



# NARUC LNG White Paper Highlights

Presented to the National Association of Regulatory Utility Commissioners

2005 Summer Meeting Austin, Texas

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# Context for the White Paper



- Substantial growth in gas consumption is forecast for North America and the World
  - Environmental policies will drive gas demand in power markets
  - Rest of the world gas use growth is from economic expansion
- North American gas supply is shifting towards unconventional, hard to develop and costly resources
- Gas prices have been at historically high levels for several years accompanied by dramatic volatility
- Stranded gas assets around the world are substantial and create the opportunity to supplement North American supply with lower cost LNG

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## What the White Paper Does



- Reviews LNG economics
- Examines the role of LNG in today's gas market
- Explores the interchangeability debate
- Reviews the siting, safety, and environmental issues
- Presents 4 recommendations to state public utility commissions

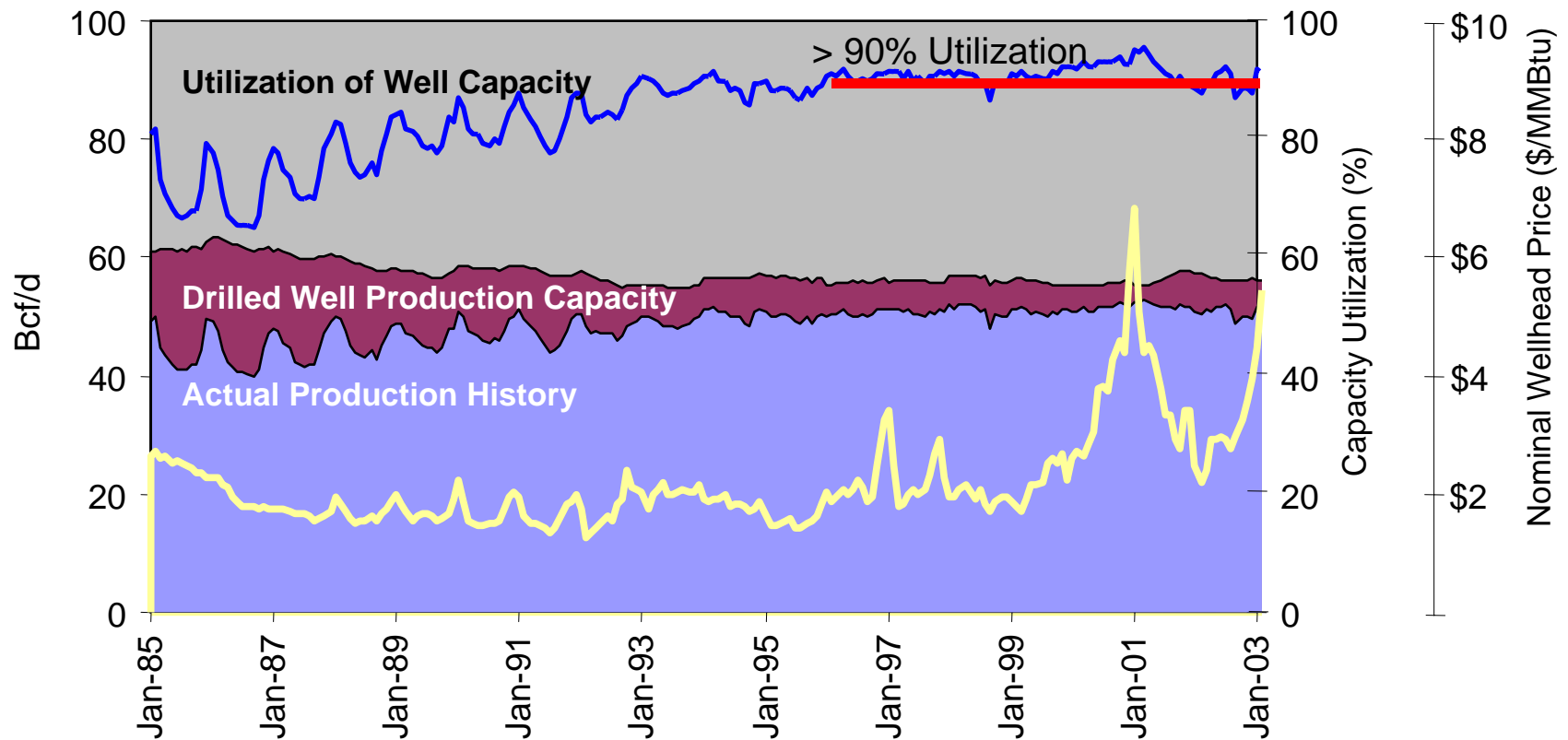
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## Recommendation 1



