gas supply to justify the construction and underpin the Certificate of Public Convenience and Necessity that was required by the Natural Gas Act of 1938.¹ To meet this requirement, the pipeline entered into long term contracts to purchase gas, which the pipeline used to meet the certificate requirement.

These contracts contained a variety of pricing provisions.² These pricing provisions, however, did not exist in a vacuum. In 1954, the U.S. Supreme Court decided the landmark case of *Phillips Petroleum vs. State of Wisconsin*³ which held that under the Natural Gas Act, the Federal government should regulate the prices that natural gas producers charge when selling gas at the wellhead. From that point until the Natural Gas Wellhead Decontrol Act of 1989 was signed into law, the price paid under gas purchase contracts was almost exclusively determined by regulation.⁴

Few if any of the long-term contracts of the period were fixed-price contracts. As noted above, the pricing provision in the contract referenced the regulatory structure of the time as well as containing provisions, such as “most favored nation (MFN)” clauses, which assured a producer that the price received would be commensurate with the price received by other producers in the area. In other instances, the price would reference distillate oil prices.

In addition to the pricing terms, most of these contracts also contained take-or-pay provisions that assured a minimum revenue stream to the seller of the gas. As discussed later, these take-or-

¹ FERC also required that the pipeline demonstrate a market for the gas. This was generally accomplished with long-term contracts with LDCs and gas end-users.

² The terms included area rates, favored nation provisions and price redetermination openers. These provision could override the basic price terms and result in a different price.

³ 15 U.S.C. 717.

⁴ The Natural Gas Policy Act of 1978 established certain categories of gas based upon the nature of the formation, depth of the well and other factors that were deregulated prior to 1989.

pay provisions created significant liabilities for gas purchasers when the underlying gas market changed in the wake of restructuring.

In addition, other customers, most notably independent merchant power producers, developed contract practices that generally incorporated long-term contracts. Financial backers of projects often required developers to demonstrate that the project had obtained a reliable source of gas supply and the preferred method was a long-term supply contract. Often merchant power plant developers negotiated purchased power agreements (PPAs) that included an explicit or implicit relationship between the long term gas and electricity price. Many of these PPAs were renegotiated or terminated when conditions in the electricity markets change. As a result, the linkage and symmetry of the obligations became unbalanced.

The gas purchase contracts by power generators often contained pricing mechanisms that referenced an alternative fuel, such as fuel oil, which influenced the competitiveness of electricity generated at the facility. The contracts often also included take-or-pay terms similar to the pipeline gas supply contracts.

Take-or-pay terms committed the buyer to pay for a minimum volume of gas under the terms of the contract regardless of whether the buyer required the gas or if other sources of gas were available at a lower price. Take-or-pay provisions guaranteed the seller, generally the producer, a revenue stream of the investment in gas exploration and production. Just as in the case of the pipeline gas supply contracts, the rigidity of the contracts created significant liability issues as the gas market supply and demand conditions and the structure of regulation changed.

Restructuring: the Evolution of Market Liquidity and the Influence on Contract Term

Over the past two decades, North American natural gas markets have been transformed in fundamental ways. With FERC Orders 436 and 636, gas markets began to develop at locations other than the wellhead. Gas buyers (LDCs, Marketers, and end users) sought to reduce gas costs by purchasing gas at points with favorable pricing and transporting gas to the market using firm transportation, interruptible transportation or released transportation capacity. Originally, these markets developed in and around the production areas. However, over time, markets began

to develop in locations that were farther downstream, closer to the point of consumption in the market area. Driven by changes in federal and state regulation, LDCs, retail gas marketers, and end-users including industrial and power generation consumers of gas now have a number of options available to them to manage gas supplies delivered to the city-gate or pipeline delivery point. They include:

- Long-term firm gas pipeline transportation contracts that entitle the LDC shipper to move gas from a production area, or from some downstream location, or from a market center to the city-gate;
- Short-term firm gas pipeline transportation contracts that entitle the shipper to move gas from a production area or downstream location or market center to the city-gate;
- Released pipeline capacity obtained from another shipper on a short-term or long-term basis;
- Interruptible pipeline capacity that entitles the shipper to move gas from a downstream location or market center to the city-gate on a best efforts basis;
- Delivered storage contracts that entitle a shipper to seasonal deliveries at the city-gate;
- Bundled city-gate gas purchases in the so-called “gray” market.

