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

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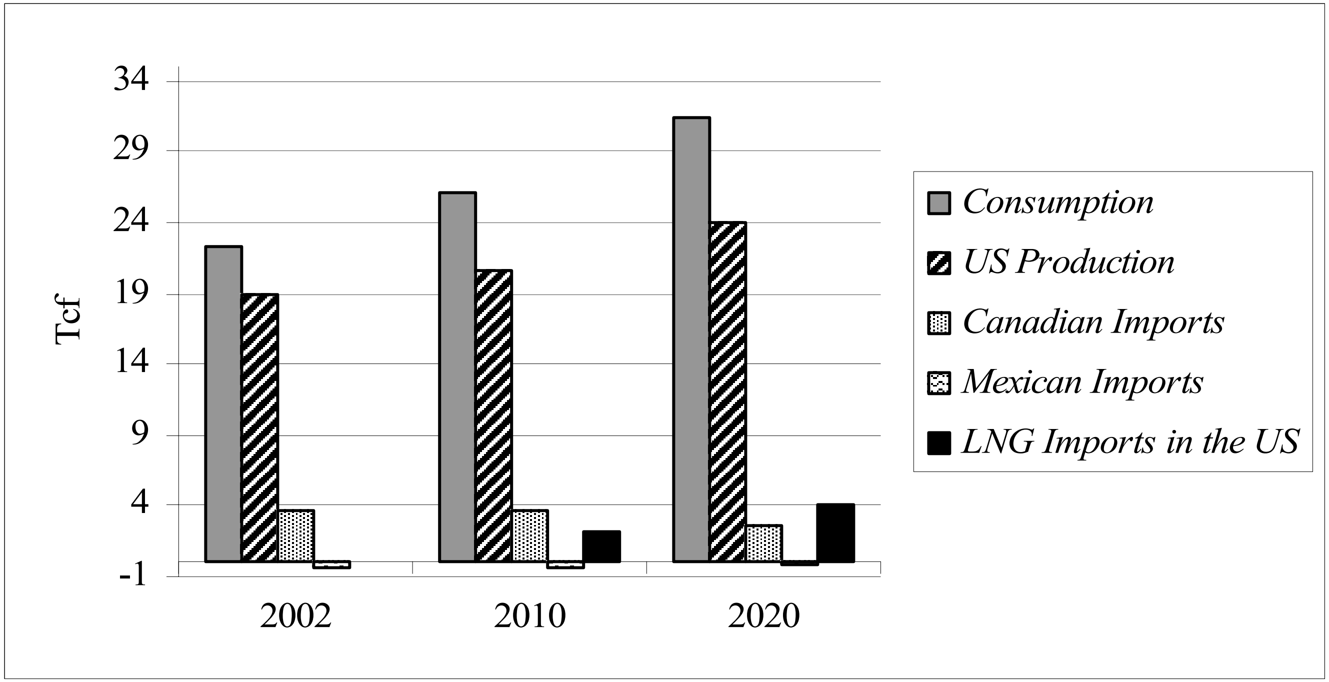
Introduction

- 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.

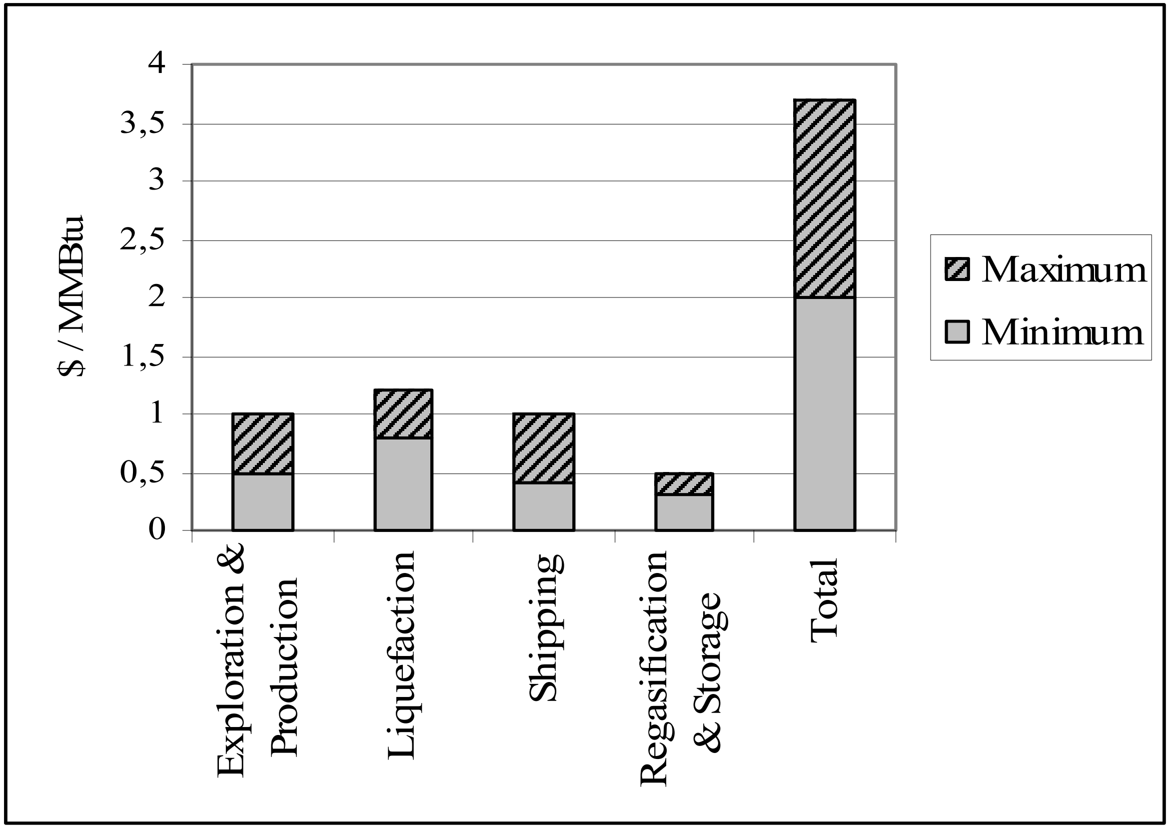
- Our presentation is divided in 4 parts
  - New gas market fundamentals in the US
  - The future of LNG in the US
  - Natural gas market fundamentals in Mexico
  - The development of LNG facilities and natural gas pricing in Mexico in 3 regions