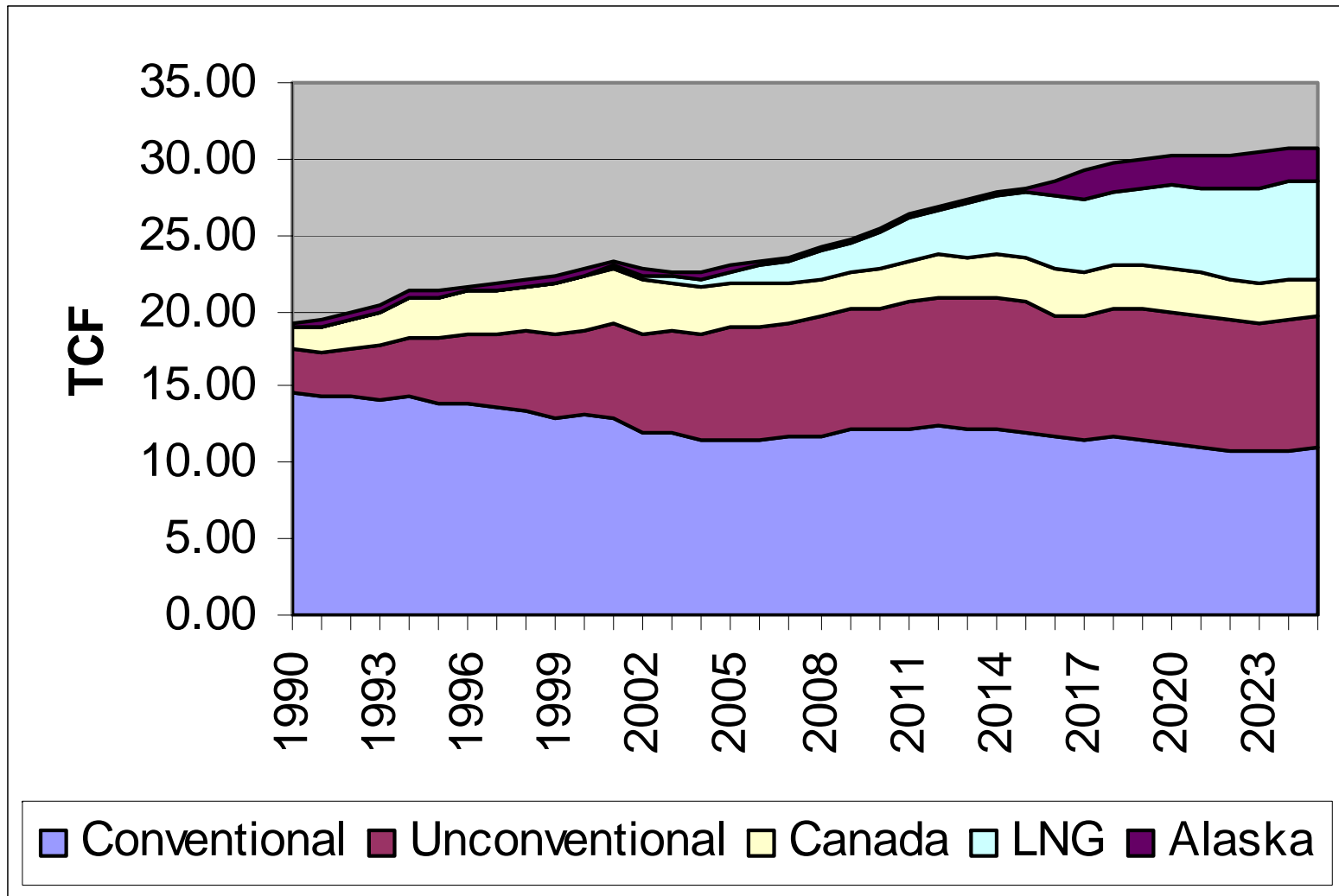
- PUCs have a role to play in educating the public on the importance of LNG in meeting gas demand
  - Increasing supply can moderate prices and volatility

