

# Natural Gas Storage Offers Big Opportunities And Big Complexities



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**A**lthough natural gas has not received the favorable attention given to renewable energy sources in federal energy policy, it continues to prove itself as a clean and reliable domestic energy source. The positive outlook for domestic natural gas production demonstrates this. The U.S. Energy Information Agency (EIA) says domestic natural gas production in 2009 was the highest since 1973, and proved reserves of natural gas have grown significantly in the last several years.

The underground storage of natural gas has historically been critical in meeting customer demand. Increased domestic natural gas production and government policies that allow market forces to play a larger role in guiding capital investments in natural gas storage facilities have helped accelerate development of new storage capacity. Since the start of 2005, the Federal Energy Regulatory Commission's (FERC) statistics show 66 new or expanded natural gas storage projects in 18 states, accounting for more than 775 Bcf of new storage capacity. Additionally, more natural gas is being delivered to storage facilities. The EIA says monthly storage levels of natural gas in 2009 exceeded the five-year average (2004-2008) levels for each month of the year.

## Current Major Projects

During 2009 through mid-2010, FERC reported that it approved natural gas storage projects having a total working gas capacity of approximately 164 Bcf. The approved projects consist of both existing project expansions and greenfield projects. Most of these approved projects will be located in Gulf Coast states and will be high-deliverability, salt-dome storage projects.

And more natural gas storage capacity may be on the way. As of mid-2010, FERC reported 11 storage projects that are awaiting

its approval (having approximately 155 Bcf of total working gas capacity) and five more projects that are participating in FERC's pre-filing process (having approximately 110 Bcf of total working gas capacity).

## Development Challenges

Despite the recent increase in domestic natural gas production, not all of the recently approved storage capacity will be constructed. A number of factors will determine who wins and who loses this race. These factors include simple forces of supply and demand for storage services as well as basic development challenges. To succeed, the project developer must be nimble in dealing with these challenges. The following are some of the material issues that could impact a storage project's development: market-based rates/commercial risks, governmental approvals, location, construction risk and base gas.

**Market-Based Rates/Commercial Risks.** The project's economic viability depends on its customers' making commitments to purchase a sufficient quantity of capacity at rates that enable the project developer to earn a required return. Without these commitments, the project developer's ability to proceed with the project will be impaired.

Project developers often use precedent agreements to obtain conditional capacity commitments prior to construction completion. Under these agreements, the project developer and customer agree to enter into a gas storage contract if certain conditions are satisfied, such as the developer's obtaining certain material governmental approvals. If the conditions are not satisfied by a given date, the precedent agreement can be terminated.

Today, most new natural gas storage capacity is sold at market-based rates instead of traditional cost-of-service rates. FERC allows project developers to charge market-based rates for their capacity if FERC determines that the project sponsor cannot exercise market power. If FERC approves the use of market-based rates, the project developer and its customers can negotiate their own rates; they are not bound by cost-of-service rates that FERC establishes through a ratemaking proceeding. This market-based rate regime allows the market to decide which project is the most economical choice and thus should go forward.

**Governmental Approvals.** Governmental approvals are required for the construction and operation of a gas storage project. The primary governmental approval for a gas storage project that will provide interstate service is a certificate of public convenience and necessity from FERC. A FERC certificate is not,

however, the only governmental approval that a project developer must obtain. A number of state and local permits also are required.

Management of the approval process is critical. The project developer is tasked with obtaining multiple approvals at the same time in a cost effective manner. A developer can plan on the approval process continuing for well over one year. Delay in obtaining these approvals, or obtaining approvals with unfavorable conditions, may delay a project's construction commencement and, possibly, completion.

**Location.** A project's location and access to natural gas suppliers and markets will impact significantly the storage capacity's value. Thus, a storage project that is located near a number of upstream or downstream pipelines with which the project can interconnect, the more value a customer should assign to the storage capacity.

The project developer must obtain adequate real property rights to construct and operate its storage project. Real estate can be acquired by purchase or by lease. Easements and rights of way are obtained for pipelines that will connect the storage caverns to other pipelines. The project developer must acquire not only surface property rights but also subsurface rights.

If the gas storage project is authorized under a FERC certificate, the project developer can use eminent domain to obtain necessary real property rights that it could not obtain by deed, lease, or easement agreement. The project developer must commence a condemnation proceeding before a court to obtain the necessary property rights through eminent domain.

However, eminent domain is not the preferred method for obtaining real property rights. A condemnation proceeding takes time and money; thus, there is no certainty that the real property rights being condemned will be available when needed at the budgeted cost.

The project developer also must be prepared to enter into interconnection agreements and operational balancing agreements with the pipeline companies that own the pipelines with which the storage project will interconnect. These agreements often require the project developer to reimburse the pipeline company for the metering and other facilities that must be installed to allow the interconnection.

**Construction Risk.** Gas storage projects are not typically constructed under single-point, fixed-price, turnkey construction contracts. Instead, project developers usually enter into construction contracts with multiple construction contractors often with cost-plus pricing. Project developers thus assume a high degree of construction management and construction cost risk. As a consequence, the project developer must be prepared to manage these risks

to ensure that the project is completed on time and on budget.

The project developer has certain mitigation tools at its disposal. The project developer must understand the geologic characteristics of the project site to ensure the proper design of the caverns and subsurface facilities. Also, the project developer should negotiate construction contracts with a well-defined work scope and pricing structures that provide incentives to the contractor to complete tasks on budget.

**Base Gas.** The storage project will require a permanent inventory of base gas to maintain the project's pressure and deliverability rates. Base gas can be a significant capital cost. The project developer has a few options for acquiring base gas: purchasing the gas, leasing the gas or using storage services contracts to obtain base gas.

**Purchase.** The project developer could purchase the required quantity of base gas. The benefit of this approach is that once the base gas seller is paid it has no further claim against the delivered gas, thus eliminating a project company creditor who has rights to a critical project asset. The most significant risks are that the actual cost of the delivered base gas will exceed, at the time of purchase, the amount budgeted or the cash available for such purchase and that the gas supplier will not deliver the base gas when required.

**Lease.** A project developer also could lease base gas. The benefit of a base gas lease is that the project developer's total outlay for the base gas should be less than if the base gas were purchased and its payment obligations could be spread over the lease term. The risk is that the lease structure can be complex and the base gas lessor has a continuing claim on an important project asset. If the project's development is funded with debt, the project's lenders are likely to require that the lessor enter into intercreditor arrangements that protect the lenders' interests, which can be a time consuming and expensive exercise.

**Storage Services Agreement.** Some project developers have used gas storage contracts to obtain base gas. Under these contracts, the customer agrees to leave in storage as inventory a certain quantity of gas for some agreed period. The benefit of this approach is that the project developer obtains access to base gas at little or no cost. The primary risks are that a similar arrangement will not be found when the storage contract expires and that the project's tariff will not be compatible with this arrangement. For example, the tariff's curtailment procedures could adversely affect this arrangement if the project company must curtail service having the same quality as the base gas storage contract. **PE&GJ**

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