1.1 – Situation of the US market



Source : EIA (2004a)

1.2 The solution of LNG



Source: IELE (2003))

2/ LNG facilities and pricing natutal gas in the US

- 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 borders 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 ativities

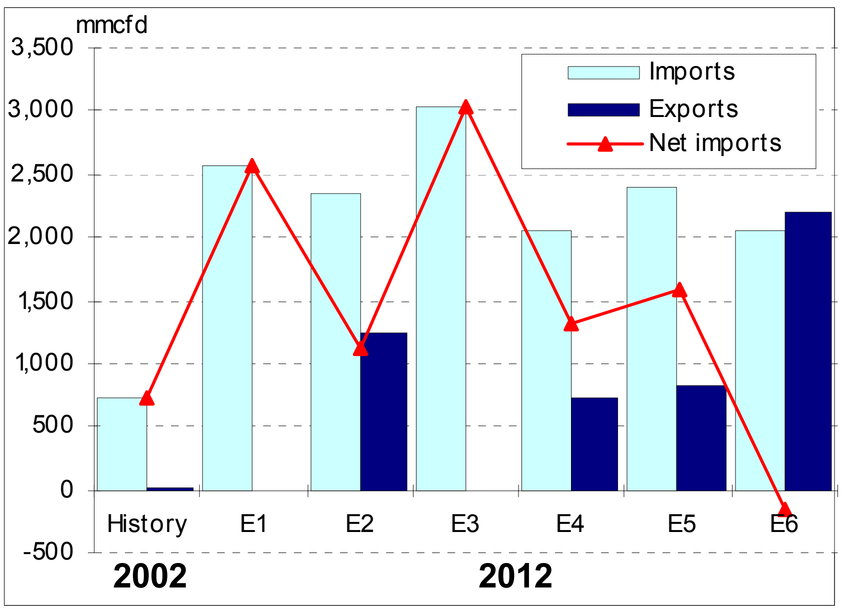
Demand

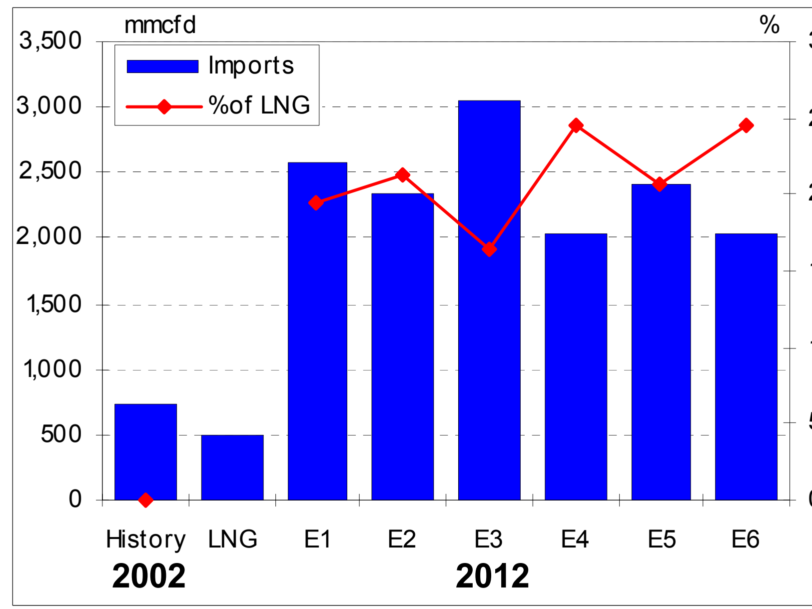
- Growing domestic consumption:

