



25th world gas conference
"Gas: Sustaining Future Global Growth"

Penetrate New Markets for LNG

Report of Study Group PGC D.2

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Patron



Host

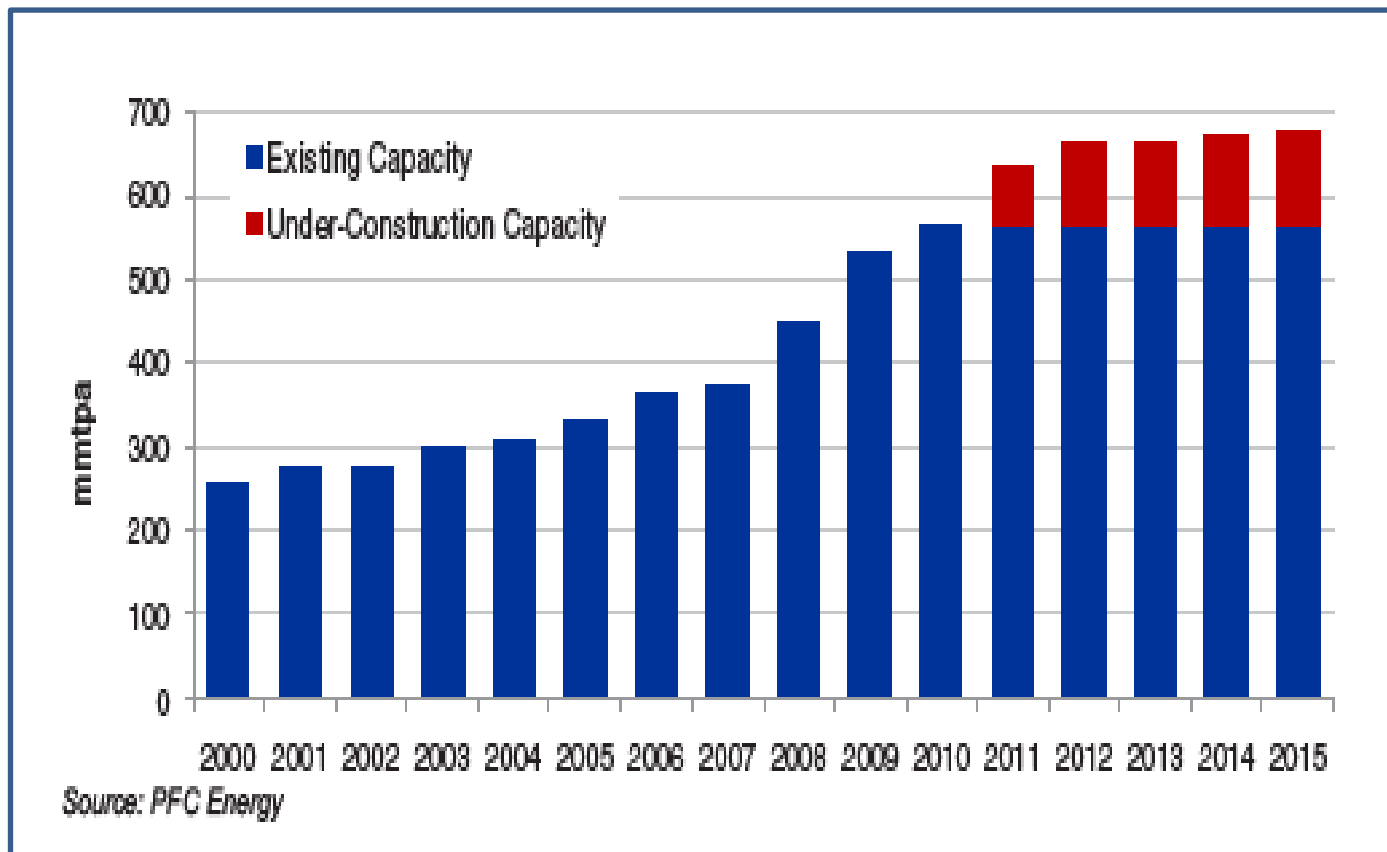


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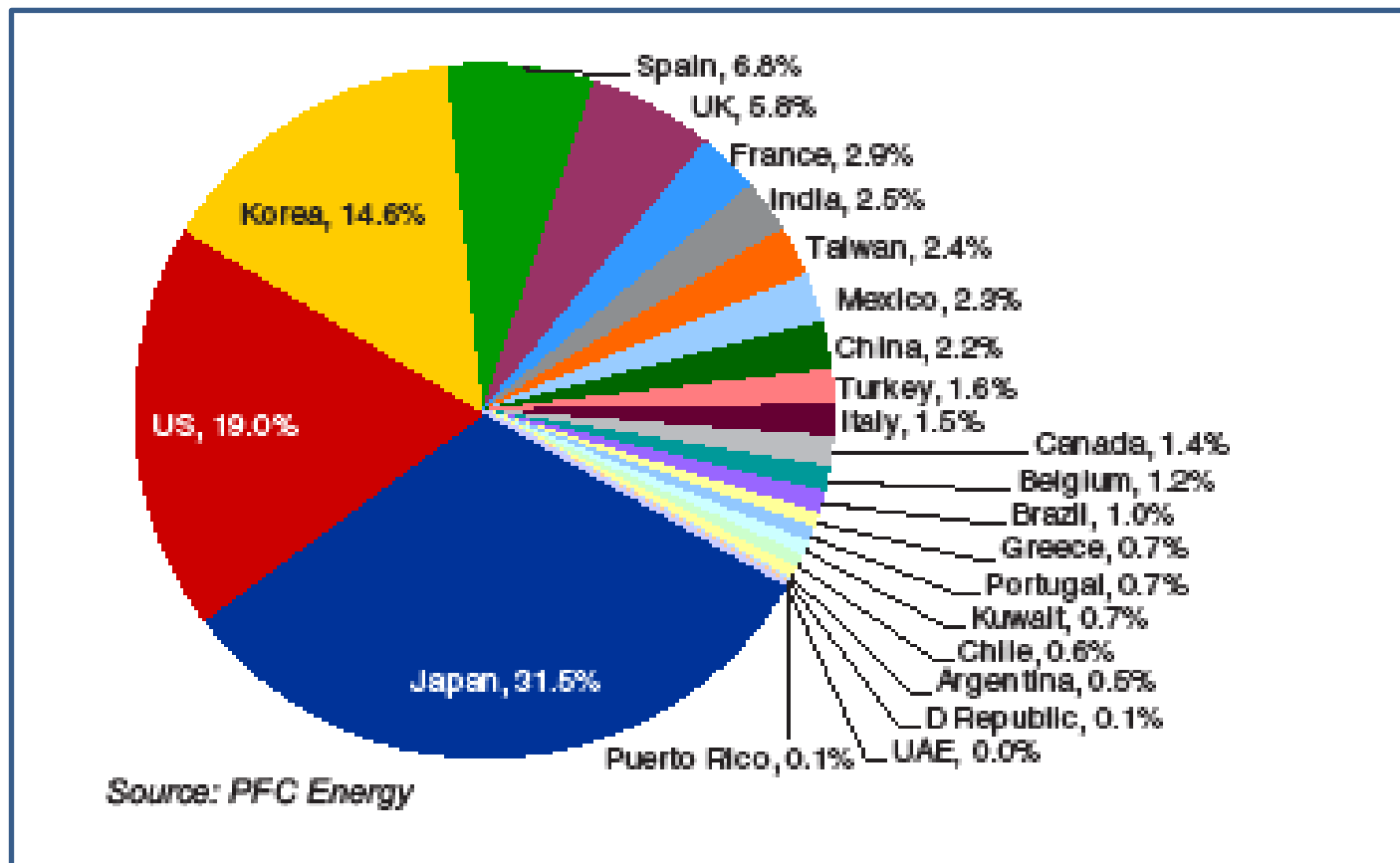
LNG is Playing an Increasingly Important Role in Traditional and New Natural Gas Markets

Global Receiving Terminal Capacity Continues to Grow ...



LNG is Playing an Increasingly Important Role in Traditional and New Natural Gas Markets (cont.)

... And Capacity is Distributed Among a Widening Range of Countries and Markets



Questions for Applying Recent Experience to New Potential Markets for LNG

- *What Are the Key Drivers for Decision Making Supporting LNG Importation?*
- *What Are Key Barriers to be Overcome?*
- *Are There Common Experiences Among New Entrants?*
- *Can These Experiences be Generalized for Evaluating New Potential Entrants?*
- *And Does Past Experience Have All of the Answers in Evaluating New Potential Opportunities?*

Study Emphasis, Scope and Purpose

- *Study the Potential for Entry of LNG into New and Existing Gas Markets*
- *Identify Factors that Led to the Development of New Markets*
- *Identify Opportunities to Apply this Experience*
- *Focus on End Use Markets Receiving LNG and Regional Gas Markets (Including Projects Past the FID Stage)*
- *Assuming That: Supply and Technology are Unrestricted*
- *Assuming That: Market Factors Can be Generalized*
- *Assuming That: Market Factors Can be Addressed.*

Study Elements, Participants and Outcomes

- *Experience Reviewed for 17 Countries Receiving LNG for Domestic Use or Regional Markets (Through the FID Stage)*
- *Expertise from 38 Professionals from 21 Countries*
- *Experience Assessed for 19 Study-Defined Market Drivers and Barriers*
- *Common Themes Associated with Drivers and Barriers Identified*
- *Recommendations Developed Based on Identifying and Addressing Opportunities and Obstacles, New Opportunities Presented by Policies, New Technology Solutions, Interactions Among Drivers and Barriers.*

Market Drivers and Barriers

- **Security of Supply**
- **Diversity of Supply**
- **Power Generation Supply**
- **Favorability to Pipeline**
- **Existing Infrastructure**
- **Supply Contract Flexibility**
- **Aggregate Economic Growth**



Market Drivers and Barriers (cont.)



