NATURAL GAS SUPPLY

LNG IMPORTS

Liquefied natural gas from abroad is seen as a solution to a growing domestic gas supply crisis. Several projects already approved will double U.S. import capacity by 2007.

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The natural gas market in the U.S. faces a period of continued supply uncertainty and sustained high prices, both of which will have a direct impact on the long-term market for liquefied natural gas (LNG) imports. Whether imports will alleviate some of the upward pressure on domestic gas prices depends on a number of factors: expansion of existing and construction of new LNG receiving terminals and related infrastructure; and the price competitiveness of new LNG projects in West Africa, the Middle East, Europe and Latin America.

Perhaps the most important variable is the willingness of companies to invest billions of dollars in projects that largely depend on a price-volatile, unregulated market.

The reasons for growing interest in LNG are well known, and have prompted no less than Federal Reserve Board chairman Alan Greenspan to suggest that the U.S. will need to import more LNG. Following the decline in the rig count in 2001, when gas prices fell below $3 per thousand cubic feet (Mcf), the industry was slow to increase drilling despite gas prices that have since risen near $6 per Mcf. This was in large part because most low-cost, shallow gas reservoirs in the U.S. have been depleted. Industry interest in deep, high-pressure gas onshore or on the Gulf of Mexico shelf has yet to translate to increased domestic production.

But increased demand is bumping up against this supply problem. The Energy Information Administration estimates demand will rise in the short-term to 23.5 trillion cubic feet (Tcf) in 2004 while domestic production will only reach about 19.3 Tcf. The EIA in its latest long-term forecast shows demand reaching 35 Tcf in 2025 with domestic production increasing to approximately 25 Tcf, thus presenting the prospect of a huge gap.

Some 10 Tcf of gas needs to come from storage or be imported. Currently there are only two sources of gas imports: piped gas from Canada and LNG. In 2003, imports are projected to reach 3.5Tcf with a continued decline in imports from Canada offset by increased LNG shipments.

The U.S. will have to significantly increase the capacity and number of LNG receiving terminals on both the east and west coasts.

The growing gas supply crisis in the U.S. comes at a time when the global gas business is changing in terms of the players and the number of projects—upstream, midstream and downstream—slated for development. These changes will have a direct impact on the availability and timing of LNG supplies for the U.S. market.

A number of the merchant-energy companies were pursuing opportunities to participate in multiple parts of the LNG value chain. Their demise or change in strategy has created opportunities for more traditional oil and gas companies, such as ChevronTexaco, ExxonMobil, ConocoPhillips and Marathon, to develop integrated global gas strategies designed to access gas reserves and build liquefaction facilities, import terminal capacity and markets in the U.S. Several of these companies are participating in new LNG projects targeting the U.S. and also in the direct ownership of storage and processing capacity at existing LNG receiving terminals.

Other companies hope to exploit opportunities they see in specific parts of the LNG chain, especially receiving terminals. For example, Cheniere Energy is seeking to build two LNG terminals along the Texas Gulf Coast, and with 60% partner Freeport LNG LLC, it is in the permitting process now for a third Texas facility. Freeport-McMoRan Sulphur LLC proposes to use an offshore platform it operates at a sulfur mine in the Gulf of Mexico as a receiving terminal. And, Crystal Energy proposes to recycle a depleted gas production platform 11 miles offshore California in federal waters for the same purpose.

Why LNG interest grew

The history of LNG imports in the U.S. is one of high growth and prolonged decline. Four receiving terminals on the East Coast were built between 1971 and 1982. Of these, only the Everett, Massachusetts, terminal operated by Tractebel has been in continual use. The other three—at Cove Point, Maryland; Elba Island, Georgia; and Lake Charles, Louisiana—were closed in the early 1980s as LNG imports were not price-competitive in the deregulated U.S. market.

Recently, FERC has approved a number of expansions at the three other existing terminals. This should increase U.S. import capacity from 2.3 billion cubic feet (Bcf) per day in 2003 to 5 Bcf a day by 2007. If construction of the new Freeport, Texas, facility were approved, that would add another 1.5 Bcf per day of capacity by 2007.

The Lake Charles terminal was recently sold to Southern Union Co. and BG (formerly British Gas) has contracted for 100% of its throughput capacity.

Why the resurgence of interest in incremental LNG imports? It began in the mid-1990s, driven by a number of factors, including declining U.S. gas production; increasing demand, especially from the power-generation sector; and the development of world-class gas reserves offshore Trinidad & Tobago.

In addition, the need for companies to monetize large gas reserves, especially offshore West Africa, has driven them to search for long-term, large markets like the U.S.

Also important, there have been significant cost reductions in liquefaction, shipping and regasification. New-build ship costs alone have declined about 30%, according to a report from Commerzbank Securities, which adds that 38 new-build LNG ships will be delivered to world markets in 2003-04. Commerzbank says, “The actual LNG process from source to market [including regasification] may cost between $1.50 and $2.70 per Mcf.”