With the development of retail choice programs, marketers wishing to develop a comparative price advantage for their product and to limit the fixed costs associated with firm transportation contracts that extend to the production area or to the wellhead have looked to purchase gas supplies closer to their market. Similarly, LDCs have looked to move the point of supply acquisition closer to the city-gate.

Mid-stream marketers and asset managers have looked to satisfy the market need and sell gas to the retail marketers and LDCs. Moreover, to the extent that LDCs continue to hold firm contracts that reach back to the production area, many LDCs have sought to increase revenue by re-bundling gas and transportation and selling gas at secondary delivery points. With buyers and

sellers available, market centers and market hubs⁵ have developed in locations that are much closer to the point of ultimate consumption.

The liquidity of the market for gas at a market center or city-gate and for capacity to deliver gas to the city-gate or market center is a critical element in evaluating the market performance and costs of the various options for obtaining gas. At a truly liquid market location, a purchaser is assured the ability to obtain gas at some price. At an illiquid location, a purchaser may not be able to obtain gas at any price and may be subject to the exercise of market power by a seller of gas or capacity.

In addition, illiquid pricing points provide poor price discovery and transparency. The lack of price discovery at a location increases “bid-ask spread”⁶ and reduces economic efficiency. If there is limited price transparency, there is no ready measure of the market value of the gas at that location. It is extremely risky to trade the commodity at that location.

Pricing Terms in Natural Gas Contracts

Several types of transactions take place in the gas market in and around market centers. They include:

- Bilaterally negotiated fixed-price transactions for a fixed volume of gas.⁷ These transactions are generally of relatively short duration. Often they are only for a single day or month.
- Index transactions where the buyer agrees to pay the published index (or the index plus or minus an agreed upon amount) for a negotiated quantity of gas.

⁵ The term market hub has been used to describe market centers that have specify tariff serves to facilitate transactions. Examples of such provisions include cash-out and penalty provisions for imbalances.

⁶ The “bid-ask spread is the difference between the price offer prices and bid prices. A large “bid-ask spread” is indicative of a market that has relatively large costs associated with entering into or exiting a position.

⁷ The trade publication price data is intended to include only transactions that are for fixed-price transactions for a fixed volume of gas.

- Swing transactions where the buyer contracts for a quantity of gas with an option to take all or part of that quantity. In most instances, swing contracts are priced at the index price plus some premium.

Defining Market Liquidity and Applying the Definition to Natural Gas Markets

In financial markets, liquidity is defined as “the degree of ease and certainty of value with which a security can be converted into cash”⁸ or “the ability to sell an asset and convert it into cash, at a price close to its true value, in a short period of time.” An alternative definition of liquidity is “the ability to buy or sell an asset quickly, with minimal impact on the price, and with low transaction costs.”⁹

Liquidity is essential to a properly functioning market. An efficient market must provide participants with the ability to buy and sell at the competitive market price and the information to be able to evaluate the value of the goods or services sold in that market. In addition to providing an ability to buy or sell at any time, liquidity helps to provide the price transparency required for economic efficiency if there is publicly available reporting of the transaction prices. In a liquid market, there is a nearly “continuous” stream of transactions that indicate how market prices are changing over time.

In general, at a liquid market location, a purchaser of natural gas is generally assured of the ability to obtain gas at some price. At an illiquid location, at some times, the purchaser may not be able to obtain gas at any price. In addition, a purchaser at an illiquid point may be subject to the exercise of market power by a seller of gas or pipeline transportation or storage capacity.

A liquid market provides participants with the ability to buy and sell gas at a market price and the information to be able to evaluate the value of the gas sold in that market. In addition to providing an ability to buy or sell at any time, liquidity helps to provide the price transparency required for economic efficiency where there is public reporting of transaction prices and nearly continuous stream of transactions that indicate how market prices are changing over time.

⁸ Lexus Law Journal.

⁹ Money Management Magazine.

Economic Role of Long-term Contracts

In economic literature, long-term contracts are identified as serving four functions that are potentially desirable. They are:

- 1) To allocate or share price and or volume risk between the parties to the contract;
- 2) To reduce transaction costs;
- 3) To reduce switching costs;
- 4) To create long-term relationships between parties that can result in synergies without vertical consolidation.

Allocation or Sharing of Price Risk

A primary economic function of long-term contracts is the allocation or sharing of price risk between the parties to the contract. For a buyer, price risk is results from price uncertainty in the upward direction. For a seller, the price risk results from the risk of an unexpected price decline. If there is a mutually agreeable opportunity for a seller and buyer to forgo some advantageous price movement in exchange to reducing the impact of disadvantageous movements in prices, a contract pricing mechanism can be found.

