Developing LNG in North America: Impact on Prices of Natural Gas

Sophie Meritet* & Alberto Elizalde Baltierra**

*Assistant Professor, CGEMP, Université Paris Dauphine
sophie.meritet@dauphine.fr

**Petróleos Mexicanos, PEMEX
aelizalde@dco.pemex.com
Introduction

LNG appears as an economical source of natural gas supply for the United States.

Our work is focused on:
The development of LNG in North America and more precisely the impact on natural gas prices and what could be the role of Mexico.

Our presentation is divided in 4 parts
- New gas market fundamentals in the US
- The future of LNG in the US
- Natural gas market fundamentals in Mexico
- The development of LNG facilities and natural gas pricing in Mexico in 3 regions
1.1 – Situation of the US market

![Graph showing US market situation with data from EIA (2004a)]
1.2 The solution of LNG

Domestic natural gas prices and LNG costs
Development of LNG facilities

If authorities want to develop LNG part in the energy mix, they need to find other ways to obtain LNG.

The possibility of obtaining LNG from border countries is also possible as increasing the capacity of existing American facilities.
3.1 A dynamic market

Supply

- A rich country: ~ 190 Tcf of gas resources
  ~ 30 Tcf of proved reserves
- Petróleos Mexicanos (PEMEX): monopoly on domestic gas exploration and production and strong market power in transport and marketing activities

Demand

- Growing domestic consumption:
  Official estimations
    2002: 4863 mmcmd
    2012: 9389 mmcmd
  Average annual growth
    2002-2012: 6.8%
3/ Supply and Demand of Natural Gas in Mexico

3.2 Increasing imports (via pipeline and LNG)

Mexico’s natural gas imports and exports 2002-2012:
Net imports and participation of LNG
4/ LNG facilities and pricing natural gas in Mexico

4.1 Netback mechanism in Mexico’s natural gas pricing methodology

Price at Reynosa = South-Texas Price + Transport in the US

Price at Cd. Pemex = Price at Reynosa +
                  (Transport from Reynosa to Los Ramones) -
                  (Transport from Los Ramones to Cd. Pemex)

= Price at Reynosa - 0.1467 USD/MMBtu

(0) Estimated transport cost in the US
4/ LNG facilities and pricing natural gas in Mexico

4.2 Impact on prices of LNG facilities

**Arbitration point of the system**

- LNG in Altamira will move the current arbitration point to the south: Higher national gas prices
- LNG in Lázaro Cárdenas → a new arbitration point would be created in the National Gas Pipeline System: Lower gas prices in the zone

![Diagram]

- **Imported gas flow from LNG**
  - **Lázaro Cárdenas**
  - **New arbitration point**
  - **Country center**
  - **Domestic gas flow from Cd. Pemex**

A → B → C
4.2 Impact on prices of LNG facilities

Position of Mexico in the International Gas Market

- LNG in Baja California (Ensenada): changing to an exporter position
  - Now -- importer position:
    gas prices Baja California = reference price in California + transport costs
  - Tomorrow (LNG) -- exporter position:
    gas prices Baja California = reference price in California – transport costs
  Lower regional gas prices

- LNG in Altamira and Lázaro Cárdenas: no changes in importer/exporter position
  - No changes in gas prices due to the international position
Conclusion

- With the current fundamentals of the US natural gas market, it seems that the US will need more and more imported gas coming from Canada and others regions (LNG).

- Mexico could play an important role in this deficit by means of exporting LNG regasified in its coasts and transported by pipeline to the other side of the border.

- Additionally to alleviate pressures on supply, LNG injected in the Mexican coasts would have positive results for Mexican consumers in terms of a reduction in gas prices (with the exception of Altamira). For that, it would be necessary to actualize the current pricing methodology.

- Further works: Impacts on California prices of new LNG facilities in Baja California (Mexico),...