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Vertical Arrangements for Natural Gas Procurement by Utilities: Rationales and Regulatory Considerations

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Recent Interest in Going Long Term

- Reversal from the trend post-1985
- Natural gas prices still considered volatile
- Current low natural gas prices expected to increase at some unknown future time
- Market environment conducive for possible mutually beneficial long-term agreements between gas producers and utilities
- Long-term agreements for physical gas can take on three forms:
  - Contract between a utility and an independent entity
  - Utility owner of gas reserves (UOGR)
  - Utility-affiliate relationship

Reasons for Recent Interest in Long-Term Transactions

- Good timing (buyer's market, gas prices expect to increase)
- Good deals may be available to utilities because of cash strapped producers
- Some interest by unaffiliated gas producers
- Helping exploration and production (E&P) affiliates in these tough times for gas producers
- Integration of long-term hedging into a utility's gas portfolio
- Opportunity for utility earnings growth (unlike long-term contracting with non-affiliated gas producers)
- Cost-based prices offer more price stability than market-based prices
- Potential win-win outcome for both gas producers and utilities

Features of Vertical Arrangements

- *Vertical arrangement* can involve the utility self-supplying its gas either within a division of the utility or through an affiliate
- Main motive cited by utilities is long-term hedging
- Common structure is operating/non-operating working-interest model (UOGR)
- Rate basing of utility-owned gas reserves (UOGR)
- Typical time horizon is multi-decades
- Transfer price typically based on the gas operator's cost of service
- Utility forecasting of gas cost savings over time
- Risks shifted mostly to utility customers

Examples of Vertical Arrangements and Proposals

- Black Hills
- Questar Gas
- NorthWestern Energy
- Florida Power and Light
- Northwest Natural Gas
- Los Angeles Department of Water and Power
- Washington Gas Light

Portfolio Theory and Gas Procurement

- Three major objectives, sometimes conflicting
  - Reliable supply
  - Reasonable prices
  - Moderately volatile prices
- Physical and financial hedging
- A gas portfolio takes into account:
  - The price of natural gas and its volatility
  - Security of supply
  - Flexibility of gas supply
- Because of uncertainty and conflicting objectives, utilities diversify their gas portfolio
- Findings of 2012 NRRI survey on long-term contracting and hedging

Hedging 101

- Role of hedging (both short term and long term) within a utility's gas portfolio or integrated resource plan
  - Advance gas-procurement objective of price stability
  - May compromise other objectives and creates new risks
  - Drives up expected costs over time
- Basic questions relating to:
  - Hedging objectives
  - How much utilities should hedge
  - How they should hedge
  - Over what time period
- Hedging involves a fixed price and quantity
- Net benefits of hedging to utility customers
  - Real v speculative or exaggerated
  - Benefits should relate to how much customers are willing to pay for more stable prices
  - Hedging costs (e.g., losses or "regret")
- Utilities now hedge mostly on a short-term basis, but as some have recently contended, conditions are ripe for hedging more long term (e.g., hedging 10-20 years out)
  - What are the reasons?
  - Why haven't most done it?
  - Why now?

Three Kinds of Commercial Structures

- Three distinct categories of commercial structures
  - ✓ Spot
  - ✓ Long-term contracts with independent entity
  - ✓ Vertical integration (e.g., affiliate transactions, UOGR)
- Some insights from economic theory
  - ✓ Empirical and theoretical studies confirm the importance of transaction costs in determining the most efficient commercial structure
  - ✓ Vertical integration, according to some economists, is a last resort but justifiable under specific conditions
  - ✓ For example, when hazards of spot markets and contractual exchange are severe (e.g., market power, incomplete contracts, opportunism/hold-up), vertical integration offers potential certain advantages
  - ✓ Robust, liquid wholesale gas markets have made spot purchases the predominant commercial structure for gas procurement since the late 1980s