The U.S. market is the largest part of a larger LNG market commonly known as the Atlantic Basin. Historically LNG imports have come from Algeria, Trinidad, Nigeria and the Persian Gulf. Today, a number of expansions and new LNG projects are under development, most of which will require access to U.S. markets to be financially viable.

Current LNG production for the Atlantic Basin, estimated at 1.8 Tcf, is expected to more than triple during the next five years. Projects under construction or expansion, and proposed projects, will increase the production capacity available for the Atlantic Basin to 6.1 Tcf by year-end 2007.

But for increased production to be shipped to the U.S., new receiving terminals and storage facilities need to be built. The permitting for such facilities is proving to be a legal and environmental minefield, in part because the 1970s-era regulations governing LNG receiving terminals have not been updated. Thus the timing of constructing new facilities is a major factor in determining the future level of LNG imports into either coast.

One solution being considered by a number of companies is to construct receiving terminals in Mexico, where the permitting process might be more expeditious and from which gas could be piped into the U.S. market. Currently there are plans to construct terminals at Baja on the Pacific coast and at Altamira in the Gulf of Mexico and several companies, such as Shell, Marathon and Sempra Energy, are competing to be awarded contracts to build facilities.

Projects under way

Based upon the prevailing and near-term outlook for U.S. gas prices, LNG is an available source of supply above $3 per Mcf. Several African LNG projects are largely relying on the U.S. market to be commercially viable.

The Angola LNG project, set to be completed in 2005, will sell production to the U.S., Brazil and Europe. Although no specific contract has been signed to date, ChevronTexaco and its partners in Angola LNG plan to build two regasification facilities along the Gulf Coast to be supplied exclusively by Angolan production.

In Equatorial Guinea, Marathon Oil and GEPetrol signed a memorandum of understanding with BG in May 2003 to supply 3.4 million tons of LNG per year for 17 years. Under the contract, BG would purchase the gas primarily in the Lake Charles, Louisiana, terminal it owns, beginning in 2007. In Nigeria, NLNG signed two long-term sales agreements with BG to transport 2.5 million tons a year of LNG to the U.S. for 20 years. Shipments are scheduled to begin in 2005 or early 2006.

In the Latin American and Caribbean region, several projects are being considered. In Peru, the $4.5-billion Camisea LNG project finally began to materialize with the recent establishment of gas tariffs, future drilling activity and site preparation. The timing of the project remains unclear due to environmental permitting issues. Camisea LNG will eventually ship gas to the U.S. and Mexico.

In Trinidad & Tobago, the Atlantic LNG project's $1.05-billion two-train expansion was completed earlier this year with total output on the train being committed 62% to the Spanish gas and power markets, and the remaining 38% destined to the U.S. High U.S. prices and slow

European demand in recent months, however, have encouraged the consortium's partners, BP, BG and Repsol, to divert several cargoes from Spain to the U.S.

In addition, they are in negotiations for the commitment of a fourth train, with LNG destined to the U.S. market. Other projects in the region are also focusing on the U.S. market. For example, the $2.7-billion Mariscal Sucre LNG project in Venezuela is currently in the study phase that is expected to conclude in December 2003.

Financial needs

The financing of expanded and new LNG projects targeting the U.S. market presents a new set of challenges and risks, although the conventional means of using project finance, as opposed to equity, will continue. No single company takes on these capital-intensive projects by itself, but most often acts in a group.

Paramount to financiers and the companies is the issue of intensified gas-on-gas pricing as more LNG supplies come on the market. Price risk, always well mitigated in historical LNG structures, is now a real issue in newer projects. Higher baseline Henry Hub pricing caused by increased demand and lower domestic supply, indicates that while volume risk can be mitigated, gas-price volatility—a new element in LNG projects—will remain one of the key risks for project developers and their financiers.

Long-term committed offtake contracts remain the cornerstone of an LNG project's financial viability. While Atlantic Basin LNG projects engage in spot optionality between contracted offtakers in the U.S. and Europe and regularly sell split cargoes, it remains a requirement that a baseline component of LNG sales is contracted with a buyer of acceptable credit quality.

The most significant change, which in large part is a reflection of selling into the U.S., has been an increasing trend toward flexibility of both buyers and sellers. This is evident in a shortening of tenor, increasing incidence of "price reopeners" and a de-linking of LNG prices from oil prices and toward gas-based price indices.

The U.S. gas market faces evolution and change as domestic conventional production declines, demand continues to increase and high gas prices impact the overall economy. The oil and gas industry will therefore continue to seek other sources of gas to supplement supply.

LNG is destined to become an even larger component of the U.S. gas-supply chain over time. However, its role remains uncertain, given the multitude of factors affecting its commercial attractiveness in the U.S. market. It is unlikely to make a meaningful contribution to the U.S. supply picture until mid-decade at the earliest, but the competitive pressures and level of industry interest and investment geared towards the business should assure that LNG imports do become a major contributor in the future.

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LNG Source	Delivered Price—Netback (US$/Mcf)
Trinidad	1.90
Venezuela	1.90
Algeria	2.35
Norway	2.45
Egypt	2.50
Nigeria	2.50
Angola	2.55
Middle East	2.70

Source: Brown, Williams Mooreshead & Quinn