



CURRENT STATUS OF LNG PROJECTS IN MEXICO: A REGULATORY PERSPECTIVE

LNG SAFETY WORKSHOP

DR. ALEJANDRO BREÑA

MONTREAL, CANADA
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2. Results from energy reform (1995 - 2004)

- New natural gas industry with dynamic growth and participation (public and private).
- Regulated services and open access in pipelines
- Significant expansion of infrastructure. Over US\$ 2 Billion of ongoing investment. There are 1.6 million users of natural gas distribution services.

Transmission

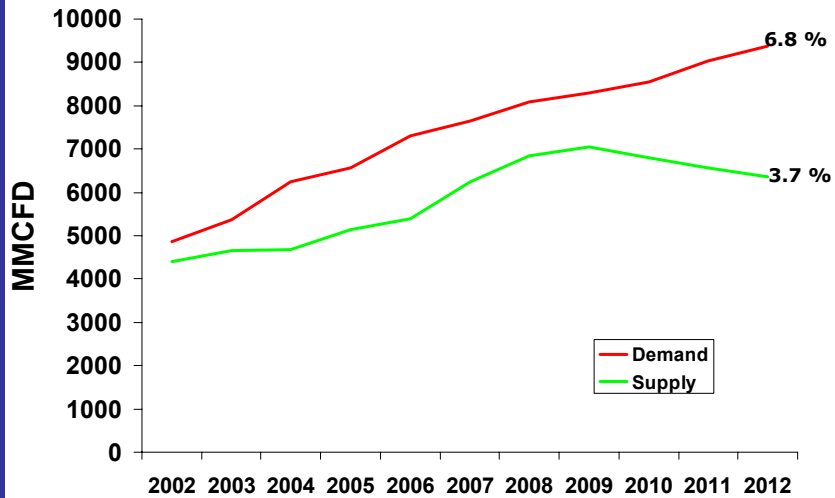
- 119 permits granted
- 16 Open Access pipelines
- Investment of US \$1.6 Billion

LNG Storage

- 4 permits granted
- 500 MM CFD of natural gas proposed on average per terminal
- Investment of US \$2.5 Billion
- Altamira LNG terminal under construction

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3. Natural Gas Estimates 2003-2012

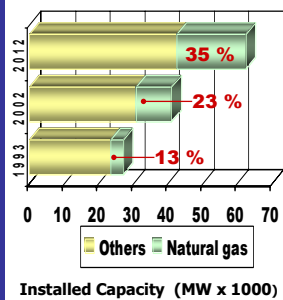


Source: SENER 2003 – 2012 Prospectiva del Mercado de Gas Natural

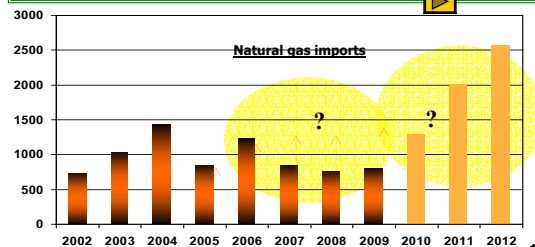
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4. Natural gas growth in Mexico

- ▶ Projected demand for 2012 is 6.8% yr, from 4.8 BCFD in 2002 to 9.4 BCFD in 2012. Domestic supply is only expected to grow 5% yr.
- ▶ Gas imports could exceed 1.2 BCFD between 2004 and 2006 and climb to 2.5 BCFD in 2012, depending on domestic production. Up to 50% of domestic gas could be non-associated gas.
- ▶ Efforts to increase natural gas availability: through cross-border pipelines and LNG regasification terminals.



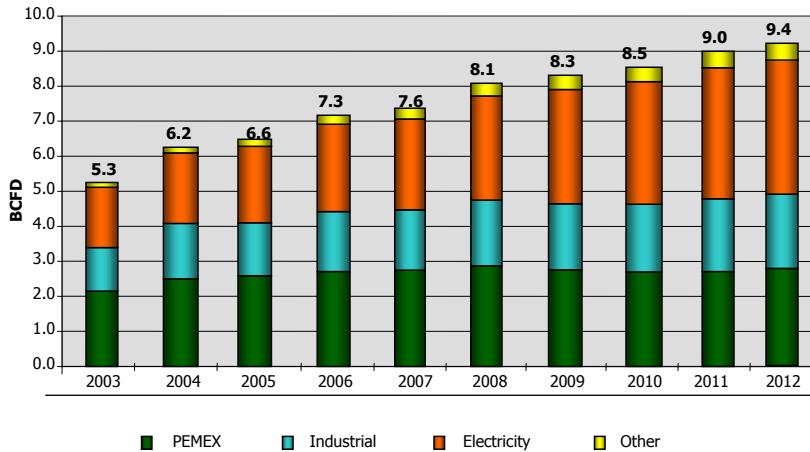
- ▶ Natural gas: premium fuel for industry and power generation
- ▶ Power generation will dominate demand for natural gas
- ▶ LNG regas terminals could supply > 1 BCFD



Source: based on SENER (2003-2012)

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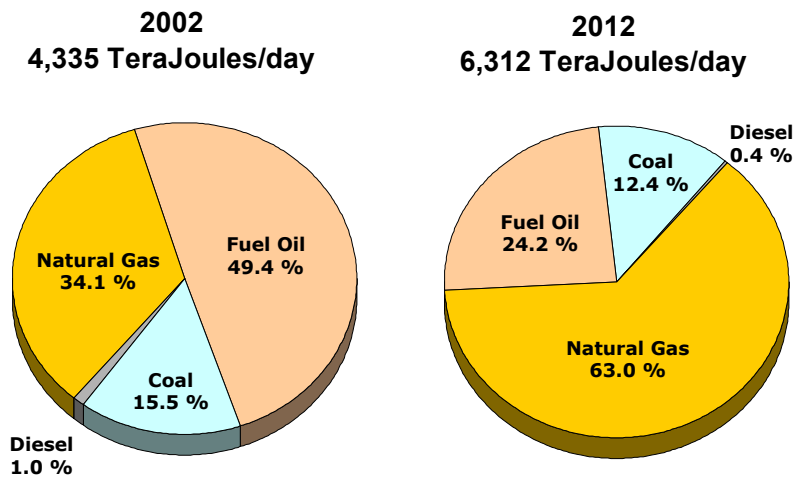
5. Projected Natural Gas Demand by Sector



