



Geopolitics of Natural Gas Study – Atlantic LNG

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Gas Strategies – Who We Are

- **Gas Strategies, is an energy consultancy offering an extensive range of skills to clients involved with gas markets around the world.**
- **With a collective experience covering several lifetimes, many of Gas Strategies consultants have held senior positions inside companies involved with major natural gas and LNG projects.**
- **Gas Strategies data provision service www.GasStrategiesOnline.com provides European gas pricing and supply/demand data to companies worldwide.**



Authors

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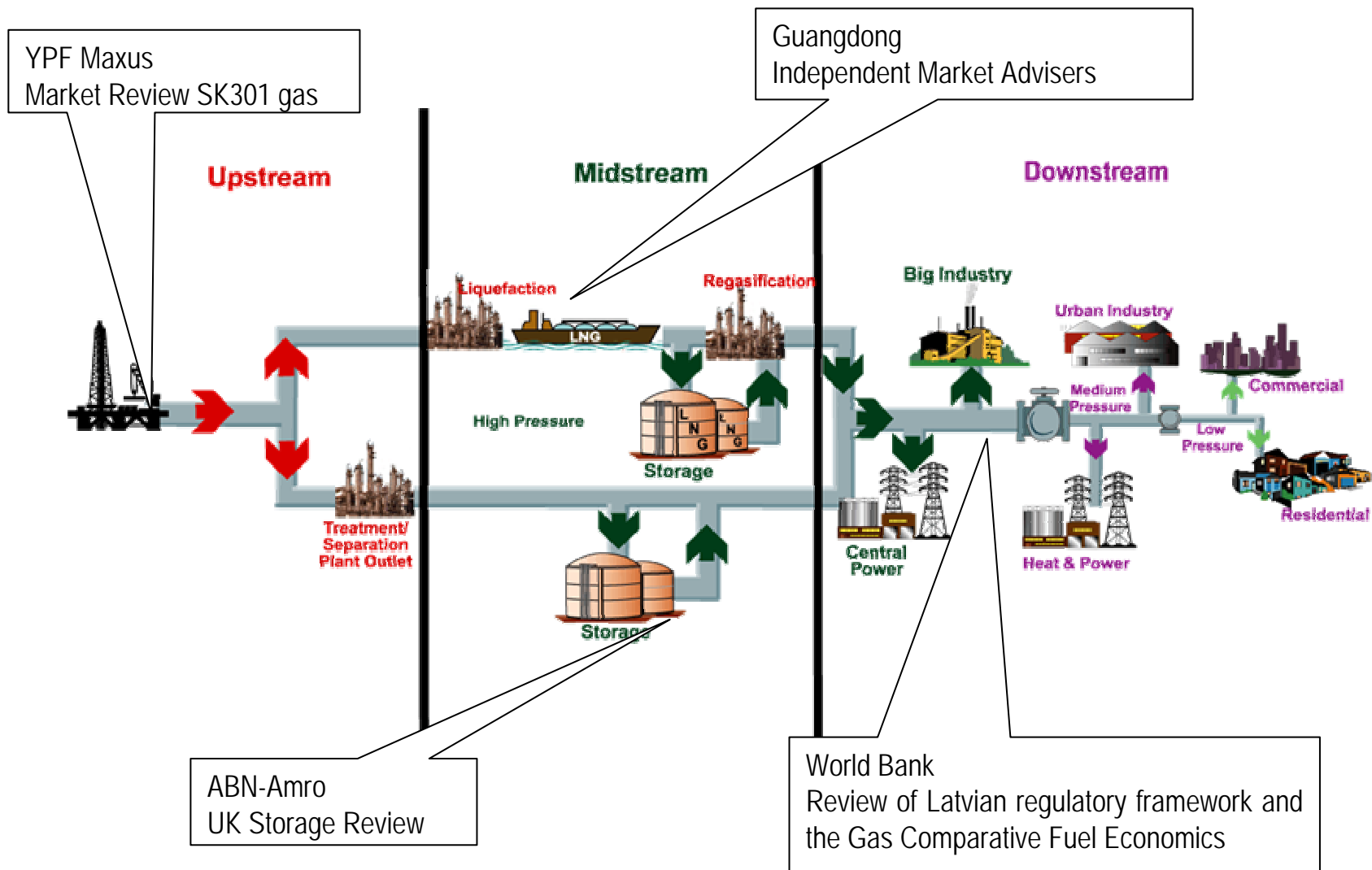
- James Ball is an internationally respected commentator, analyst and advisor on natural gas policy and strategy. President and Chief Mentor of Gas Strategies and its affiliates, James has advised supply projects in all major producing areas and market players in the three main LNG markets and worked 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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■ Rob Shepherd

