Sempra LNG

Energía Costa Azul Terminal
Capacity: 1.00 – 2.50 Bcfd
Commercial Operations: 2008
- UNDER CONSTRUCTION -

Cameron LNG Terminal
Capacity: 1.50 – 2.65 Bcfd
Commercial Operations: 2008
- UNDER CONSTRUCTION -

Port Arthur LNG Terminal
Capacity: 1.50 – 3.00 Bcfd
Commercial Operations: 2010
- PERMITTED -
Sempra Energy in Mexico

- A leading edge natural gas distribution and transportation company in Mexico
- More than 15 years experience in Baja California and other states in Mexico
- Nearly 400 Mexican employees, more than 125,000 customers, and an investment exceeding US$650 million
- Built and operates Termoeléctrica de Mexicali, the cleanest, most efficient natural gas-fired power plant in the country
- Energía Costa Azul’s LNG terminal will provide Baja California with much needed imported natural gas supplies at competitive prices
- When this LNG project & interconnecting pipelines are complete, Sempra’s investment in Mexico will be more than US$1.6 billion
Baja California – Energy Island

PIPELINES IN MEXICO - ISOLATED SYSTEMS IN BAJA CALIFORNIA & SONORA
**EVOLUTION OF SUPPLY BY SOURCE**

**1994**
100% = 137,538 GWh

- **Fuel Oil**: 56.3%
- **Natural Gas**: 6.6%
- **Coal**: 15.1%
- **Hydro**: 14.6%
- **Wind**: 0.0%
- **Diesel**: 0.2%
- **Nuclear**: 3.1%
- **Geothermal**: 4.1%

**2004**
100% = 208,634 GWh*

- **Fuel Oil**: 29.4%
- **Natural Gas**: 39.2%
- **Coal**: 11.2%
- **Hydro**: 12.0%
- **Wind**: 0.0%
- **Geothermal**: 3.2%
- **Nuclear**: 4.4%
- **Diesel**: 0.6%

* Doesn't include self cogeneration

Source: CFE
ESTIMATED NATURAL GAS DEMAND GROWTH IN MEXICO

Millions of cubic feet per day

- Residential, commercial & transportation: 15.9%*
- Industrial: 5.3%*
- Electricity: 10.8%*
- Oil: 3.0%*

* Average rate of annual growth 2002-2012

SOURCE: Francisco Barnés, Counting on LNG – Mexico’s Perspective LNG 2004. Institute of the Americas
West Coast Market
Annual Consumption
10 Bcf/d
Project Overview

- LNG project located 14 miles north of Ensenada; 55 miles south of S.D.
- Represents a capital investment of approx. US$1 billion in Baja California (including pipelines)
- First West Coast LNG receipt facility
- Fully permitted
- Capacity fully contracted
- Construction underway
- Commercial operations early 2008
- Capacity of 1.0 Bcf/d
LNG Terminal
Regasification

- LNG STORAGE TANKS
- DESUPERHEATER
- BOIL-OFF COMPRESSOR
- CONDENSER DRUM
- VAPORIZERS
- PIPELINE COMPRESSOR
- COMPRESSOR
- PIPELINE
Pipelines

Simbología
- Gasoducto TGN
- Gasoducto Bajanorte
- North Baja Pipeline
- Ampliación Bajanorte (propuesto para LNG)
- Interconexión
- Terminal LNG (propuesta o en construcción)
- Plantas Eléctricas
  - Existentes
  - En Construcción
  - Propuestas
Status of Permits

- Environmental Permit (SEMARNAT) – ISSUED
- Storage and Re-gasification (CRE) – ISSUED
- Land Use Permit (Municipality of Ensenada) – ISSUED
- Port Concession (SCT) Permit – ISSUED
- Environmental Permit (SEMARNAT) for Spur Pipeline – ISSUED
- Seashore Permit (ZOFEMAT) – ISSUED
- City of Ensenada Permit (Terminal Construction) – ISSUED
On-site Nursery

Over 5,000 Ferrocactus relocated & protected
Relocation of Marine Life

Relocated over 670,000 sea urchins, sea cucumbers & sea snails
Preserving Cultural Artifacts

Working in Partnership with INAH
Migration of the Gray Whale
Terminal Construction
Terminal Contractor
Physical Model

HR Wallingford (Wallingford, UK)
Health & Safety

Health Screening

Safety Recognition
Storage Tanks
160,000 m³ capacity full containment LNG Tanks

Inner Tank Diameter = 75,000 mm
Inner Tank Height = 39,700 mm
Outer Tank Diameter = 78,300 mm
Overall Tank Height = 55,315 mm
Roof Raising
Terminal Jetty
Ensenada Construction Site
Breakwater Contractor
Breakwater Caisson

14 x 152 feet long
Total length = 2,100 feet
60,000 tons per caisson

Large rock
Rests on a prepared seabed
Geotechnical

Offshore Geotechnical Survey

Core Samples
Modeling

2D Model - 1: 1,000-year wave  
(Inverted “T” design)

HRW 3D Model - 100-year wave
Caisson Arrangement
Caissons
Off Shore Work

Filter layer placement

Anchor block placement
Caisson Placement

Example Of Caisson Under Tow
# Pipeline Construction Schedule

<table>
<thead>
<tr>
<th>Project</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spur Line 45 miles, 42”</td>
<td>08/15/07</td>
</tr>
<tr>
<td>TGN II 10 Miles, 24”</td>
<td>12/14/07</td>
</tr>
<tr>
<td>Algodones Compressor Station 35,000 HP</td>
<td>03/04/08</td>
</tr>
</tbody>
</table>

![Pipeline Map](image)
Local Economy

LOCAL EMPLOYMENT

- Partnering with ProduCen, a local economic development agency to provide businesses with job opportunities at Energía Costa Azul

- As of June 2006, more than US$110 million has been awarded to Baja California suppliers. In addition, nearly US$76 million was paid to other suppliers of goods and services in Mexico

- New Jobs:
  - 1,900 in Construction (1,714 from Mexico)
  - 75-80 Managers & Operators
Local Economy (Cont’d)

BUSINESSES

- Working with local businesses, associations, chambers and EDCs to help businesses thrive and strengthen the economy

LOCAL ECONOMY

- Estimated local purchase of goods and services by the end of construction:
  - Up to $330 million in Baja California*
  - Of which, up to $226 million in Ensenada*

* Colegio de la Frontera Norte
Social Involvement

SPONSORSHIPS

- Working with associations to support initiatives that promote economic development

COMMUNITY INVOLVEMENT

- Investing in partnerships with non-profits in the areas of education, health, safety and environment
- Established a special fund in Ensenada to support important local community initiatives
Energía Costa Azul