



# EXPRESS

The Leading Source of Information on Emerging LNG Markets

Vol. XII, No. 11

November 2002

WORLD LNG TRADE

## Core Agreements Signed for Egyptian LNG Project

The sale and purchase agreement (SPA) for the entire output of Train 1 of the Egyptian LNG (ELNG) project has been signed with Gaz de France by BG Group plc and ELNG partners.

“The Egyptian LNG project is maintaining its aggressive schedule and has attracted strong interest from international and Egyptian banks,” said Martin Houston, executive vice president, BG Group.

“With first gas discoveries for the project made in 1999, this will represent one of the fastest LNG export plants developed in the industry.

“Egypt is set to become a significant LNG exporter and derive substantial economic benefit from the Egyptian LNG project,” he emphasized.

A participation agreement, which anticipates Gaz de France becoming a partner in the ELNG project, has also been signed.

These agreements follow three other key developments.

On Sept. 16, 2002, the partners issued the notice to proceed under the engineering, procurement and construction (EPC) contract with Bechtel Corp. for construction of the ELNG plant

Train 1 and common facilities, valued at approximately \$900 million.

An invitation to lenders to project finance the construction of the ELNG plant Train 1 and common facilities was issued and a preliminary information memorandum was released to international lending institutions on the same day.

Earlier, on Aug. 1, 2002, invita-

tions to tender for the upstream engineering, procurement, installation and commissioning (EPIC) contract for production of the gas that will supply the plant were issued.

Bechtel started an early works program on May 1, 2002, and first LNG production is scheduled for the third quarter 2005. Engineering is well advanced, equipment with long delivery

Continued on page 2

### INSIDE

<i>World LNG Trade</i>	Indonesia Seeks Ways to Expand LNG Production .....12
ConocoPhillips, Bechtel Renew Worldwide LNG Alliance .....2	
Statoil Awards Subsea Contract for Snøhvit Project, Strengthens Management ....3	<i>LNG-Powered Transportation</i>
Bechtel Orders Two Coldboxes from Chart Industries .....3	Cummins Westport Launches Commercial B-Gas Plus Engine .....12
Australian Companies Win Contracts for Second NWS Trunkline .....4	Cummins Westport Gets \$477,000 DOE Grant for LNG Fuel System Development ....13
Liquefied Natural Gas Regulatory Framework in Mexico.....5	California Sets Goal of 600,000 New Natural Gas Vehicles in 10 Years .....14
LNG's Lack of Consistent Composition Hinders U.S. Importers, Raising Question of the Need for Global Standard .....9	Dual-Fuel Engine Demonstrates Ultra-Low Emissions.....15
Australian Companies Sign LNG Sales and Purchase Agreements with China ..... 11	LNG Dispenser Receives Weights and Measures Certificate of Approval .....15
Qatar Pursues LNG Interests in Japan, Venezuela ..... 11	Omnitrans Opens LNG-to-CNG Fueling Stations in San Bernardino, Montclair .....16

# Liquefied Natural Gas Regulatory Framework in Mexico

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The growth of the Mexican economy and the role of Mexico globally require modernization of the energy sector.

The expropriation of the oil industry in 1938 and the nationalization of the electricity industry in 1960 gave the Mexican government the responsibility and control of the energy sector.

Between the 1940s and the 1980s, Petroleos Mexicanos (Pemex) made considerable efforts to place Mexico as a prominent oil producer and Comisión Federal de Electricidad (CFE) to electrify most of the national territory.

Despite inefficiencies, Pemex and CFE, each in their respective field, have become among the biggest oil and utility companies in the world.

During the 1990s it was clear that the energy sector required a new approach where private investment could play a more important role.

Towards a more active participation in the world economy (GATT and NAFTA), Mexico changed its electricity regulatory framework in 1992 and 1993, and in 1995, a new framework for natural gas came into force.

Such changes were made in order to allow private investment to participate in activities that until then were basically carried out by the Mexican government through Pemex and CFE.

Natural gas has become a fundamental tool of the economy; in the last five years its consumption has grown more than other fossil fuels.

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*Mexico is located in the biggest regional market of natural gas. Approximately one third of the annual consumption of natural gas takes place in North America.*

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There is a clear indication that the Mexican energy policy has to be reviewed to incorporate liquefied natural gas (LNG) into the national scenario, and that the regulatory framework has to be revised to regulate such fuel as an alternative for the ever-increasing demand for efficient

fuels in Mexico.