It is important to note that a fixed price is not the only method to allocate the risk. Finding a fixed price that is agreeable is quite difficult. Indeed, more often, contracts that create shared price risk contain a formula that performs the risk allocation. These can be linear or non-linear functional forms. For example, LNG contracts in the Pacific Rim are commonly priced using a Japanese Crude Cocktail (JCC) reference price and functional relationship where the slope of the relationship depends on the level of the JCC. In this form, when crude oil prices are high, the multiplier that determines the LNG price is reduced. Conversely, when crude oil prices are relatively low, the multiplier determined by an “S” shared curve increases. This type of arrangement has been particularly important for LNG. With extremely large capital investments in a market that is far from mature, contracts offer a degree of certainty in terms of supply and budget and cash flow planning.

A structure of this type, might offer market participants an opportunity to enter into agreements that achieve mutually beneficial goals of risk allocation. But in the North American natural gas market, the adoption of such structures essentially competes with other mechanisms for allocating risk. These include traditional hedging techniques including financial derivative products such as futures, options, swaps, and collars that can be either exchange traded or “over the counter” (OTC) products that are widely available with relatively low transaction costs. Moreover, some financial derivatives, particularly exchange traded products or contracts “cleared” through some other regulated entity can have lower credit and default risk than a long term contract.

Reduce Transaction Costs

Compared to a series of short-term purchases, long-term contracts have the potential to reduce transaction cost. The procurement process itself imposes costs on a buyer and seller. These costs arise from a number of sources, which can include: 1) preparation of requirements; 2) identification of prospective counterparties; 3) evaluation of bids; 4) contract execution including legal review; 5) evaluation of counterparty creditworthiness and credit risk.

By limiting the number of individual procurements, the aggregate transaction cost can be reduced. The potential savings, however, are reduced if the transaction cost associated with the long-term contract is larger than the individual short-term procurements, which is the case for many natural gas transactions.

As part of the development of liquidity in the market, natural gas transactions have become more standardized. The development of the standard contract template by the North American Energy Standards Board (NAESB) has allowed for the trading of gas under a more standard contract profile. This has reduced the transaction costs for many individual transactions. In terms of the efficient operation of the market, this has been a substantial improvement. But the reduction in cost of individual transactions has reduced the saving potential for a long-term transaction. In addition, the credit and default risk becomes less of an issue when the transactions are for shorter term and less aggregate volume.

The potential to reduce transaction costs through the use of long-term contracts nevertheless remains. But the magnitude of the savings may be smaller than they were prior to the development of a liquid gas market.

The potential for savings maybe larger when aspects of purchase agreement are tailored to meet specific needs of the parties that cannot be easily addressed by adjustments to the volume of the alternative series of short-term transaction. In today's market, for example, a number of LDCs will prepare RFPs for specific portions of the utilities' gas supply needs. Often the specific needs will involve the management of the delivery of gas to storage and management of peaking requirements. By entering into a contract for 1 to 3 years, the utility and the gas supplier can reduce transaction costs and manage specific requirements rather than entering into contracts each month.¹⁰

In the above example, in the current gas market, suppliers and gas LDCs generally will agree on pricing terms for the 1 to 3 year contract where the price is set by reference to a single published gas price index.¹¹ In this manner, the reduction in transaction costs is captured, but the use of the longer-term contract has no impact on price stability. This result is driven by the nature of gas cost recovery regulation and the asymmetry of the incentives associated with deviations from market prices in gas cost recovery proceedings ("heads I win, tails you lose" approach in regulatory *ex post* contract review). This issue will be discussed in more detail later in this paper.

Reduce Switching Costs

In many markets buyers must make relationship-specific investments to deal with suppliers. Relationship-specific investments have been examined in detail in economic literature.¹²

¹⁰ The development of a standard form of contract by the Gas Industry Standards Board (the predecessor of the North American Energy Standards Board or NAESB) reduced the transaction cost of contracting somewhat. Customized terms negotiated between the parties are, however, almost always present.

¹¹ Occasionally a "basket" of different price indices is used.

¹² McGuinness (1994), Williamson (1975, 1985, 1986) and others.

Relationship-specific investments create switching costs for a buyer who switches from one supplier to another.

Switching costs can be very large in a non-homogeneous product market. In energy, the market for coal is often cited as an example. A coal-fired power plant is tuned for specific attributes of the coal it is burning. Water content, sulfur content, ash content, BTU content and other physical attributes of the coal will all affect the operation of the power plant to greater or lesser degrees.