# Surplus Production Capacity has Vanished



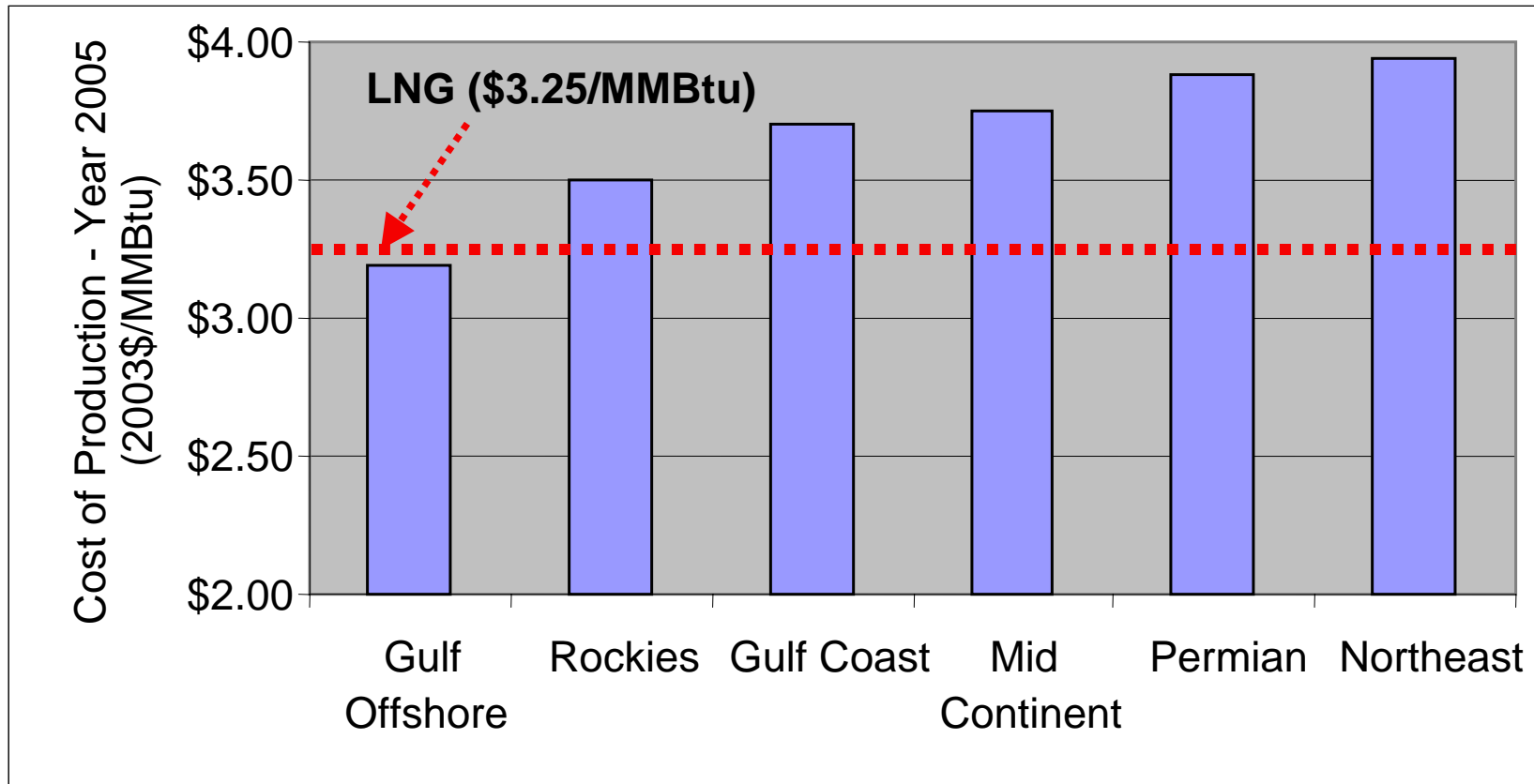
Source: Energy Information Administration

