

The Global Energy Challenge: Reviewing the Strategies for Natural Gas

International Gas Union Program Committee C

Study Group C.2 Report

Developing Gas Markets in South America and
Trinidad Tobago
(from a more integrated perspective)

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Objectives of SG2 Report

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Study Group C2 Report - Analyze and identify key market levers and drivers, emerging issues and challenges in **developing the gas markets** in South America and Trinidad Tobago, from a more **integrated** perspective

- Examine possible strategies to enhance security and reliability of gas supply;
- Promote market integration and encourage efficient utilization of natural gas;
- Offer suggestions to promote the **development of gas markets** in the region;
- Identify the potential of **LNG** and **pipelines** in the transportation of gas;
- Identify **issues, challenges and opportunities** in developing gas markets in the region;
- Propose $\mbox{\bf strategic}$ $\mbox{\bf options}$ in developing gas markets and regional gas market integration.

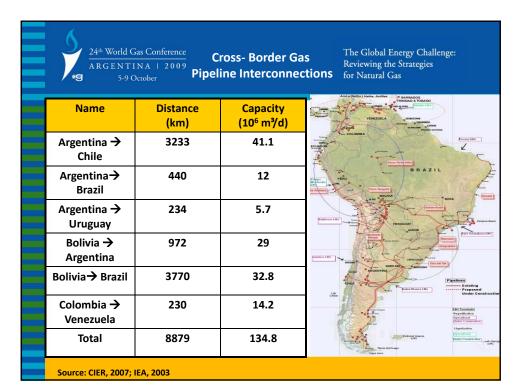


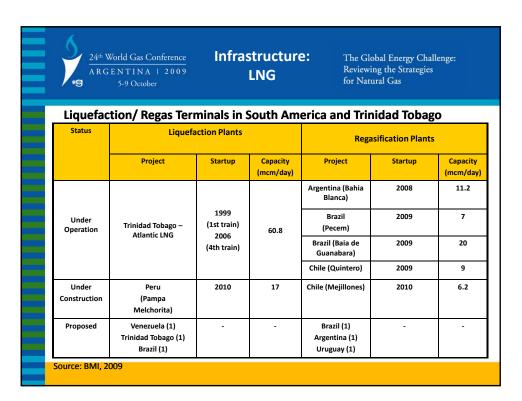
South America and TT NG Data

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Country	Reserves (bcm)	Production (bcm/y)	Consumption (bcm/y)	Share of NG in Primary Energy Demand (%)
Argentina	440	44.8	44.1	53
Brazil	365	11.3	22	9
Bolivia	740	13.5	2.5	36
Peru	355	2.7	2.7	22
Trinidad & Tobago	480	40	17	87
Venezuela	5150	28.4	28.4	48

Source: BP (2008), OLADE (2007)







24th World Gas Conference NG Integration **Projects**

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NG Integration Projects in South America and Trinidad Tobago

- Southern Energetic Ring: Pipeline grid covering Argentina, Uruguay, Chile, Bolivia and Brazil.
- Andean Energetic Ring: Pipeline grid connecting Bolivia to Peru, Ecuador and Colombia.
- Caribbean Ring: Pipeline grid connecting Venezuela to Colombia, Central America and Caribbean countries.

Source: Petroleum Economist (2007), adapted





Objectives of Integration

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- Obtain economies of scale, optimizing costs along the chain and reducing price volatility;
- Increase the degree of energy security provided by the diversification of supply sources;
- Constitute larger markets, supplying more consumers and offering more attractive opportunities to investors.



Integration Challenges

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NG Markets in South America and Trinidad Tobago: Challenges

- Insufficient coordination among multiple institutions created to promote integration in the region (CEPAL, CIER, MERCOSUR, OLADE)
- Unstable macroeconomic and social conditions (Eg: High levels of indebtedness; income inequalities)
- Regulatory Frameworks: Different schemes
- Restrictions in infrastructure:

(Eg: investments in pipelines are discouraged by large distances and environmental constraints).