Switching costs can also exist in homogeneous product markets. These costs can arise from the learning process that occurs between parties for procedures and communications. In some markets, it can also arise when small brand differentiations exist.¹³ In some of the economic literature, costs associated with the identification of alternative supplies are also included as switching costs. In a sense, switching costs can be considered a subset of transaction costs.

It is in the context of switching costs that much of the discussion between producers/marketers of gas and industrial and power plant facility consumers has occurred. In both cases, there are significant costs that become sunk when a decision is made to invest and construct a gas-fired facility. As such, industrial and power generation customers have expressed concerns that the lack of any assurance that natural gas prices in the United States will remain stable and competitive with other options (e.g., other energy sources or locating facilities overseas) inhibits the construction of gas-fired facilities. In the discussion, the potential buyers have considered long-term contracts with a mechanism to provide price stability as a potential solution.

But in this discussion, there are two distinctly different concepts of the switching costs involved. In one case, the switching costs relate to a broad market definition, the choice of energy type and geographic location for investment. In this sense, the switching costs are quite significant. In the second case, the switching costs are associated with the movement from one gas supplier to another gas supplier who is able to supply gas to a specific geographic location where a facility is located. In this sense, the switching costs are much smaller and potentially negligible. The

¹³ Economists often cite product markets as simple as boxed cake mix. Even though the products are close substitutes, purchasers may exhibit relatively strong preferences based upon familiarity with baking instructions.

development of liquidity and increasing homogeneity in gas quality specification significantly reduce the costs of switching from one supplier to another.

In a sense, the desire for potential long-term contract with a gas seller might be considered a proxy for a warrantee from the gas industry in total that gas will continue to provide sufficient gas supplies at prices that are competitive with other energy sources. However, the economic impact of a contract might not accomplish the goal in an effective manner and may even have unintended consequences.

Once a contract is entered into with an individual supplier of natural gas, the buyer becomes subject to some level of credit and default risk associated with the individual supplier. The contract does not – and cannot – operate as a warrantee from the broader gas industry. To receive a level of certainty, a buyer would need to evaluate the ability of a supplier to fulfill the terms of the contract. Only the largest suppliers would have the greatest likelihood to meet such a test.

Create Long-Term Relationships without Vertical Integration Merger

The final role for contracts is to create a long-term relationship between the buyer and seller. The objective of this type of relationship is to develop synergies between the parties without an acquisition or merger. This type of arrangement can be particularly appropriate when the synergies involve certain pieces of the two companies rather than the entire core activity of both companies.

Renewed Interest in Long-Term Gas Contracts

In recent years, gas market participants, regulators, and other stakeholders once again have given attention to the appropriate role for long-term contracts in gas markets. At least some of the attention has related to the opportunity for long-term contracts to promote price stability for natural gas for the parties to the contract.

This renewed attention is a positive development. Long-term contracts that provide a degree of price stability, either through the use of fixed prices or pricing formulas that allocate or share the

impact of unexpected changes in price levels, can be a useful tool in a diversified portfolio. With a portion of the overall portfolio stabilized, buyers and sellers have a greater ability to make investment decision and invest capital in long-lived facilities.

Long-Term Contracts are a Tool in a Dynamic Portfolio

Long-term contracts can be a tool for price stability in natural gas markets, provided they make up a small portion of the parties' portfolios. History has shown that over-reliance on long-term contracts at prices that do not respond to market dynamics can create imbalances and liabilities for the parties to those contracts that can grow to unhealthy levels. During the restructuring and transition of the gas market that occurred in the period from 1985 through 1995, large take-or-pay liabilities developed, which needed to be addressed for the market to evolve in an organized manner. Over-reliance on fixed long term fixed price contracts creates counterparty risks that can undermine the contract itself.

When one type of contract term, long-term or short, dominates the market completely, imbalances often result. Prevalence of long-term take-or-pay contracts with pricing provision that deviated from prevailing market prices created large liabilities. The response to shorten the term of contracts and move to index pricing reduced the liabilities and the measures of counterparty risk at the expense of more volatility in price.

Similarly, a number of independent power producers and developers of cogeneration designated as Qualified Facilities (QFs) under the Public Utility Regulatory Reform Act (PURPA) entered into long-term gas supply agreements where the pricing terms for the entire portfolio for the facility did not reflect changes in gas market conditions. These contracts often resulted in extensive litigation and, in a number of instances, abrogation.