- Rob Shepherd is a senior associate consultant of Gas Strategies. He has worked on a wide range of consultancy subjects since joining Gas Strategies in 1993, his interests including the commercial and strategic aspects of LNG projects, industry and regulatory structures across the world, and the future of UK gas markets. Rob has led and worked on several Gas Strategies' due diligence and audit projects. He joined Gas Strategies after a long career with BP. In the early 1980's he managed BP's share of the North West Shelf LNG project in Australia. In the mid-eighties he played a leading role in BP's UK gas business, selling to British Gas and starting BP's move into direct gas marketing. Following this, he managed BP's share of the Qatar LNG project.
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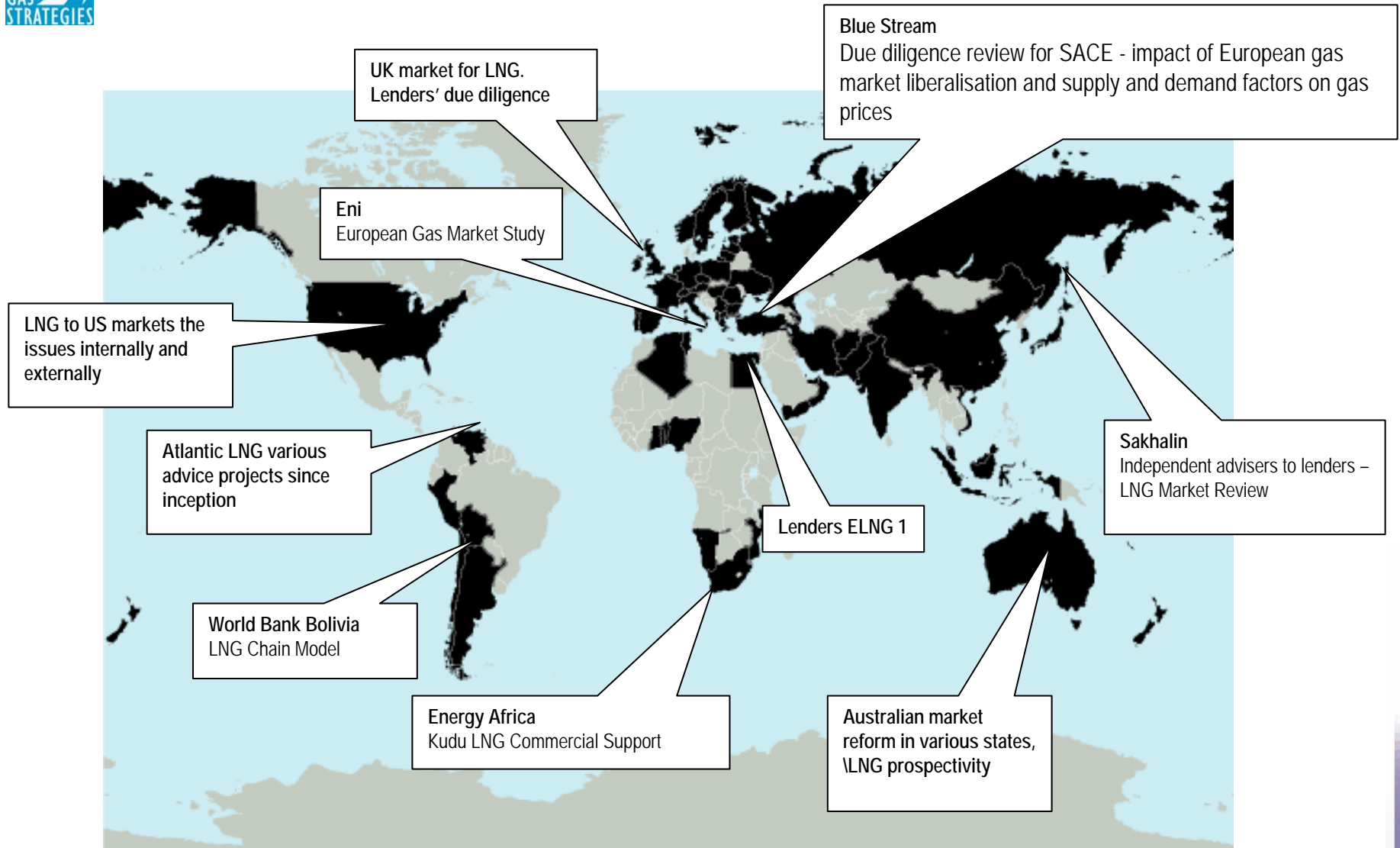


Commercial Advice across the Gas Chain...





