LNG in the Atlantic Basin
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Commercial Advice across the Gas Chain...

YPF Maxus Market Review SK301 gas

ALNG Train IV, Independent Market Advisors

Market review for Investors, Lenders Guangdong-Dapeng LNG

World Bank Review of Latvian regulatory framework and the Gas Comparative Fuel Economics

ABN-Amro UK Storage Review
Gas Strategies Around the Globe

Atlantic LNG
Contracts & Price Review

Egypt LNG
Lenders, contracts and pricing due diligence

Gas Exporters Counsel Forum
Development of a gas and LNG contracts database for use by member countries (sponsored by Iran)

World Bank Bolivia
LNG Chain Model

Sakhalin
Independent advisers to lenders – LNG Market Review

Qatar
Independent advisers to lenders, QGII, RasGas

Geopolitics
LNG in Atlantic study, SRI/Rice Baker Institute

Energy Africa
Kudu LNG Commercial Support

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James Ball

James Ball is an internationally respected commentator, analyst and advisor on natural gas policy and strategy. President and Chief Mentor of Gas Strategies and its EconoMatters group affiliates, James has advised supply projects in all major producing areas and market players in the three main LNG markets and worked on all market due diligence assignments for lenders. James has a wide knowledge and understanding of the international gas business, with particular interest in corporate gas strategies, emerging and liberalising gas markets, power market strategies for gas, and international LNG markets.

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LNG in the Atlantic basin

- Will enough LNG be developed to meet the Atlantic Basin needs?
- Will the US LNG market really soar as predicted?
- Is this a threat to European supply?
- If not, what are the concerns?
Atlantic Basin LNG in a global and time context

LNG as niche

Decline of US

Pacific takes hold

ME supply emerges

Return of the Atlantic

Global sales
Demand evolution Begat New Models of LNG Business

- Asian rise
- Middle East re-emerges
- Atlantic re-emerges
- US promise

Graph showing the evolution of LNG demand from 1964 to 2010, with annotations indicating significant events such as the Asian rise and the re-emergence of the Middle East and Atlantic basins. The graph includes lines for Atlantic Basin Capacity, Asia Pacific Capacity, Middle East Capacity, Atlantic Basin Exports, Asia Pacific Exports, and Middle East Exports.
The US promise is both large and marginal …

- Globally large
- Marginal to North American supply

Source: EIA

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Possible US Terminal capacity development

Map: Gas Matters

Source: Gas Strategies

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2010
- Expansions & E.B
- Possibly 1 new Gulf & West coast

2020
- 2010 high case and 2 new A/G
- Possibly additional expansions & 1-2 new
European Gas Supply & Demand – a view

EGTA – European Gas Trading area

© Gas Strategies Consulting Ltd
Possible Terminal capacity in Europe

Source: Gas Strategies

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Terminal Capacity (mtpa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>48, 48</td>
</tr>
<tr>
<td>Under construction</td>
<td>80, 105</td>
</tr>
<tr>
<td>Planned</td>
<td>95, 115</td>
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</tbody>
</table>

2010
- Existing + Likely
- Possibly + Under Development

2020
- 2010 mid case
- Possibly 2010 high + 2 new
LNG supply available to the Atlantic Basin

Source: Gas Strategies
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Will price drive LNG to US?

Source: Gas Strategies
US price promise; too good to be true?

Source: Gas Strategies, BSA, EIA
Let us consider some scenarios with:

- Potential LNG projects / expansions in
  - Caribbean
  - N Africa
  - W Africa
  - M.E

- Flexible destination clauses
- Shipping capacity not a constraint
- Trade follows Henry Hub – Spain price differentials
All cargoes could divert to US even at differentials < 1 $/ MMBtu
Even if LNG were diverted… would have marginal impact on European prices
Likely LNG Scenario 2010 (mtpa)

Terminal capacity likely to be a constraint in the US

Europe likely to be Oversupplied up to 2010

Source: Gas Strategies
Balanced LNG Scenario 2020 (mtpa)

80
NA Terminal Capacity to match demand

180
Likely LNG Supply For Atlantic Basin Mkts

100
Europe Terminal Capacity 95-115

Source: Gas Strategies
LNG Scenarios 2020 – High US demand (mtpa)

Europe balances its deficit with pipeline supply

Likely LNG Supply

Source: Gas Strategies
LNG Scenarios 2020 (mtpa) – US intake constrained; public panic

Surplus LNG ... looks for new markets?
Pressure on European prices?

Source: Gas Strategies
LNG Scenarios 2020 – ME Supply constraint

Europe has a massive potential of Pipeline supply stack at reasonable cost

New Med / Atlantic supply needed, but ...

Europe Under utilised Terminal capacity

Likely LNG Supply For Atlantic Basin Mkts

140

Likely LNG Supply For Atlantic Basin Mkts

70

Deficit 30

Likely LNG Supply For Atlantic Basin Mkts

100

Source: Gas Strategies
Europe – 2020

- LNG terminal
- Russia
- Netherlands
- Norway
- Algeria
- UK
- Libya
- Trans-Sahara
- LNG
- New or expanded route

Countries and directions:
- From Yamal
- From Azerbaijan
- From Kazakhstan
- From Turkmenistan
- From Iran
- From Libya

Countries:
- Nigeria Trans-Sahara
- From the UK
- Iran
- Libya
- Algeria
- Trans-Sahara
- From from the UK
- From from the UK
- From from the UK
Conclusions

- Enough LNG projects being developed to meet even the US high demand
- Europe supply stack shows massive pipeline potential at reasonable cost
- Oversupply in Europe to 2010 – need to shift supply
- Higher US prices an incentive to move flexible LNG supplies to the US; but not all EU contracted LNG
- Terminal capacity in the US may be a constraint to increased LNG demand and balancing
- Europe & LNG suppliers perhaps should be more concerned about US closure of capacity or
- ME supply constraints may propel more Med / Atlantic supply by 2020
- Diversity of supply remains a key security need
Expertise, Insight and Perspective to deliver results

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Flexible Atlantic trade has emerged but the Pacific* is much larger than the Atlantic

For my paper on LNG in the Pacific, please e-mail me asking for LNG-14 paper
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