Energy Challenges and Opportunities in Africa, Latin America, and the Caribbean: Improving Energy Access and Security

April 3rd 2008, Cancun, Mexico
- Project overview
- Project assets
- Geopolitical & Geostrategic aspects
IDEA DATES BACK TO THE 70’s

STUDIES:

- SHELL (1980)
- BECHTEL (1981)
- NACAP (1982)
Scope of the Study

- Gas Market
- Gas Supply
- Pipeline Infrastructure / Environmental
- Economic and Financial Modeling
- Risk Analysis and Regional Benefit Study
- Policy Issues and Institutional Framework
TECHNICAL and ECONOMICAL ASPECTS

- Length of the pipeline - over **4,000 km**
- Daily Gas Requirement – **2 BCF/Day**
- Reserves for Initial 20 yrs - **15 Tcf**
- Countries traversed:
  - Nigeria,
  - Niger
  - Algeria
- First Gas - **2015/16**
- Target market - **Europe**
FEASIBILITY STUDY RESULTS

- Supply gap 20 Bcm/y in 2015, 30 Bcm/y in 2030

- Strong competition to supply gas to EU

- EU supply location either from Spain or Italy as trans European gas transmission network grows

- TSGP 48”/56” pipeline: 20/30 Bcm/y

- 10 Compression Stations

- 10 billions $
Project Development Phases

- **Design:**
  - Preliminary Study, MOU, PSA, Budget, organization

- **Feasibility Study:**
  - Bid invitations, Consultant Selection, Contract

- **Pre-FID:**
  - MOU, JV, Agreements, FEED, EIA, …

- **Construction:**
  - Engineering, Procurement, Construction

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>2005</td>
<td>2007</td>
<td>2011</td>
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</tbody>
</table>

- **Design:** 3 Years
- **Feasibility Study:** 2 Years
- **Pre-FID:** 4 Years
- **Construction:** 4/5 Years
- **First Gas:** 2015/16
Political Support
Nigeria has the 7th largest gas reserves in the world. The gas quality is high – particularly rich in liquids and low in sulphur. To date, Nigeria has never explored for gas. Scope for huge growth in reserves exist.
The Nigerian gas sector has evolved significantly posing new opportunities and challenges alike. From next to no demand pre-1999, gas demand, including the TSGP demand is now forecasted to grow at an unprecedented rate.
3 - Algerian Gas network

Favorable Regulatory Framework

Flexible

Reliable

Developing

Close to the Main Markets

Competitive
Favourable Regulatory Framework

A favorable Regulatory Framework for cross-border projects

**The new Hydrocarbons Law (April 2005)**

- Pipeline Transport is a regulated Activity,
- Third Parties free access to the network is guaranteed,
- Specific system for transit pipelines in Algeria
Characteristics

- Total Length: 7,500 Km
- Number of pipelines: 12
- Number of Compression Stations: 30
- Capacity: 130 Gm³/an; 41.5 Gm³/year for export

- Pedro Duran Farell Pipeline: (11.5 Gm³/an)
- Enrico Mattei Pipeline: (30 Gm³/an)
ALGERIAN GAS NETWORK

Flexible

Different export routes
From Hassi R’mel

1 - Enrico Mattei Pipeline (GEM)
   Transport Capacity : 30 Gm³
   Length : 1393 Km

2 - Pedro Duran Farell Pipeline (GPDF)
   Transport Capacity : 11.6 Gm³
   Length : 521 Km

3 - Medgaz
   Transport Capacity : 8 Gm³
   Length : 830 Km

4 - Galsi
   Transport Capacity : 8 Gm³
   Length : 850 Km
Sonatrach and new corridors to Europe

 ✓ An expertise and a partnership in cross-border projects development

Onshore section:
- Algeria: ~ 550 km; Sonatrach
- Spain: ~ 280 km;

Offshore section:
• Length: ~ 200 km
• Depth max: ~ 2,100 m
• Pressure: 200 bars

Capacity: 8 BCM
First gas: July 2009
Sonatrach and new corridors to Europe

✓ An expertise and a partnership in cross-border projects development

**EL Kala – Cagliari (Offshore)**
- Length: 280 Km
- Diameter: 24"
- Max depth: 2840 m
- Transport capacity: 8 Gm³
- First gas: 2012

**Cagliari – Olbia (Onshore)**
- Length: 300 Km
- Diameter: 42"

**Olbia – Tuscan (Offshore)**
- Length: 270 Km
- Diameter: 22"
- Max depth: 900 m

**GALSI**
Algerian Gas network

**Competitive**

<table>
<thead>
<tr>
<th>Transport cost</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran via Turkey</td>
<td>218</td>
</tr>
<tr>
<td>Azerbaïdjan via Turkey</td>
<td>205</td>
</tr>
<tr>
<td>Irak via Turkey</td>
<td>197</td>
</tr>
<tr>
<td>Libya via Sicily</td>
<td>165</td>
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<tr>
<td>GEM</td>
<td>163</td>
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<td>GALSI</td>
<td>132</td>
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<tr>
<td>GPDF</td>
<td>130</td>
</tr>
<tr>
<td>MEDGAZ</td>
<td>100</td>
</tr>
</tbody>
</table>

**Algerian gas pipelines to Europe**

- Total cost to EUROPE gas pipelines
- Index, 100=MEDGAZ

Source: OME
High European gas demand

European production decline,

High growth of Iberian and Italian markets,

Power generation will be the driving force of this growth.
GEOPOLITICAL AND GEOSTRATEGIC ASPECTS

For Nigeria:
- Stop the gas flaring and its environmental impact
- Flared gas monetization
- Export diversification

For Africa:
- The gas pipeline will have an important and favorable effects for the crossed regions, especially:
  - Gas supply:
    - The Centre and the North of Nigeria;
    - The South of Algeria;
    - The Sahel countries (Niger, Burkina Faso and Mali).
GEOPOLITICAL AND GEOSTRATEGIC ASPECTS

For Africa:

- The industry development, in particular the power production;
- A close cooperation and a significant income for the transit countries;
- Gradual economical rise ensuring the stability of all the sub-region and fixing, therefore, a population inclined to migration;
- Favorable elements for the political stability of the concerned countries.
For Europe:

- To remedy, in due time, the European Union gas shortfall (18-25bcm),
- A significant industrial and economical stake of more than €7 billion,
- A determining element for the sub-Saharan region progress, a pledge for stability,
- Reducing migration towards Europe.
CONCLUSION

- Intercontinental strategic project
- Sustainable development
- Model for cooperation:
  - South-south
  - North-south
- Algeria Contribution
Thank you