Features of Different Commercial Structures

Features of Commercial Structure	Positive	Negative	Comments
Spot purchase	• Low transaction costs in a liquid market • Utility gets the benefit of a low market price • Minimal commitment by buyer and seller • Parties have flexibility • Reference price for futures and multiple transactions	• Risks of high prices during a supply-constrained situation • Contrary to utility/regulator preference for stable prices • Transaction costs from repeated purchases	• Spot markets have become the predominate form of gas procurement since the late 1980s • Most utilities rely heavily on the spot market but complement it with physical contracts and financial derivatives in their gas portfolios
Contracting with an independent entity	• Long-term (quasi) hedge • Avoidance of repeated purchases • More secured supply • Assured revenues triggering needed investments	• Potential for contract price deviating far from the market price • Counterparty/credit risk • Collateral requirement • Debt equivalence • High transaction costs under complex conditions	• Long-term arrangements are rare • Gas producers reluctant to commit long term because of possible opportunity losses from rising prices • More secured supply (relative to spot purchases) probably overstated because of liquid spot markets and incidence of supply problems caused largely by transportation constraints
Vertical arrangement (e.g., UOGR, gas purchases from an E&P affiliate)	• Lower transaction cost than complex contractual arrangements • Economies of scope or integration • Long-term (quasi) hedge • Potentially more efficient than contracting with incomplete contracts, asset specificity, and opportunistic behavior	• Potential for self-dealing abuse • Limited supply options and market deals • Risk from utility engaging in non-core activities • Managerial diseconomies	• Conditions conducive to vertical arrangements don't seem to hold for gas procurement by utilities • Regulators need to beware of both self-dealing and risk-shifting aspects of vertical arrangements • Dubious benefits to utility customers relative to corporate shareholders • The only commercial structure for gas procurement where the utility or an affiliate can increase its earnings

The Challenges for Utilities

- **Setting the transfer price**
  - Cost of gas production
  - Market-based
  - Base price plus escalation formula or index
  - Fixed
  - Competitive bidding
- **Being an active and knowledgeable participant**
- **Determining the value of gas reserves**
  - The estimated amount of recoverable gas in the ground and chances for recovery
  - The estimated capital costs for drilling and production
  - The expected operating costs
  - The forecasted market price for gas over the life of the reserves

Vertical Arrangements Raise Several Concerns

- The real motive is ambiguous, but likely related to higher earnings for the utility or its affiliate
- Gas cost savings are highly speculative and estimated to be small in some instances
- Long-term hedging seems to be the only legitimate motive, from the perspective of utility customers; but utilities fail to measure the benefits of hedging to customers and how it reduces the risk of their gas portfolio
- Vertical integration into gas production also presents the danger of providing an opportunity for a utility or its umbrella company to evade the reach of regulation
- UOGR imposes little risk on utilities but allows them to profit from the rate-basing of the investment
- From the perspective of utility customers, on the other hand, vertical integration seems to be a high-risk strategy for hedging
- Liquid wholesale gas markets (which minimize gas supply risk) plus highly speculative forecasts of long-term gas prices weaken the case for UOGR or other vertical arrangements

Last Thoughts

- Historically, regulators have disfavored vertical arrangements, and for good reason
- Regulators should ask the basic question: Under what conditions should utilities get in the gas production business?
- Utilities proposing vertical arrangements are implicitly assigning a high value to long-term hedging; this value may not reflect customers' perception of benefits
- Besides, utilities' vertical arrangements aren't pure hedging and, arguably, speculative
- Regulators should therefore ask themselves three questions about long-term hedging:
  - What are the benefits and costs to customers from stable prices over several years or even decades?
  - Is the current time ripe for long-term hedging?
  - What market and other conditions would make long-term hedging beneficial to utility customers?
- Even if regulators support long-term hedging, they should then ask whether a vertical arrangement with an affiliated or independent gas operator is preferable
- Regulators should demand that any long-term commitment balances the risk between utility shareholders and customers

Last Thoughts - *continued*

- One conclusion is that the typical reasons for companies to vertically integrate – as outlined in economic theory and observed in the real world – does not hold for utilities in their procurement of natural gas
- For example, the economic rationale for electric utilities owning coal mines does not apply to utility ownership of natural gas reserves
- Regulators should start with the premise that long-term contracting with an independent gas producer or middleman (e.g., marketer) would be preferable
- The most plausible explanation for vertical arrangements seems to be that the umbrella company composed of both the utility and the E&P affiliate, or the utility itself, is the largest beneficiary with utility customers bearing most of the risk
- We are likely to see more of these proposals in the next few years as (1) gas producers will feel financial strain if gas prices remain low and (2) utilities and their umbrella companies try to increase their earnings