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NG Markets in South America and Trinidad Tobago **Possible Improvements:**

- Promote upstream exploration for new gas resources in offshore environments, especially in deep water and new frontiers.
- New **LNG terminals** and pipelines to be considered favourably.
- Facilitate gas supply/gas market integration through enhancing regional cooperation.
- Stimulate development of relations and cooperation between Government-to-Government and Business-to-Business through NOCs and IOCs in the region.



SWOT Analysis

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STRENGTHS

- Large gas reserves located in countries such as Venezuela, Bolivia and Peru.
- Potential of more gas discoveries in the region following the success of Petrobras in deepwater area such as in offshore Uruguay, Argentina etc.
- Growing gas demand in mature markets such as Argentina and fast growing demand in Brazil, Peru and Venezuela.
- Developed natural gas markets and infrastructure in Argentina, large potential in Brazil, Chile, Peru and Colombia.
- Relatively low investment required for gas power.
- High agricultural potential in many countries that would require gas for urea/ammonia.

WEAKNESSES

- Long distance between gas fields located in major supply sources such as in Venezuela and Bolivia to gas markets in Brazil and Argentina.
- Energy/gas policies that do not encourage/ stimulate new investments.
- Unrealistic gas prices/subsidies that would distort the constitution of gas markets in the region.
- Bureaucratic administrative laws.
- Insufficient G-to-G co-operation for the development of cross-border gas pipeline interconnections.



SWOT Analysis

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OPPORTUNITIES

- Creation of gas hubs in the Region.
- Development of methanol, fertilizer and other chemical conversion plants.
- New liquefaction and re-gasification plants to balance gas supply and demand in the Region.
- Development of integrated gas markets.

THREATS

- Volatilities in the international gas prices (e.g. Henry Hub).
- Global financial crisis and economic slowdown.



Strategic Options

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A) Stimulate development of relations of **cooperation** between **Government-to-Government** and **Business-to-Business** among NOCs and IOCs in the region;

B) Investments:

- $\underline{\text{Upstream}}\text{:}$ Promote offshore exploration, especially in deep water and new frontier areas
- New pipelines: compare alternatives pipeline/electric transmission lines
- LNG: regas/liquefaction terminals
- Building storage facilities: Reduce price volatility
- <u>Increase financing sources</u>, mainly from National/Regional Development Banks (eg: Inter American Development Bank, Banco del Sur, Corporacíon Andina de Fomento)



Strategic Options

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- C) Strenghtening and adequate coordination of **institutions*** dedicated to foster regional development and integration;
- Organization of the planning and regulation activities of the sector;
- Provision of information and technological support for projects;
- Facilitate the <u>harmonization of rules</u> and the negotiation of <u>contracts</u> and projects;
- Adequate **price** and **tax** policies.
 - * Integration Institutions:

Mercosur - *South America Energy Council* (2007) South America – *Unasur* (2008)



Conclusions

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- Energy integration in South America is a complex project, which must involve
 an adequate coordination among governments, companies and other
 agents, with a proper, transparent balance of risks and benefits for all
 parties involved.
- Economic and regulatory aspects may offer restrictions to the integration of gas markets in the region.
- The introduction of LNG is an opportunity to generate income to NG export countries and assure security of supply to NG import countries. However, it requires balanced NG price policies.
- The integration and cooperation among countries in the region requires the development of a common understanding among countries, leading to the foundation of an intergovernmental, broad cooperation programme.



Strategic Options

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Harmonization of Rules:

- Regulatory frameworks;
- Energy products specifications;
- · Technical standarts of equipments and energy facilities

Objective: Reduction of uncertainty over investments

Contractual Alternatives:

- Firm: Contracts during complete periods
- Preferential: Consumers contract gas only in periods they demand fuel
- Interruptible: If suppliers don't have gas in the moment, they offer compensation for altenative fuel used.