**Natural gas sector.** Between 1999 and 2010, natural gas is expected to become the second most important commodity in the global structure of primary energy consumption after oil.

The world demand for natural gas shall average a growth of 3.2 percent annually against 2.2 percent for oil and 1.7 percent for coal.

The growth in the demand of natural gas will be more evident in the developing countries such as Mexico where the average growth shall reach 5.8 percent against 2.6 percent in the industrialized countries.

Between 1993 and 2000 the demand for natural gas in Mexico has grown at a pace of 4.7 percent, while the extraction has grown 3.9 percent annually.

The northern part of the country has shown the biggest increase, particularly that associated with the Cuenca de Burgos (Burgos Basin) integral project.

In the last eight years, the extraction of non-associated natural gas has reached an average growth of 15.2 percent annually against 1.3 percent for associated gas.

In the same period (1993-2000), the consumption of natural gas increased 5.2 percent (compared to LPG growth of 4.1 percent and heavy fuel oil at 3.7 percent).

The national production supplied 98 percent of the domestic demand, with the balance being imported.

According to the Ministry of Energy (SENER), for the period 2000-2010 the national production of natural gas is expected to increase from 4,091 MMpcd to 7,551 MMpcd, which represents an increase of 84.6 percent and an annual average growth rate of 6.3 percent.

Further, assuming that the Mexican economy will growth 5.2 percent (now a very difficult target considering the situation of the world economy and the failed Mexican tax reform), the total demand for natural gas shall increase from 4,326 MMpcd to 9,451 MMpcd, which represents an expected a growth of 8.1 percent annually in the next 10 years.

Based on the above figures, the increase in the demand shall be twice as big as the increase of the last eight years and is expected to be bigger than the current consumption of countries such as the United Kingdom, Canada or Japan.

The Mexican electricity sector shall become the biggest consumer of natural gas with annual requirements to growth at a pace of 14.6 percent to reach an expected share of 42 percent of the total demand by 2010, basically due to the demand

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of independent power producers.

The requirements of the oil industry shall reach 37.6 percent of the demand. Other consumers include: Pemex Petroquímica (27.4 percent); industry in general, and specifically the steel industry; residential consumption, and the services sector, including the transportation sector where a comparative important increase in the demand of natural gas is expected.

The need to implement gas projects of great scale in Mexico is more than evident. The Burgos Basin, the Grijalva Delta and Cantarell shall continue to provide important amounts of gas.

Further, Pemex Exploración y Producción (PEP) has designed the Programa Estratégico de Gas (Strategic Gas Program or PEG), which is expected to increase the production of gas by 26 percent by the end of 2010.

The PEG contemplates the development of the non-associated gas basin in Macuspana, as well as in the production areas of Tampico, Misantla, and the south of the Burgos Basin.

The strategy to increase the output of natural gas in the mid and long-term is based on four premises: (i) to reactivate exploration in the areas with the highest potential; (ii) preferential focus on non-associated gas reserves; (iii) production utilization according to international standards; and (iv) commercialization of LNG.

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*The efforts of Pemex to search for new fields have paid off. This year Pemex confirmed that three fields alone – Lankahuasa, Playuela and Hap – have a potential equivalent of a little more than one-fourth of the national total gas proven reserves.*

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**Imports of natural gas.** The natural gas balance (offer - demand) for the 2000-2010 period shows that under current conditions, the national production shall satisfy only 80 percent of the demand at the end of the period.

The balance shall be satisfied through the importation of the gas, mainly by (i) interconnections with the south of Texas, and (ii) installation of LNG regasification facilities.

A combination of the increase in the international demand of natural gas, the availability of production in the world markets and relatively lower costs is making the use of LNG one of the main sources of fuel not only for Mexico,

but for other countries as well.

Several factors have made the use LNG viable with gradually lower costs and more stable conditions, including: (i) the reduction in the risks associated to the availability of gas due to the political stability in the Pacific basin and in the Atlantic, (ii) more flexibility in the financing, (iii) new technologies that allow lower costs in the liquefaction process, and (iv) an increase in the availability of LNG shipping.

The sources of LNG include Indonesia (which basically serves Japan, South Korea and Taiwan); Algeria (which basically serves France, Spain and Belgium); Malaysia (which also serves Japan, South Korea, Taiwan and Spain).

In the western hemisphere, Trinidad and Tobago is the biggest exporter, with Venezuela having a big potential. Other important exporters include Qatar and Australia.