And Around the Globe





Gas Strategies' Associated Companies



Alphatania – Management Training & Courses

- Energy training courses, both public and client hosted, staffed by selected experts under the leadership of the Alphatania Group. Alphatania courses have set the standard for gas industry training because of the depth of understanding imparted to delegates through interactive case studies, discussion and high access to staff.



Overview Conferences

- Organises regular annual conferences on the natural gas industry. They focus on the directions, which the gas industries in different regions and countries are taking. Our speakers are drawn from the top decision-making strata in the companies and organisations involved.

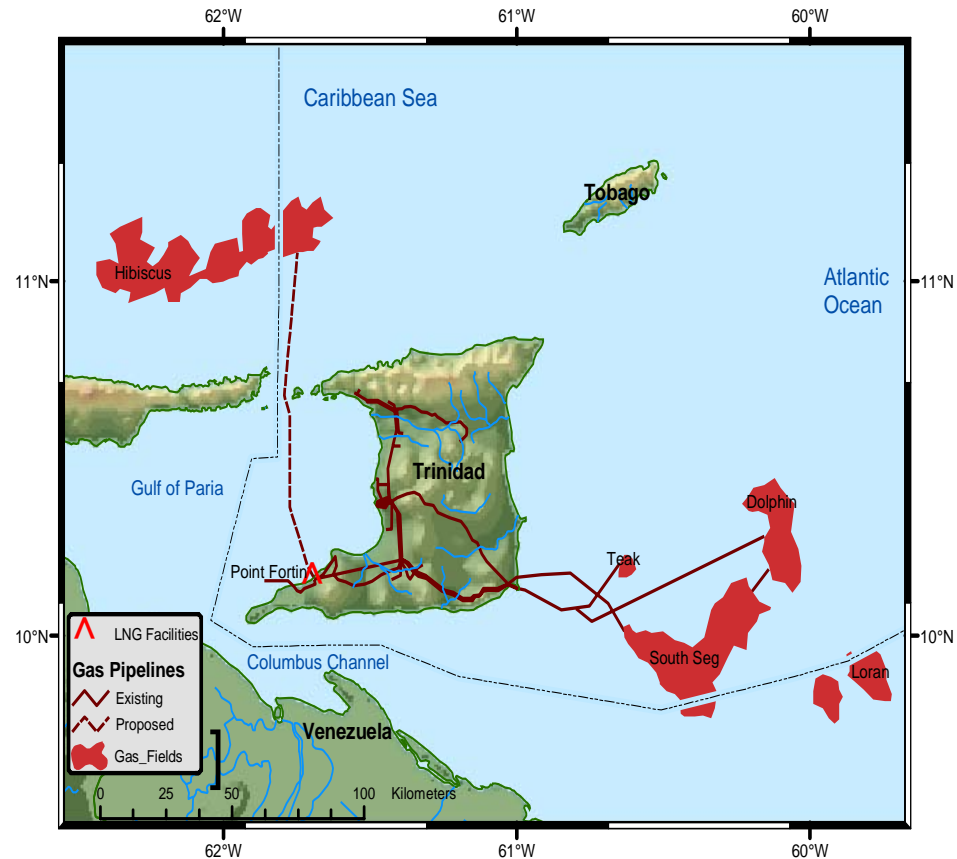


Gas Matters

- Keeping abreast of developments as they unfold in the gas industry demands reliable information sources, business insight and informed analysis. Unlike other gas journals and newsletters, *Gas Matters* and its sister publications, *Gas Briefing International* and *Gas Matters Today*, bring together the skills of a team of specialist writers.

Trinidad & Tobago

- 1st LNG project attempted early 1970s
- NGC of T&T formed 1975 to develop market
 - Granted island monopoly
- Rapid economic growth
 - US\$1.3bn to US\$ 8.1bn 1973-82
- Government developed infrastructure
- From 1985, 7 yr recession ending in econ reform '92
- Successful project effort began 1992

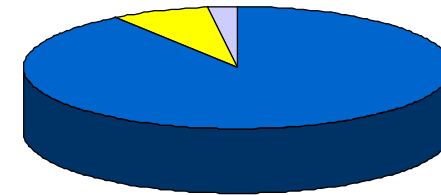




LNG in the Atlantic was very different in 1994...

