10-16-2009

Natural Gas: Regulation, Demand, Projects

Alejandro Breña

Follow this and additional works at: http://digitalrepository.unm.edu/la_energy_dialog

Recommended Citation
Border Energy Forum XVI

USA - MEXICO

Dr. Alejandro Breña
General Director Natural Gas

Houston, TX    October 15 – 16, 2009
Contents

I. Natural gas regulation, overview
II. Expected demand of natural gas
III. Update on LNG projects
IV. Other related projects
V. Final remarks
I. Natural gas regulation, overview
Natural gas regulation

i. Natural gas regulation in Mexico started in 1995 as a result of a structural energy reform
   - It is an incentive-based regulation
   - Regulation is both economical and technical. Regulated activities include distribution, transportation, storage and LNG terminals. Permits are issued for 30 years and can be renewed.
   - First-hand sales of natural gas and LPG are also regulated by CRE
   - Open access and undue discrimination apply

ii. A second energy reform took place in 2008; new activities are now regulated by CRE
   - Storage, distribution and transportation by pipelines of refined oil products and basic petrochemicals
   - Storage, distribution and transportation of biofuels
II. Demand of natural gas
Natural Gas Supply & Demand

- Natural gas demand in Mexico will grow annually at 3.0% between 2008-2017
- Natural gas supply predicted over the same period will grow 1.9% annually. In 2017 gas production will be 7289 MMCFD.
- In 2008, the total natural gas demand for all industrial activities was 7273 MM CFD
- 46% corresponds to oil sector; industry 13.5% (includes Pemex Petrochemical); electric sector 38.5%; residential, transportation and other services 2%.
Demand/supply curves: 2007-2017

Source: SENER 2008 – 2017 Prospectiva del Mercado de Gas Natural
Natural gas imports 2007-2017

- Imports will peak in 2017 at 2.85 BCFD

### Natural Gas Balance 2007-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>BCFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>6.97</td>
</tr>
<tr>
<td>2008</td>
<td>7.27</td>
</tr>
<tr>
<td>2009</td>
<td>8.24</td>
</tr>
<tr>
<td>2010</td>
<td>8.25</td>
</tr>
<tr>
<td>2011</td>
<td>8.22</td>
</tr>
<tr>
<td>2012</td>
<td>8.32</td>
</tr>
<tr>
<td>2013</td>
<td>8.49</td>
</tr>
<tr>
<td>2014</td>
<td>8.66</td>
</tr>
<tr>
<td>2015</td>
<td>8.85</td>
</tr>
<tr>
<td>2016</td>
<td>9.23</td>
</tr>
<tr>
<td>2017</td>
<td>9.37</td>
</tr>
</tbody>
</table>

Source: Based on SENER (2008-2017)
ELECTRICITY OVERVIEW, 2008-2017

• Installed capacity in Jan. 2008 was 59,008 MW
• 3.3% annual demand growth rate from 210 TWh in 2008 to 281.5 TWh in 2017
• 14,794 MW of new capacity required to meet demand (25% of current capacity)
• CFE will install 14,033 MW during the next decade
• Combined cycle power plants will grow from 45% to 60% of the total capacity by 2017

+5.0% average annual natural gas consumption over the next decade (for power)
Natural gas supply from other sources

Early activities in LNG

• Back in 2000 several companies expressed their interest in developing, owning and operating LNG terminals in Mexico

• This was as a result of expected deficit in the supply of natural gas to meet growing national demand

• Due to expected electricity demand to be met through Combined Cycle power plants, CFE – the national electric utility- required a stable and continuous supply of natural gas for several CC plants across Mexico

• As a result, the Altamira LNG terminal in the coast of the Gulf of Mexico was proposed by 2003

• CRE started working on a Mexican standard for LNG terminals back in 2003 based on NFPA-59A and European standard BSEN-1473
Evaluation of LNG Application

Pre-filing meeting and official filing to CRE

Check-list (Art. 32 NGR)

Publication of abstract for comments

Requirement of additional information

Evaluation (Art 35 NGR)