Mexico should be in this league; instead, Mexico is struggling to find adequate alternatives to satisfy its own needs having to import the fuel.

As a consequence of the crisis in the prices of natural gas, last year the Mexican government started to look for LNG projects as an alternative for a cheaper more stable alternative.

Initially the alternatives involved two facilities, one at Altamira and one at Rosarito, followed by facilities in Manzanillo and Lazaro Cardenas.

Companies such as Shell, El Paso Natural Gas, CMS Energy and BP, among others, showed interest in the projects.

Notwithstanding the lack of legislation, as of October 2002, at least five requests for permits for the storage of LNG have been filed before the Comisión Reguladora de Energía (CRE).

In addition to the above, last June, Pemex presented the Generic Model Contract of Public Works Based on Unitary Prices (the contract), which has been planned to be used originally for the development of gas activities in the Burgos Basin.

Through public bidding using the contract, Pemex will contract between 30 and 40 different services with the awarded contractor, including seismic processing, geology modeling, oilfield and production engineering, well drilling, geophysical registers, facilities design and construction, facilities and well maintenance, and gas transportation services.

Such services will be performed in three phases by the contractor: the development phase (eight years), reactivation phase (five years), and the maximum recovery phase (seven years).

The contract establishes a work area comprised of sectors, containing a field and a surrounding extension zone.

The draft of the contract has been made considering the current framework, and will be regulated, as other agreements executed by Pemex with suppliers of works services, by the Public Works and Related Services Law.

The calendar for public bid projects to be developed using the contract remains to be confirmed by Pemex.

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**Natural gas regulatory framework.** The 1995 amendments to the Regulatory Law to Article 27 of the Political Constitution of the United Mexican States Concerning Oil, and the issuance of the Natural Gas Regulations redefined the framework of natural gas in Mexico by allowing private investment in transportation, storage and distribution of natural gas activities, including the construction, operation and ownership of pipelines, facilities and equipment, which in the past were activities reserved to Pemex.

From a legal perspective, the Natural Gas Regulations will have to apply to an LNG project. Such regulations do not distinguish between liquefied and other forms of natural gas.

It is clear that the reforms of 1995 did not consider LNG. The reforms listed below described activities without referring to LNG schemes and do not have any reference to LNG or to words such as gasification.

Due to the above and in light of the lack of specific LNG legislation (other than the Mexican official norms below described), the following concepts have to be considered until more adequate legislation is issued. The current framework includes the following.

- (i) Transportation is defined as the activity of receiving, transporting, and delivering gas through pipelines to those that are not final users within a geographic zone, and comprises the reception of gas in a transportation system point and the delivery of a similar quantity in a different point of the same system. Transportation permits are granted by the CRE for a specific capacity and route, at the request of a petitioner or through public bidding. These permits may be for self-use or open access.
- (ii) Storage is defined as the activity of receiving, holding and delivering natural gas at fixed facilities other than pipelines, and comprises the reception of gas in a storage system point, and the delivery, in one or more acts, of the same amount of gas, either in the same point or in another one. Storage permits are granted by the CRE for a specific location and capacity, and at the request of a petitioner. These permits may be for self-use or open access.
- (iii) Distribution is defined as the activity of receiving, transmitting, delivering and, if applicable, marketing of natural gas through pipelines in a geographic zone, and comprises the commercialization and delivery of gas by the distributor to an end user within a geographic zone, or the reception of gas in the distribution system reception point(s) and the delivery of an equal amount in a different point within the same system. Distribution permits are granted by the CRE for a specific geographical zone determined by CRE, which generally refers to cities.

Generally, the first distribution permit for a specific zone is granted through public bid and grants to the permit holder and 12-year term exclusivity to build the distribution system and the reception, conduction and delivery within the zone. Distribution permits do not grant exclusivity on the commercialization of natural gas in the zone; after the exclusivity term has elapsed, distribution permits shall be granted at the request of a petitioner. Consumers located in a specific geographical zone may contract the supply of gas with suppliers other than the distributor for such zone, in which case the latter shall permit the access to its system to the former, subject to compensation (open access).