Relational Contacts

As a component of a diverse and structured portfolio, however, long-term contracts that offer an element of price stability can be a useful tool in managing price risk. In addition, long-term bilateral contracts offer an opportunity to develop useful relationships between buyers and sellers.

The economic literature and various articles in contract law address a class of contracts called relational contracts. As stated by Schwartz and confirmed by Hviid¹⁴, “[T]wo features define what lawyers mean by a relational contract: incompleteness and longevity.” “Incompleteness refers to the fact that relational contracts do not provide all of the aspects to provide a deterministic outcome to the transactions in terms of the transfer of economic goods, services, or payment.” In other words, the contract does not contain a complete specification necessary to determine the financial or product obligations of the buyer and seller. Rather, the contract determines the process and procedures that will govern the legal relationship between the parties.

Relational contracts often contain provisions that allow for mutual or unilateral renegotiation of contract terms including pricing and contract volumes. Other terms, including “market-out” or “regulatory-out” provisions, which allow the terms to be changed under certain pre-defined conditions, can also contribute to relational contracts. The degree of incompleteness of relational contracts generally extends far beyond traditional *force majeure* provisions.

In other industries, such as the automotive, pharmaceuticals, biomedical and chemical development, and airline manufacturing, relational contracts have flourished. Strategic alliances and joint ventures are often structured as relational contracts because of the need to address uncertainty and risk of outcomes. Indeed some have lasted for decades.¹⁵ Similar relational agreements existed for extended periods between General Motors and Fisher Body prior to the acquisition of Fisher by GM. GM also maintained long term relational agreements with Delphi Auto Parts.

In these and other examples, relationships seek to generate synergies without vertical integration through merger. By so doing, parties can benefit while managing liabilities that may transfer when firms are formally merged or acquired.

¹⁴ Morten Hviid, *Long-term Contracts and Relational Contracts*, University of Warwick, Department of Economics. copyright 1999.

¹⁵ As noted in McQuade and Gomes-Casseres (1992), “[t]he Fuji-Xerox relationship lasted for decades and included several important restructurings at key junctures.

In terms of gas markets, where parties find it mutually advantageous, joint ventures, and partnerships offer the opportunity to parties to allocate gas price risk. A gas user can develop an effective hedge against gas price movements in the market by creating an implied “long” position in gas production by participating and having an interest in production. But as is the case in any hedging strategy, a gas user would be forgoing some potential to benefit from an unexpected decline in gas prices.

Acquisition of Gas Reserves by Gas Consumers

An additional alternative that has been used by some large gas consumers is the acquisition of reserves. The acquisition of reserves is an alternative to entering into the contract with a seller. Consumers including Calpine and the Municipal Gas Authority of Georgia have utilized this strategy to hedge gas price risk.

Some firms that have regulated gas distribution company subsidiaries have also developed interests in the development of gas reserves. In these instances, this operates as a corporate hedge, with separate accounting for purposes of gas cost recovery. In general, the performance risk for gas production and prudence risk for the utility are kept completely separate.

Long-Term Pre-Purchase of Gas Supply

A number of municipally owned gas distribution companies, authorities, or divisions of government have taken a different approach. Some, albeit a small minority, have entered into pre-purchase agreements for multiple years of gas supply. This can be particularly advantageous to a municipal since the purchase can be financed with bonds that receive a measurable tax advantage that are available only to tax free bonds such as municipalities.

Long-Term Contracts for Regulated Entities

As was noted earlier, power plant construction decisions to build gas-fired units subject the project to certain risks from increases in market prices of gas. One option is for the regulated electric utility to seek enter into a long-term contract that provides for more stable pricing.

As a regulated entity, however, the electric utility can be subject to the risk from a “prudence” review of the gas acquisition. One option to address this risk is to seek the pre-approval or a finding of prudence at the time that the long-term contract is executed that provides the utility additional certainty of cost recovery. In some states, state regulators have the legal authority to grant pre-approval. In other states they do not and legislation would be needed to grant this authority.

Regulated investor-owned gas distribution companies face a similar regulatory risk. For an investor-owned gas LDC, entering into a long-term gas supply contract is an asymmetric risk proposition unless pre-approval is granted. Gas LDCs do not earn their regulated return on the gas itself. A gas LDC’s earnings are associated with the services provided to customers associated with installing the pipes, managing the operation and delivering reliable gas service to consumers consistent with the tariff and the obligation to serve.

