LNG in Latin America

David Evans
Americas Energy & Projects Group Head
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LNG in Latin America - Overview

Reflects Global LNG Development Patterns

- Gas rich nations looking to export (Peru; Bolivia; Venezuela)

- Energy consumers seeking to import and maximize domestic gas supplies (Peru; Chile; Brazil; Argentina)

- Growing energy consumers looking to gas as oil hedge (Paraguay; Uruguay; Ecuador)
Intra-continental Gas Market

- Significant pipeline infrastructure links Argentina, Bolivia, Chile, Brazil, Ecuador and Paraguay

- Gas rich Argentina (3rd largest holdings) and Brazil (4th largest holdings) concentrating on domestic use LNG projects

- Argentine energy crisis forcing dependents of Argentine gas (Chile) to find new supplies
LNG in Latin America – Overview (cont.)

Inter-continental Markets: Mexico/USA/Canada

- Combined Mexico, USA and Canada expected to import as much as 13.1 Bcf per day by 2025
- Five constructed regasification plants in USA (currently Everett, MA; Cove Point, MD; Elba Island, GA; Lake Charles, LA; Gulf Gateway Energy Bridge (Gulf of Mexico)) supplied by Trinidad and Tobago and Africa/Middle East
- Ten approved regasification plants in USA/Mexico and additional two dozen proposed in USA, Mexico and Canada
- Pacific Coast plants (in Mexico to supply USA and Mexico) concluding long-term agreements for LNG imports from Australia, Russia and Indonesia (e.g., Australian Gorgan LNG project to supply Shell’s interest in Energia Costa Azul)
- Atlantic Coast plants receiving supplies from Trinidad and Tobago, Middle East and Africa
LNG in Latin America – Overview (cont.)

Inter-continental Markets: Mexico/USA/Canada

- Despite other supply sources, USA and Mexico expect LNG imports from Latin America, especially on Pacific Coast

- Latin American LNG should profit from lower shipping cost vis-à-vis Australia and Asia
Global LNG Sources and Markets
Latin American LNG Markets: Chile

- Natural gas has become a significant energy source (23% of all energy consumed in 2002); demand expected to rise to 14 mcf per day by 2013.
- Dependent on imports from Argentina which have become unstable due to Argentine domestic energy crisis.
- Goal to reduce dependency on Argentina:
  - ENAP (state oil energy group) planning a $400 million regasification plant in Quinteros.
  - Colbún (electricity generator) considering leasing a floating regasification terminal.
- Several new gas fired power plants planned without assured fuel supply.
Latin American LNG Markets: Brazil

Northeast LNG Project

- Concentrating gas reserves (fourth largest) in Latin America for domestic use; LNG being used to service areas not connected to pipeline infrastructure; construction of liquefaction plant in Northeast along Nordestao pipeline

Paulinia Project

- Petrobras and White Martins to build $38 million liquefaction unit to supply (by truck) natural gas to São Paulo state; studying potential for second plant
Latin American LNG Markets: Argentina

- Previously both major consumer and exporter of natural gas (third largest reserves)

- 2004 domestic energy crisis lead to Argentina backing down some supply arrangements (in particular with Chile)

- Currently discussing options to import gas from Bolivia and possibly Peru
Caribbean LNG Exporters: Trinidad and Tobago

Primary source of LNG to the USA (462.1 Bcf in 2004)

Atlantic LNG Train IV

- Construction of fourth liquefaction unit (train)
- Sponsors: British Petroleum, British Gas, Repsol YPF, Tractebel and the National Gas Company of Trinidad and Tobago (NGC)
- Expect cost: $1.2 billion, to be equity financed
- Expect to produce 5.2 million metric tonnes of LNG annually
- Status: construction restarted after workers strike, expected to start production by end of 2005
Caribbean LNG Exporters: Trinidad and Tobago (cont.)

Atlantic LNG Train V

- Atlantic LNG starting pre-feasibility studies; British Gas has announced new gas finds will support fifth train

- Government may require that the project be separate from current consortium (and possibly include Venezuela’s PDVSA)
Caribbean LNG Exporters: Bahamas

AES Ocean Express Project

- Development of regasification plant in the Bahamas for piping of gas to Florida
- Received FERC approval for pipeline; Bahamian environmentalists opposed to siting; final Bahamian governmental approval expected
- $650 million facility planned with 842 million cubic feet per day send through capacity

Seafarer-Calypso Project

- Joint Tractebel, El Paso, FPL project
- Proposed sites for regasification plant recently rejected by Bahamian government
Latin American LNG Exporters: Venezuela

CIGMA Project

- Construction of Gran Mariscal de Ayacucho complex
- Original sponsors: Petroleos de Venezuela S.A. (60%), Shell (30%), Mitsubishi (8%) and other Venezuelan interest (2%)
- Intended to service Deltana and Mariscal Sucre gas fields
- Delayed by Venezuelan government’s plans to split project and invite additional sponsors
- Expected cost: $2.7-3.0 billion
- Expected production: 4.7 to 5.0 million metric tonnes of LNG annually

Venezuela has the largest gas reserves in Latin America
Latin American LNG Exporters: Bolivia

Pacific LNG Project

- Requires construction of extraction and transportation pipelines and liquefaction terminal
- Original sponsors: Repsol YPF, British Petroleum and Pan-American Energy
- Expected cost: $4.0-4.8 billion
- Supply source: Margarita field (Bolivia)
- Expected to produce 6.6 million metric tonnes of LNG annually
- On hold (permanently?) due to inability to secure export terminal; possible use of Peruvian port

Bolivia has the second largest gas reserves in Latin America
Latin American LNG Exporters: Peru

Peru LNG

- Construction of liquefaction plant at Pampa Melchorita
- Sponsors: Hunt Oil and SK Corporation
- Expected cost: $1.1 billion
- Supply sources: Camisea gas fields (Pluspetrol, Hunt Oil, SK Corporation, Tecpetrol and Sonatrach)
- Expected to produce 4.4 million metric tonnes of LNG annually
- Planned Timetable: construction planned for 2005
Latin American LNG Exporters: Peru (cont.)

- Offtake agreements (and related regasification facilities) have not been formally announced

- Peru has the fifth largest Latin American gas reserves
Conclusions

- Latin America has the gas sources and geographic proximity to be a significant LNG supplier to North American markets.

- To capitalize on its potential, Latin America’s actual LNG liquefaction and export infrastructure requires significant development.

- Peru is well positioned to take the lead in the development of LNG exports from Latin America to North America.
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