Official estimations	2002: 4863 mmcfd
	2012: 9389 mmcfd
Average annual growth	2002-2012: 6.8%

3.2 Increasing imports (via pipeline and LNG)

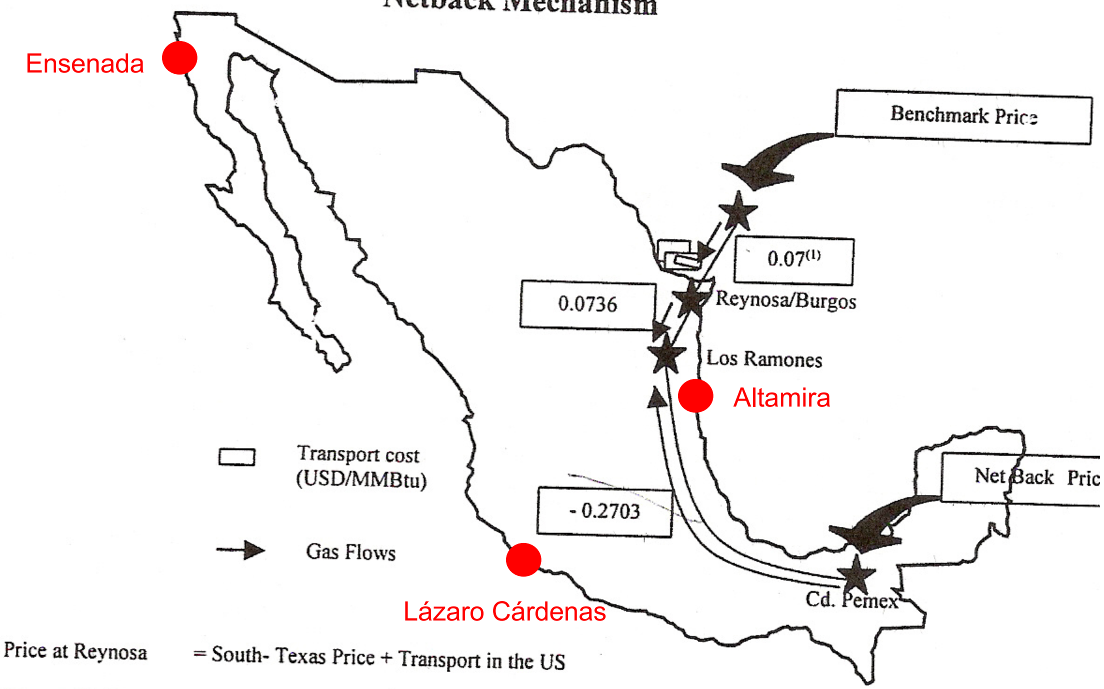
Mexico's natural gas imports and exports 2002-2012:
Net imports and participation of LNG





4.1 Netback mechanism in Mexico's natural gas pricing methodology

Netback Mechanism



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

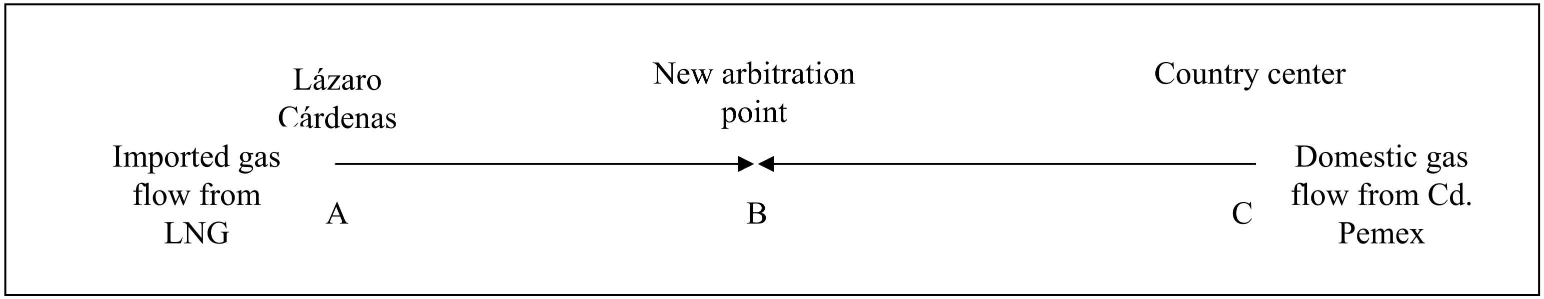
(1) Estimated transport cost in the US

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



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 pos

  → 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.
- Additionnally 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),...