If the gas LDC were found to be prudent in the gas acquisition function, e.g., it locks in fixed prices that end up being below market prices, there is little or no return associated with that performance.¹⁶ If the regulator finds that the utility was imprudent because the LDC locked in gas prices that ultimately were higher than market prices, then the disallowance comes directly out of the earnings of the utility.

For regulated entities, the standard of review is whether the utility acted prudently given the information available at the time of the decision. As such, a comparison between the contract price and the *ex post* market prices should not be the factual basis for a disallowance. Nevertheless, in most proceedings, exhibits are presented that make just such comparisons.

When the prudence review occurs long after the execution of the contract, there is a tendency to view the gas purchase in the light of subsequent market prices, which could not be known at the time a long-term contract was entered into. As a result, regulated gas utilities have an incentive to match the market in terms of prices so as to limit the regulatory risk of disallowance. Without some opportunity for pre-approval, there is an inherent tendency and incentive for regulated

¹⁶ In some jurisdictions, there are performance regulations associated with gas acquisition, but the magnitude of these incentives is small compared to the return on assets used for distribution delivery.

LDCs to forgo a portfolio that includes long-term contracts that could provide some element of price stability.

Alternative Contract Structures: Relational or “Incomplete” Contracts

Economic analysis of contract law strives “to provide an explanation of existing legal rules, and to provide a basis for criticizing or defending those rules.”¹⁷ Whereas most of the contracting literature focuses on standard price and quantity provisions, research on relational contracting has sought to account for the widespread use of contracts that leave important terms like price and quantity indeterminate. Examples of such provisions include price renegotiation and market out provisions in natural gas contracts (Crocker and Masten, 1991), gross provisions in long-term coal contracts (Joskow, 1985), termination-at-will and best-efforts clauses in franchise agreements (Hadfield, 1990), substantial performance requirements in construction contracts (Goetz and Scott, 1981), and other open term agreements (for example, Gergen, 1992).

The essential elements of relational contract theory are fairly simple to summarize. According to Macneil, contracts are “relations among people who have exchanged, are exchanging, or expect to be exchanging in the future.”¹⁸ Exchange relations occur “in various patterns along a spectrum ranging from highly discrete to highly relational.”¹⁹ The primary determinants of the placement of a contractual relationship on this spectrum are the duration of the relationship, the thickness of future ties between the contracting parties, and the clarity of future rights and obligations. Regardless of the position on the spectrum, every contractual relation comprises certain behaviors and the patterns of behavior across many relations gives rise to norms.²⁰

Conclusion

¹⁷ Eric A. Posner, *Economic Analysis of Contract Law After Three Decades: Success or Failure?*, 112 YALE L.J. 829, 830 (2003).

¹⁸ Macneil, *Sociology*, *supra* note [Error! Bookmark not defined.47](#), at 274.

¹⁹ Macneil, *Sociology*, *supra* note [Error! Bookmark not defined.47](#), at 275..

²⁰ The creation of norms by contracting parties takes place against a background “social matrix,” which consists of “the common sociality essential for all human activity [including shared meanings and language] and the political limits to self-interest which prevents economic competition from decaying into war ... or parasitism.” See Campbell, *supra* note [Error! Bookmark not defined.44](#), at 14.

Over the past 40 years, gas industry contracting practices have changed markedly. Originally virtually all of the contracts were of terms of 5 years or longer, often much longer. During the late 1990s and through most of this decade, contract terms have shortened dramatically, with the price of most of the gas sold at market prices, which exhibited volatility.

The result of this behavior was to move the market to extremes. First the dominance of long-term contracts created large liabilities for buyers due to “take-or-pay” contracts, later exposing buyers to the full volatility of the market with short-term contracts and indexed contract.

This examination of contracts in the gas industry leads the author to conclude that there are issues and market disruptions that can occur in either extreme. A portfolio approach to contracting offers a possibility to mitigate the risks of either extreme.

The analysis also indicates that there are legitimate reasons for the general move to short-term and indexed contracts. The growth of liquidity at many locations throughout North America has benefited the industry and consumers alike. With this degree of liquidity, it is very unlikely that long-term contracts will ever again dominate North American gas markets.

Even so, there are reasons to consider long-term contracts for a minority portion of a gas portfolio. Along with other hedging tools, long-term contracts codify a business relationship between parties and can act as a tool to hedge price volatility. There can be sound business reasons for such contracts, including reductions in transaction costs and managing risks with a portfolio of supply contracts.