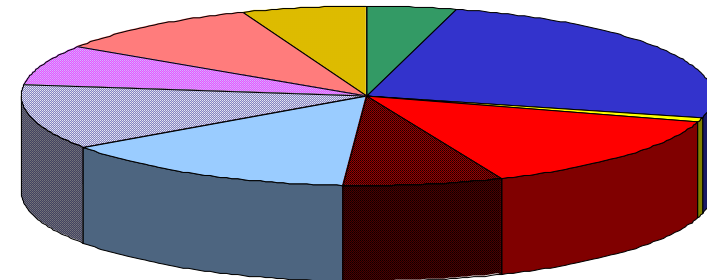
- Early-mid 90s, LNG in Atlantic had been in long decline
- Every attempt to launch an LNG project in the Atlantic after Algeria and Libya had failed
- To the LNG business, the Pacific was centre of universe
- But Atlantic supply has grown by nearly 500% over the past 10 years!

1994 Atlantic LNG Supply (14.6 mtpa)



■ Algeria ■ Libya ■ Australia

2004 Atlantic LNG Supply (70.2 mtpa)



■ Algeria - Skikda ■ Algeria - Arzew ■ Libya
■ Trinidad 1, 2 & 3 ■ Trinidad 4 ■ Nigeria 1, 2 & 3
■ Nigeria 4 & 5 ■ Egypt - Damietta ■ Egypt - Idku
■ Snohvit

* Hatched supplies denote LNG supply under construction

Source: Gas Strategies & BP World Energy Statistics



Timeline of Events

- 1992 – Cabot approached T&T about developing LNG export project
- 1993 – MoU signed by Amoco & Cabot, feasibility study launched
- 1995 – Dual FEED; JV, Atlantic LNG, formed; sales contracts signed with Cabot and Enagas for 3 mtpa LNG
- Dec 1995 PNM gov loses election new UNC gov OK with LNG
- 1996 – Construction started on Train 1
- 1999 – 1st cargo loaded for Boston; two train expansion (6.8 mtpa) started
- Aug 2002 – Train 2 started
- May 2003 – Train 3 started
- 2006 – Train 4 scheduled to begin (Train 5 seeking approval)



A paradigm shifting event



Critical Questions

- **What was the competitive environment?**
- **Why did these other projects experience less favourable fates?**
- **Why was the venture successful despite unfavourable odds?**
- **What are the commercial and geopolitical lessons?**