- (iv) Transportation and storage to satisfy the needs of a petitioner is subject to a permit issued by CRE. A natural gas self-supply entity may be incorporated in which case such entities shall only deliver gas to the entity's shareholders.
- (v) Subject to customs requirements, importation and exportation shall freely be made.
- (vi) Although the permits for the permitted activities in the natural gas sector are only granted to Mexican entities and individuals, foreign investment may freely participate in the capital stock of such entities.
- (vi) Permits to carry out any of the natural gas permitted activities are granted for 30-year terms, renewable for 15-year periods. Although as a general rule the same entity may hold one or more permits for any of the natural gas permitted activities, there are certain restrictions to avoid vertical integrations. Further, permits may be transferred with the previous authorization from CRE, may be encumbered to guarantee financing obligations directly related to the service or to operational liabilities in which case a notice to CRE will have to be served, or for other purposes in which case the authorization from CRE will have to be obtained, and may be amended in accordance with guidelines issued by CRE.

Since last year, the reforms of the Natural Gas Regulations to include specific regulations for LNG were expected. Unofficially it has transpired that the draft of the amendments has been finished and it is now subject of a further review.

Probably a political negotiation, in order to avoid another energy regulatory fiasco such as the one suffered as a consequence of the last April resolution of the Mexican Supreme Court of Justice whereby certain amendments to regulations regarding the selling of surplus power were declared unconstitutional.

In any case, the current, and very short LNG regulatory

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framework includes, in addition to the Natural Gas Regulations the following Mexican official norms:

- (i) Mexican Official Norm NOM-004-SECRE-1997 "Natural Gas – Vehicles' Installations" – the NOM-004-SECRE-1997 was published by SENER in the *Official Gazette of the Federation* on Jan. 26, 1998, and its purpose is to set forth the security requirements to be followed in the vehicles that use LNG as fuel.
- (ii) Mexican Official Norm NOM-005-SECRE-1997 "Natural Gas – Service Stations" – the NOM-005-SECRE-1997 was published by SENER in the *Official Gazette of the Federation* on Jan. 28, 1998, and its purpose is to set forth the security requirements to be followed by the installations located at service stations that supply LNG to automotive vehicles, as well as the minimum security requirements for the operation of such stations.
- (iii) Emergency Mexican Official Norm NOM-EM-001-SECRE-2002 "Security requirements for the design, construction, operation and maintenance of LNG storage facilities that include systems, equipment and installations for the reception, conduction, re-gasification and delivery of such fuel" – the NOM-EM-001-SECRE-2002 (the 2002 NOM) was published by the Ministry of Economy in the *Official Gazette of the Federation* on Aug. 2, 2002, and its purpose is to set forth the minimum security requirements related to the design, construction, operation and maintenance of LNG storage facilities which include systems, equipment and installations for the reception, conduction, regasification and delivery of such fuel. The 2002 NOM applies to (a) LNG facilities with installations on the mainland, from the LNG reception point where a ship unloads the gas, to the delivery point of such fuel already converted to gas in a pipeline transportation system, with a capacity in excess of 1,060 cu. m, and includes the activities of unload, conduction, storage, regasification and delivery of natural gas. The 2002 NOM includes, among others, rules regarding: location of LNG plants; risk analysis; main measures against leakage; processing equipment; LNG storage tanks; re-gasification systems; pipelines systems and its components; instruments and electric services; LNG and coolants transfer; fire protection and security measures; operation, maintenance and training of personnel; project approval and technical audits; and vigilance procedure.

Because of the emergency character of the 2002 NOM, its term is six months and may only be issued for an addition-

al consecutive similar term. The 2002 NOM may become definitive provided that all the process for the issuance of a non-emergency Mexican official norm is followed.

Despite huge natural resources, including vast oil resources, Mexico currently faces the challenge to modernize not only its energy infrastructure, but its regulatory framework.

The challenge can no longer be postponed. The energy sector requires a new energy policy consistent with the reality of Mexico, of its needs and of its position in the global economy.

It is clear that the old energy policies, together with other political factors have made Mexico an importer of fuels.

The reorganization of the electricity sector is an issue accepted and recognized by the most important players of the Mexican political arena as demonstrated by the several bills sent to the Mexican congress since 1999 by two presidents and by the four more influential political parties.

No electricity reform will ever be successful if the issue of fuels is not properly addressed.

Further, the energy reform shall become an integral energy reform where not only the electricity, but the natural gas (associated and non-associated), the exploration, and the petrochemical regulatory frameworks will have to be reviewed and amended to set forth the fundamentals of a new Mexican energy sector for the immediate and mid-term.

As for the long-term, a bigger, deeper reform to the energy framework, including the oil industry, will be required, perhaps.

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