Technical (engineering)
Legal
Economic & financial
GTS and rate structure

Project to Commissioners

Permit is Granted
III. Update on LNG projects
LNG project solutions are varied

i. CRE has developed a predictable and transparent regulation that provides investors and developers the flexibility to structure their projects in a variety of ways:

- Terminal Developers (TD) can implement the acquisition of LNG through different schemes
- TD can sign long-term contracts with utilities and shippers and/or assign all or a fraction of the terminal capacity to a marketing function
- Shippers can arrange for their LNG deliveries or have the terminal/marketer do it.

ii. Evaluation of an LNG project at CRE takes approximately 12 – 18 months
LNG permits & prospective projects

- **Altamira commercial op.: 30/09/2006**
- **ECA commercial op.: 14/05/2008**
- **KMS commercial op.: May 2011**

### Baja California

2. **ECA (Sempra)**
   - 160,000 m³ x 2
   - 1.0 – 1.3 BCFD

### Altamira

1. **Shell**
   - CFE bid
   - 150,000 m³ x 2
   - 0.5 – 1.1 BCFD

### Manzanillo

3. **KMS**
   - CFE bid
   - 150,000 m³ x 2
   - 0.5 – 0.75 BCFD
Manzanillo LNG terminal

- Repsol YPF won CFE bid to supply the LNG
  - Repsol was the only bidder
  - Offer is: $0.91 \times \text{Henry Hub} - \$0.03 \text{ USD/MMBtu}
  - The long-term contract for 15 years was signed on Sept. 28, 2008 for the delivery of LNG to Manzanillo
  - Repsol is scheduled to begin delivery of LNG in 2011 to produce 90 MMCFD of natural gas and increase delivery yearly to 2014 to produce 500 MMCFD

- CRE granted a permit to KMS LNG Terminal on Sept. 2008

- Commercial operation is scheduled in 2011.
SEMPRA´s expansion will consider:

- Construction of one to two additional tanks to increase storage capacity from 320,000 m³ to 640,000 m³. Regasification capacity will increase from 1 BCFD to 2.6 BCFD. ECA is currently holding an Open Season.

- Marine facilities will include two jetties with a capacity to unload each 16,000 m³/hr of LNG.

ECA´s open season has been extended to December 2009.

Phase II construction is pending upon the results of the Open Season.
Puerto Libertad LNG Project

- **Sonora Terminal & Pipeline (STP):**
  - It is a 50/50% venture between El Paso and DKRW
  - The site to be located in the Gulf of Baja California in Puerto Libertad, close to the US border
  - Will not require a breakwater or dredging of the port
  - Will use air vaporizers

- **STP has obtained the environmental impact assessment license. Beach concession has also been obtained.**

- **STP will provide commercial strategy of the project**

- **Filing to CRE for LNG permit is still pending**
IV. Other related projects
New pipelines

- The development of LNG terminals has triggered the construction of pipeline projects to deliver the gas to different markets.
- Additional projects are being considered by Sener and CRE to provide more flexibility and redundancy to PGPB system.
- All these pipelines will be open access and will require a permit from CRE. Careful evaluation of market conditions and open season procedures will ensure that other potential shippers are considered in the projects.
Natural gas supply to new markets

Map showing the proposed route from LNG Terminal (72km, 42”, MAOP 1400 psi) to Termoelectrica de Mexicali with a spur to Termoelectrica La Rosita. The route includes a compression station at Algodones (GB) (30,000 HP).
V. Final remarks
To increase natural gas supply

i. CRE has developed a predictable, transparent regulation adequate for the LNG industry

ii. ECA in Baja California started operation of LNG terminal on May 14, 2008. Expansion project has been approved by CRE; ECA is currently holding an open season.

iii. Manzanillo LNG terminal is currently under construction

iv. Other prospective projects include Puerto Libertad LNG in the Gulf of Baja California

v. Several transportation projects are currently being evaluated by Sener and CRE to provide for additional flexibility in Pemex system