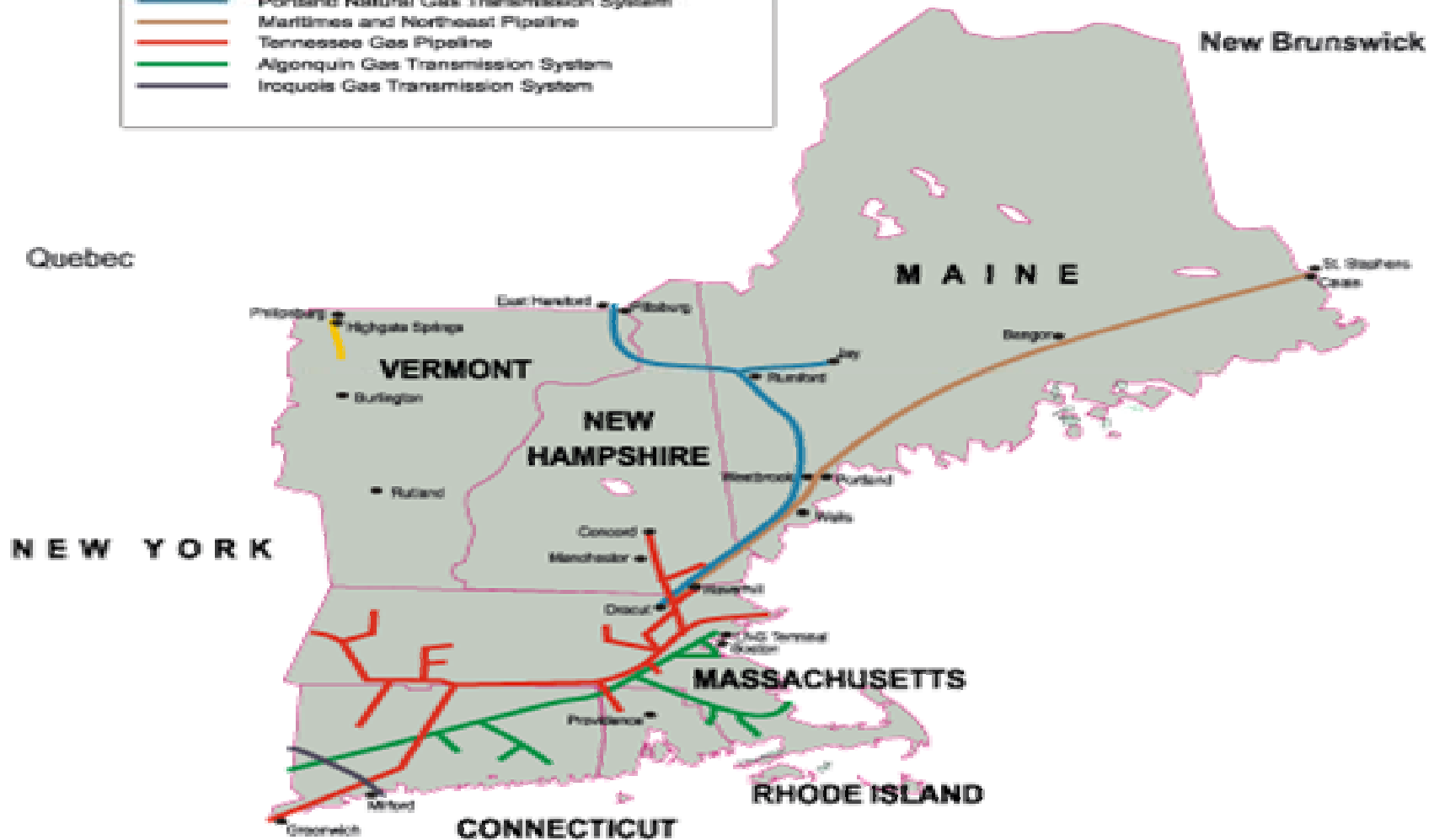
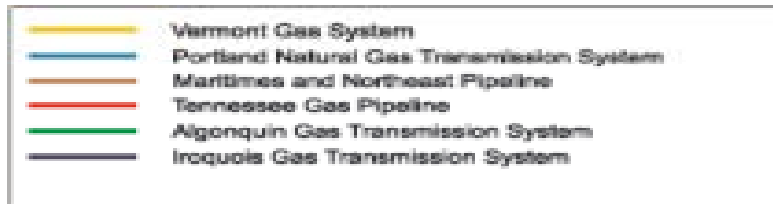
LNG Competitive environment

- **Desire to use gas “locally” (limited reserves?)**
- **Pipeline gas in tight target markets**
 - Niches sought for LNG
- **Algerian LNG**
 - Policy in 1980s gave others an opening in 1990s
 - It was not ready to seize market openings
- **Nigeria LNG**
 - Govt delays to NLNG gave Trinidad a chance
- **Venezuela LNG project**
 - Fell out of contention due largely to govt policy
 - But also commercially flawed