Source: Based on SENER (2003-2012)

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6. Fossil Fuels Required for Power



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7. LNG permit applications and future projects

- ◆ Five applications submitted, 4 permits granted
- ◆ Commercial operation: 2006 (Altamira)
- ◆ Investment: US\$400 – 700 MM each project

Baja California

1. GNBC (Marathon)
 - 140,000 m³ x 3
 - 0.7 - 1.0 BCFD
2. ECA (Semptra)
 - 160,000 m³ x 2
 - 1.0 - 1.3 BCFD
3. Shell Baja
 - 170,000 m³ x 2
 - 1.0 - 1.3 BCFD

Altamira

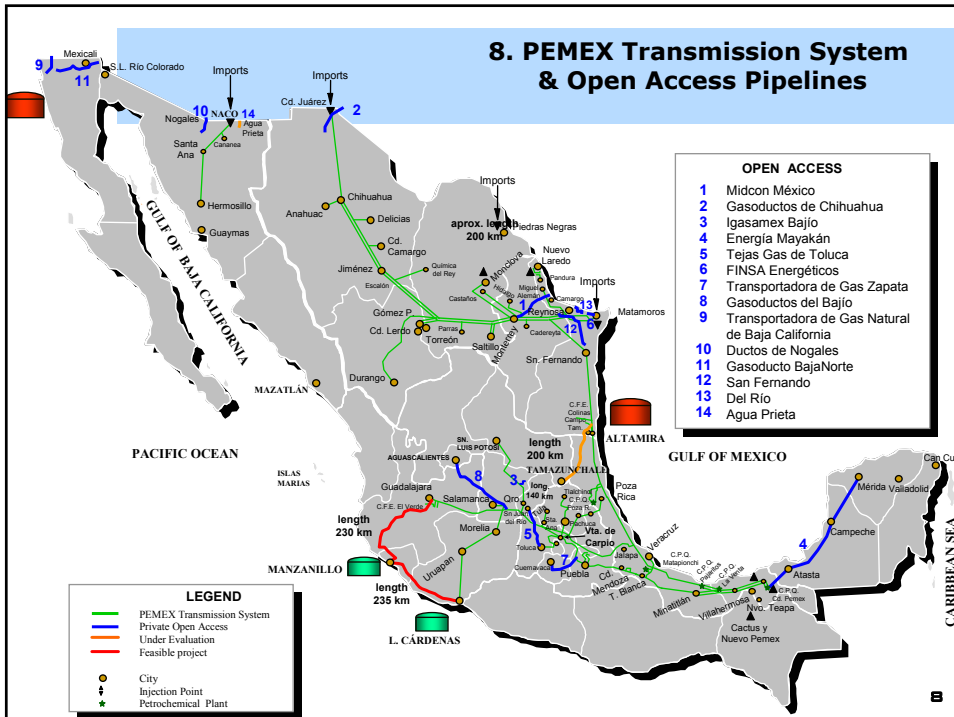
5. Shell
 - CFE bid
 - 150,000 m³ x 3
 - 0.7 - 1.1 BCFD

Manzanillo
0.5 BCFD ?

Lázaro Cárdenas
0.5 BCFD ?

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8. PEMEX Transmission System & Open Access Pipelines



9. Recent Cross-border interconnections

Open Access Permits Granted in 2002

Permittee; diam.	Capacity MMCFD	Length (km)	Cap. Invest (MM USD)
El Paso Gas T.; 20"	173	12.5	6.6
Gasoductos de Tamaulipas; 36"	1000	114	239
Gasoductos del Río; 36"	329	58	39
TOTAL	1502	184.5	284.6

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10. Mexican Standard on LNG

- CRE deemed it necessary to have a Mexican technical standard on LNG regasification terminals
- On Aug 2, 2002 CRE published an Emergency Standard on LNG
- On Feb 3, 2003 the Emergency Standard was renewed for an additional 6 months.
- On Sept. 19, 2003 a draft of the standard NOM-013-SECRE-2003 for onshore LNG regas terminals was published.
- On Sept. 21, 2004 the National Committee on Natural Gas Standards approved the final version of the NOM-013-SECRE-2004

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11. Mexican Standard on LNG

- The LNG standard was published in the Official Gazette on October 18, 2004
- The standard now considers the design of onshore as well as offshore regasification terminals.
- For offshore terminals, it also includes the design of the submarine pipeline that connects the concrete structure (GBS) to onshore pipeline systems
- The onshore section is based on NFPA-59A and European Standard BS EN-1473.
- The section on submarine pipelines incorporates several aspects of Det Norske Veritas DNV—OS-F101, Offshore Standard

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12. Strengths and Weaknesses

- The projects represent a viable alternative to cover the increasing demand of natural gas in Mexico
- LNG imports might have a positive impact on the prices of natural gas, depending on the quantities imported
- The projects will boost the industry and have a positive effect on the economy as new regions of the country are developed
- LNG projects have attracted the attention of environmentalists and the population in general
- Some projects such as offshore LNG terminals incorporate new technologies which have not been fully tested in actual conditions

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