Chile, a successful niche market for LNG

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Chile – South America

- Population: 16.6 million
- 5.1% per year GDP growth over last 20 years
- GDP: US$ 249 billion (US$15,400 per capita)
- Energy consumption growth: 6.4% per year
- 80% of energy demand is fossil fuel
- No relevant hydrocarbon reserves
- Relies heavily on imports
- 5 natural gas pipelines built from Argentina in 1990’s
- US$5 billion invested in infrastructure
  - Natural gas pipelines
  - Distribution networks
  - Fuel conversion of customers
  - Combined cycle generators
Natural Gas imports by pipeline – Chile

- Northern Chile
- Central Chile
- Southern Chile
- Total
- Import capacity

(MMm3/d)

LNG Regasification Terminal Projects

- Developed as a result of uncertainty in supply of pipeline natural gas
- Need for a secure, geopolitically viable, sustainable energy supply for Chile
- Security, flexibility, competitive pricing, quick implementation
- Contracted terms go directly to consumers (without buffers)
- Fast Track solution implemented
- Designed for multiple LNG suppliers and natural gas buyers
- World class safety, environmental, social and quality standards
- Structured for long term project financing
- Challenges
  - First land-based re-gasification terminal in the Southern Hemisphere
  - Tight LNG and EPC markets
  - Site limitations: seismic conditions, congested bay, marine conditions
• Located in Quintero, central Chile
• Shareholders: BG Group, Enagas, Enap, Endesa, Metrogas
• In service since 2009 (delivered safely within schedule and budget)
• Investment: US$1,050 million (project financed)
• Operating at full capacity:
  • 10 MM m3/d of natural gas (under expansion to 15 MMm3/d)
  • 1,250 m3/d of LNG by truck (under expansion to 2,500 m3/d)
• Storage capacity: (2 x 160,000 m3 tanks, 1 x 14,000 m3 tank)
• 122 LNG ships from Trinidad, Equatorial Guinea, Qatar, Algeria, Mexico, US
• 8,500 LNG trucks loaded
• Supplies 100% of natural gas in central Chile including residential, commercial, industrial, and 21% of the electricity generation market in 2012
GNL Mejillones

- Located in Mejillones in northern Chile
- Shareholders: GDF Suez (63%), Codelco (37%)
- In service since 2010 (delivered safely within schedule and budget)
- Initial investment: US$550 million
- Initial capacity: up to 5.5 MMm3/d
- Storage capacity: FSU (1 x 175,000 m3 tank in construction, US$200 MM)
- LNG ships unloaded: 32 ships from Yemen, Egypt, Trinidad, Norway, France
- Supplies 100% of natural gas in northern Chile including 14% of the electricity generation market in 2012 (mainly for serving the mining industry)
Natural gas market – central Chile

Natural Gas deliveries to central Chile

(MMm3/d)

by pipeline  by GNLQ  Total

• LNG successfully introduced in Chile´s energy matrix
• Established as reliable, safe, clean, competitive fuel
• Rapidly recovered NG markets and customer confidence
• Growing demand for gas from GNL Quintero
  • 536,000 residential and commercial customers
  • 330 industrial customers
  • 24% of power generation in central Chile in 2013
• Operating at full capacity, undergoing expansion to serve growth markets
The electricity generation markets

Central electric grid SIC
• Installed capacity: 12,665 MW
• 92% population, 85% GDP of Chile
• Diversified production and customer base

Northern electric grid SING
• Installed capacity: 4,053 MW
• 6% population, 14% GDP of Chile
• Thermoelectric production to serve large mining projects

Electricity market-general
• 3 dry years (increased thermal power)
• Community opposition and legal challenges of power projects
• Delays in generation, transmission projects
• High marginal prices
Looking forward

• Chile requires energy to support its high economic growth
• Consumers want more reliable, cleaner, cheaper energy
• Communities want cleaner projects
• Non-electricity market for natural gas is expanding rapidly
  • Growth of existing markets
  • New markets served by LNG Trucks
  • Transportation market
• Electricity generation market represents new opportunities
  • 8,000 MW of new power are needed in next 10 years
  • LNG-based generation projects being developed
• Speed and depth of LNG growth in electric sector will depend on the mix of:
  • Availability/security of supply
  • Relative pricing of LNG in relation to other fuels
  • Relative community acceptance of LNG over coal
  • Customers demand for lower carbon footprint
  • Relative flexibility of LNG in relation to other fuels
• Existing Regas Terminals are undergoing expansions
• New Regas projects being proposed in different locations
• LNG has been a success story in Chile and is here to stay