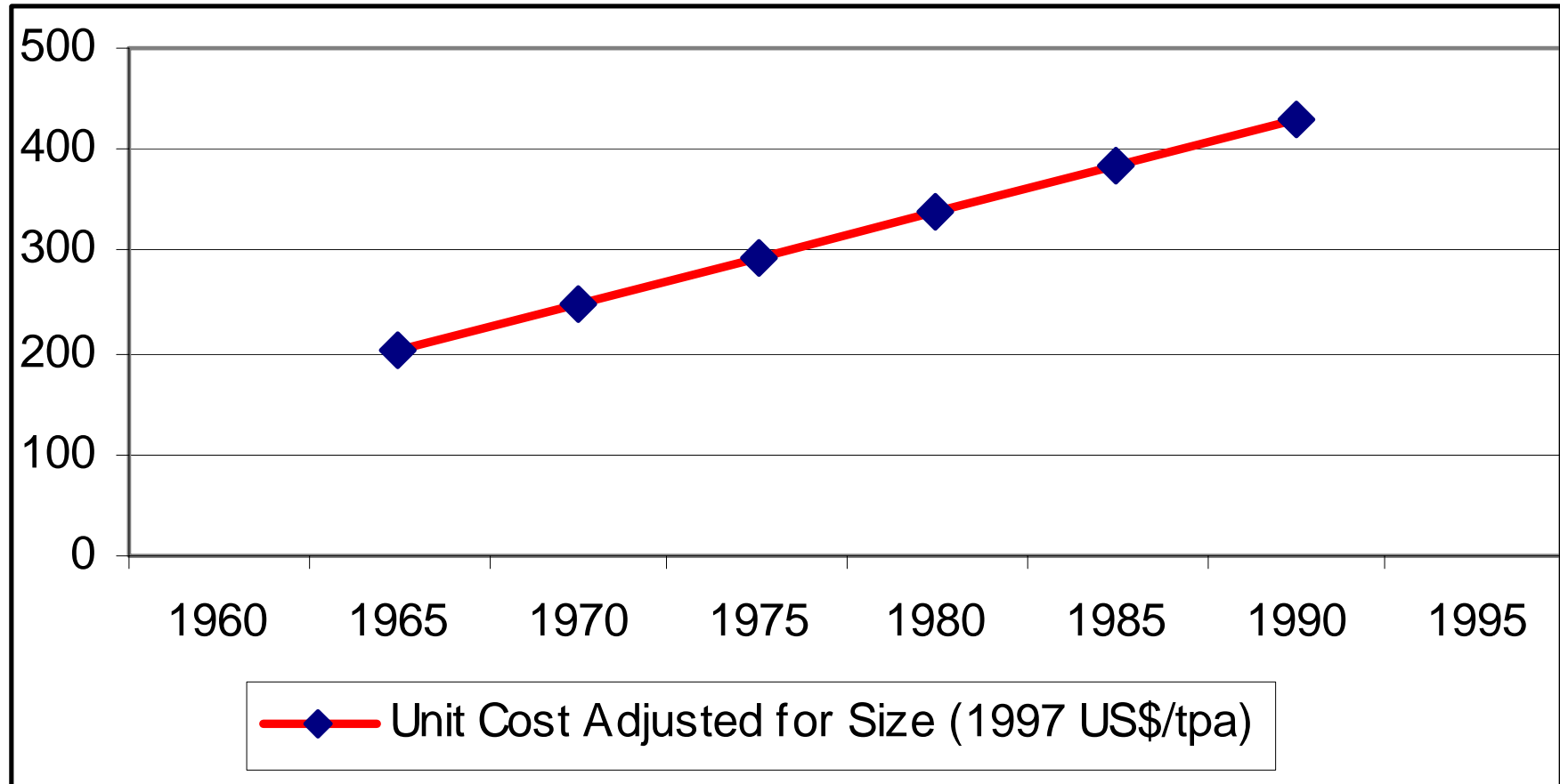
Natural Gas Infrastructure in New England, 2000

Trinidad was determined to beat pipe arrivals





Unit Cost for a 3 mtpa LNG plant had been rising for ever – Trinidad said “not for us”





Geopolitics and Complexity

- **LNG projects are technically and logistically more complex than pipe projects**
 - And usually face less geopolitical hurdles
 - But more local political issues, so:
- **Host govt. has to balance long-term benefits vs. concessions and support needed**
 - E.g. LNG projects require pref. tax treatment
 - Debate over local vs export use
 - Host government behavior can give crucial edge
 - Change of govt can scupper progress eg Nigeria
- **T&T Government outdid its competitors**
 - Attitude to outside investors, level of govt control and exports
 - Political stability even with surprise election result Dec '95



Why others did less well

- While Trinidad's partners were *not* bound by the dead weight of precedent ...
- Rule for others: “must do two train plus project”
 - Finalise shareholdings first
 - Plan sequentially
 - Unwilling to consider rival technologies
 - Unwilling to let buyers shift destination
- **Government policies and actions meant:**
 - No international investors in Algerian LNG
 - NLNG constantly tripped up by Nigerian government
 - Uneconomic conditions imposed on gas for Ven LNG



The *Mathew* arrives in Boston: Nigeria's loss, Delivers first Trinidad cargo





Atlantic LNG's Success Factors

- **Market targeted and sized**
 - One train strategy – market sized bite
 - Perceived time window of 1998 drove speed
 - Flexibility offered to buyers – no destination limit
 - Market price was driver for cost reduction
- **Commercial approach to cost reduction**
 - Tasks done in parallel not sequentially
 - Willing to consider non-APCI process
 - Dual FEED spurred contractor competition
- **Very competitive government support**
 - Agile partners, agile government
 - Compared with more hostile hosts of other LNG
 - Pro investment, pro export, gave needed breaks