- Technological Advancements
- Government Policies (Projects)
- Regulations/Policies (Energy)
- Labor/Technical Constraints
- Incentives, Taxes, Fiscal Regimes
- Political Risk/Stability
- Project Risk

Market Drivers and Barriers (cont.)

- **Port Location**
- **Industrial Safety**
- **Modular Expansion**
- **Reloading/Re-export**
- **Regional Supply**
- **Relative Energy Prices.**



Country Experience Analyzed

Asia

- China
- India
- Indonesia
- Malaysia
- Singapore
- Thailand

Americas

- Argentina
- Brazil
- Canada
- Chile
- Mexico

Europe

- Italy
- The Netherlands
- Poland
- United Kingdom

Country Experience Analyzed (cont.)

Middle East

- Dubai
- Kuwait

Not Meeting FID Criterion

- Bahrain
- Eastern Baltic States
- Germany
- Scandinavia
- Pakistan

Country Experience Analyzed (cont.)

	China	India	Indonesia	Malaysia	Singapore	Thailand	Argentina	Brazil	Canada	Chile	Mexico	Italy	The Netherlands	Poland	United Kingdom	Dubai	Kuwait
Security of Supply																	
Diversity of Supply																	
Power Plant Supply																	
General Gas Market Favorability to Pipeline																	
Existing Infrastructure for Transmission and Distribution																	
Opportunity for Flexibility of Contracts																	
Aggregate Economic Growth																	
Technological Improvements in LNG receiving																	
Regulatory Influences for or Against New Terminals																	
Labor/Technical constraints																	
Incentives, Taxation, Other Fiscal Regimes																	
Political Risk / Stability																	
Project Risk																	
Port Location / Accessibility																	
Industry Safety Issues																	
Feasibility of Modular Expansion																	
Reloading / Re-Export																	
Regional Gas Market Opportunities																	
Energy Prices																	

Least favorable for LNG Importation / Market Development ¹						Most Favorable for LNG Importation / Market Development
	High	Med	Low	Med	High	
Relative Importance	High	Med	Low	Med	High	

Common Themes from Experience

- *Security of Supply*
- *Diversity of Supply*
- *Growth of Demand for Power Generation*
- *Role of Domestic Regulatory and Institutional Factors*
- *Port Location and Accessibility*
- *Relative Energy Prices among Other Sources of Natural Gas and Competing Fuels.*

- **Drivers and Barriers Must be Divided Into:**
 - **Fundamental Drivers and Barriers that Bring LNG to the Market**
 - **Drivers and Barriers for Projects**
 - **(Fundamental Drivers and Barriers are First-Order)**
- **Security of Supply**
 - **Hedging against Price Setting**
 - **Relief from Physical Constraints**
 - **Role of Technology (FSRUs)**
 - **Resource Depletion.**



Analysis (cont.)

- **Diversity of Supply**
 - Price Hedging Opportunities
 - Fuel Switching Opportunities
 - Redundancy in Infrastructure
 - Contractual Flexibility
- **Price Decoupling /Substitution**
- **Shale Gas – Threat/Opportunity**
- **Power Generation**
 - New/Mature Markets
 - Small Scale Generation
 - Off-Grid.



Analysis (cont.)

- **“Non-Traditional” Drivers:**
 - Land Vehicles
 - Marine
- **Drivers in Combination**
 - Security of Supply/Low Growth
 - Security of Supply/High Growth
- **“Structural” Driver – Government Policies**
 - Mature Markets – Complex Regulation
 - Developing Markets – Industrial Policy
 - Environmental/Portfolio Requirements
 - Stability.



Analysis (cont.)

- Economic Cycle Influences
- Rates of Market Penetration
- Packaging of Projects
- Reloading/Re-export Issues
- Regional Markets and Hubs
- E.U. Directives
- Events: Fukushima Daiichi
- “The Golden Age of Gas.”



Recommendations

- **New Drivers Must be Considered**
- **Unsuccessful Initiatives are Important**
- **All Potential Markets are Unique**
- **Fundamental Drivers/Barriers First**
- **Long Run Economics First**
- **Project Drivers/Barriers Next**
- **Exploit “Policy Levers”**
- **Know What Can be Changed.**



Recommendations (cont.)

- **Consistently Engage and Communicate**
- **Efforts Must be Consistent with Market.**



THANK YOU!



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