Atlantic LNG Project – Train I

- **3 mtpa LNG (3.2 including NGLs)**
- **Located Point Fortin, SW Trinidad**
- **Plant started in March 1999, first delivery end-April**
- **Shareholders: BP (34%), BG (26%), Repsol (20%), Tractebel (10%), T&T Govt. (10%)**
- **Cost of project – US\$ 965mn**
- **LNG sold to Gas Natural (then Enagas) 40% and Tractebel (then Cabot) 60%**

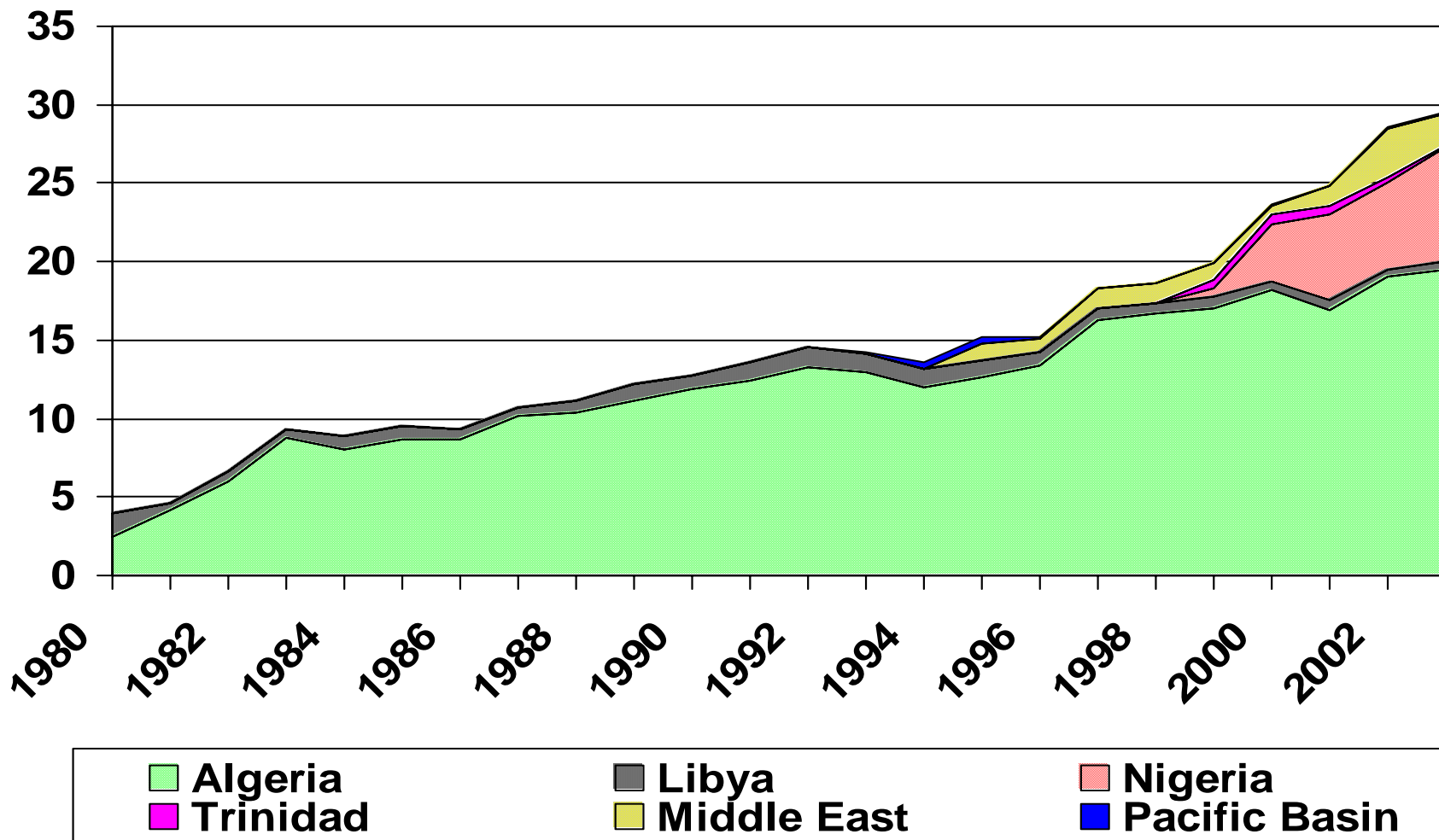


Expertise Insight Perspective

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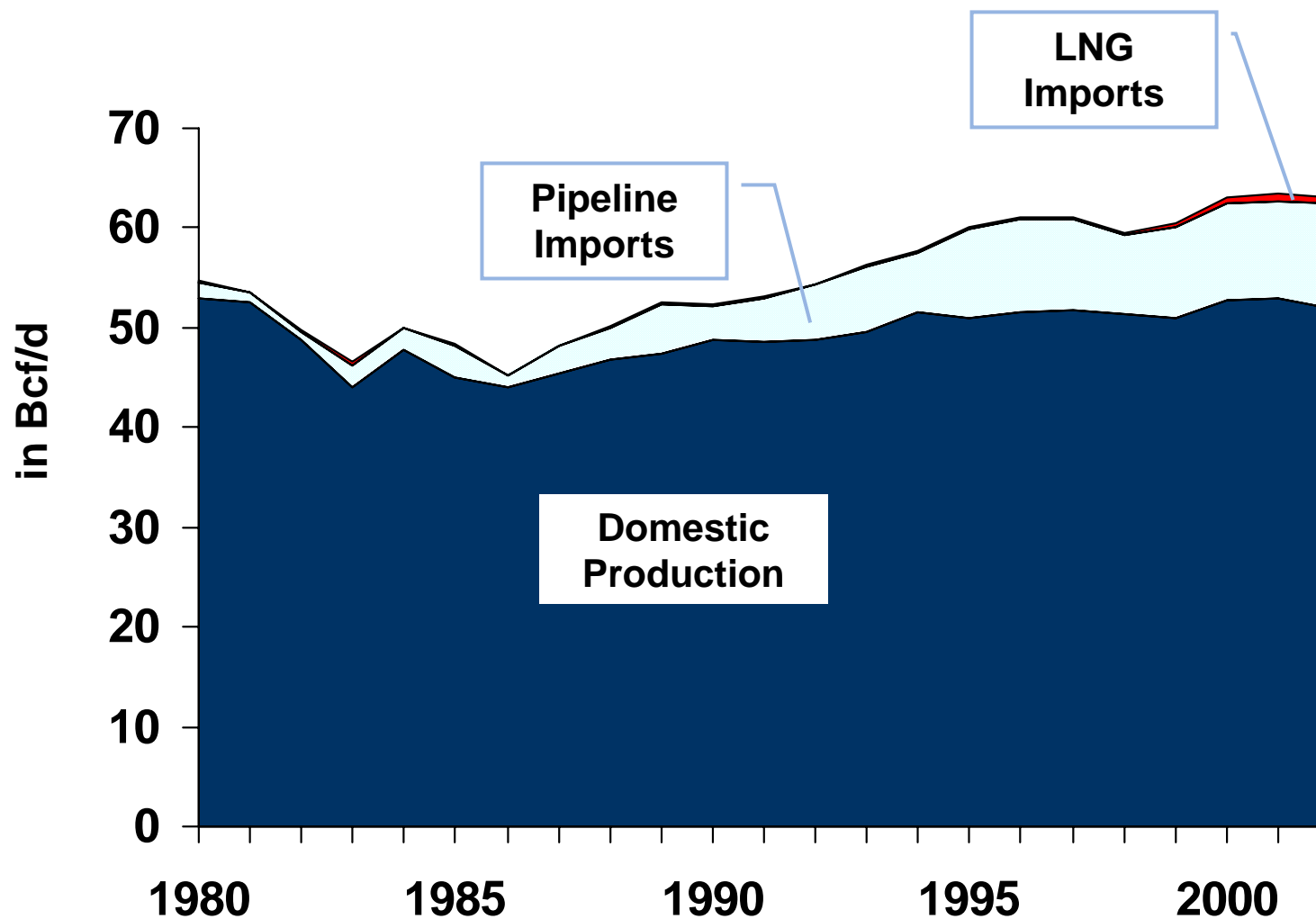
Sources of European LNG Imports 1980-2003 (mtpa)



Source: Alphatania



US Gas Supply & Demand



Source: Alphantania