# By 2025 21% of U.S. Supply must Come from LNG



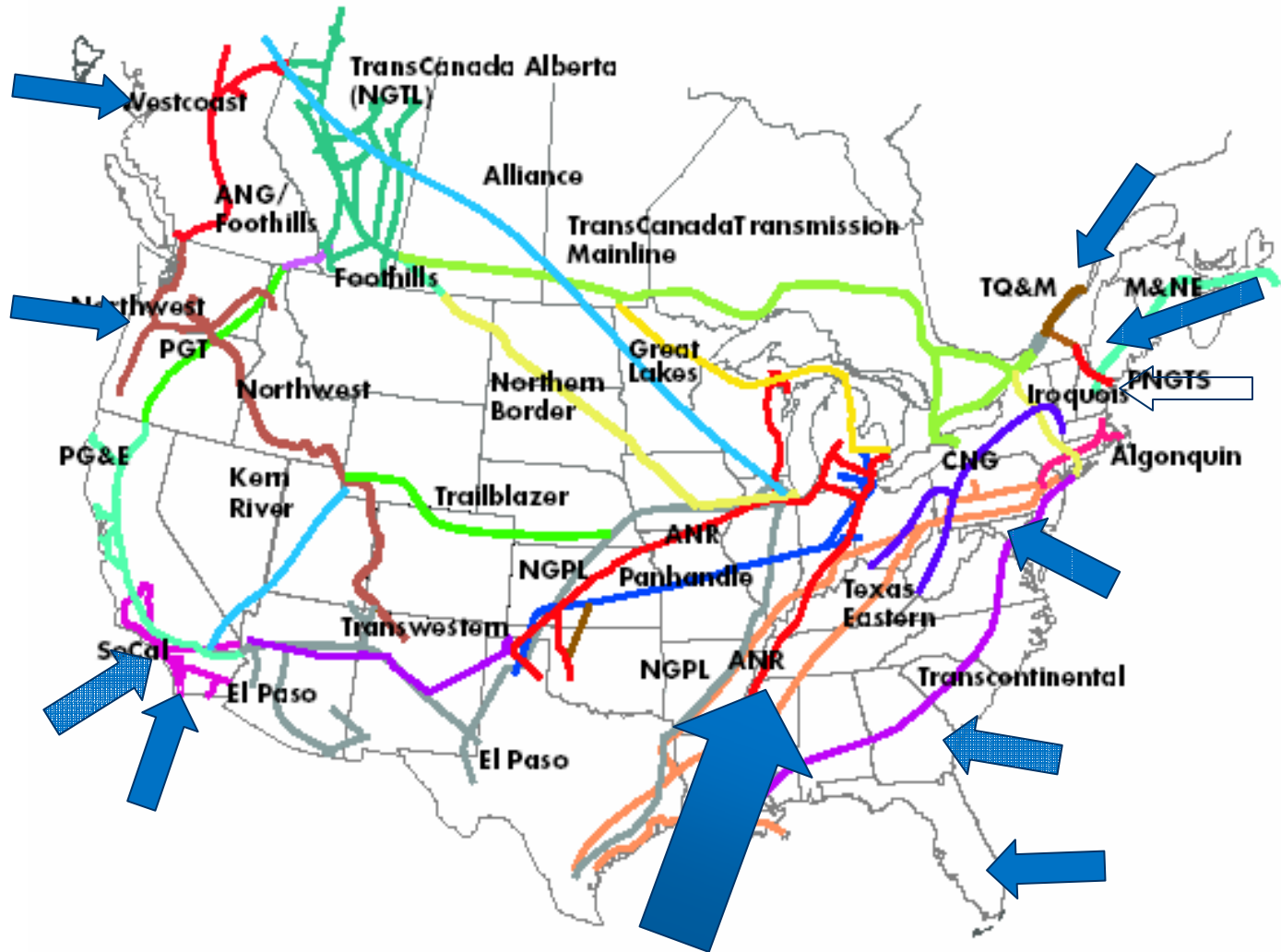
Source: EIA, Annual Energy Outlook, 2005

# LNG is a Low Cost Supply Source



Source: ICF North American Natural Gas Analysis System

# By “Backfilling” the System, LNG can Enhance Gas Supply in Many Regions



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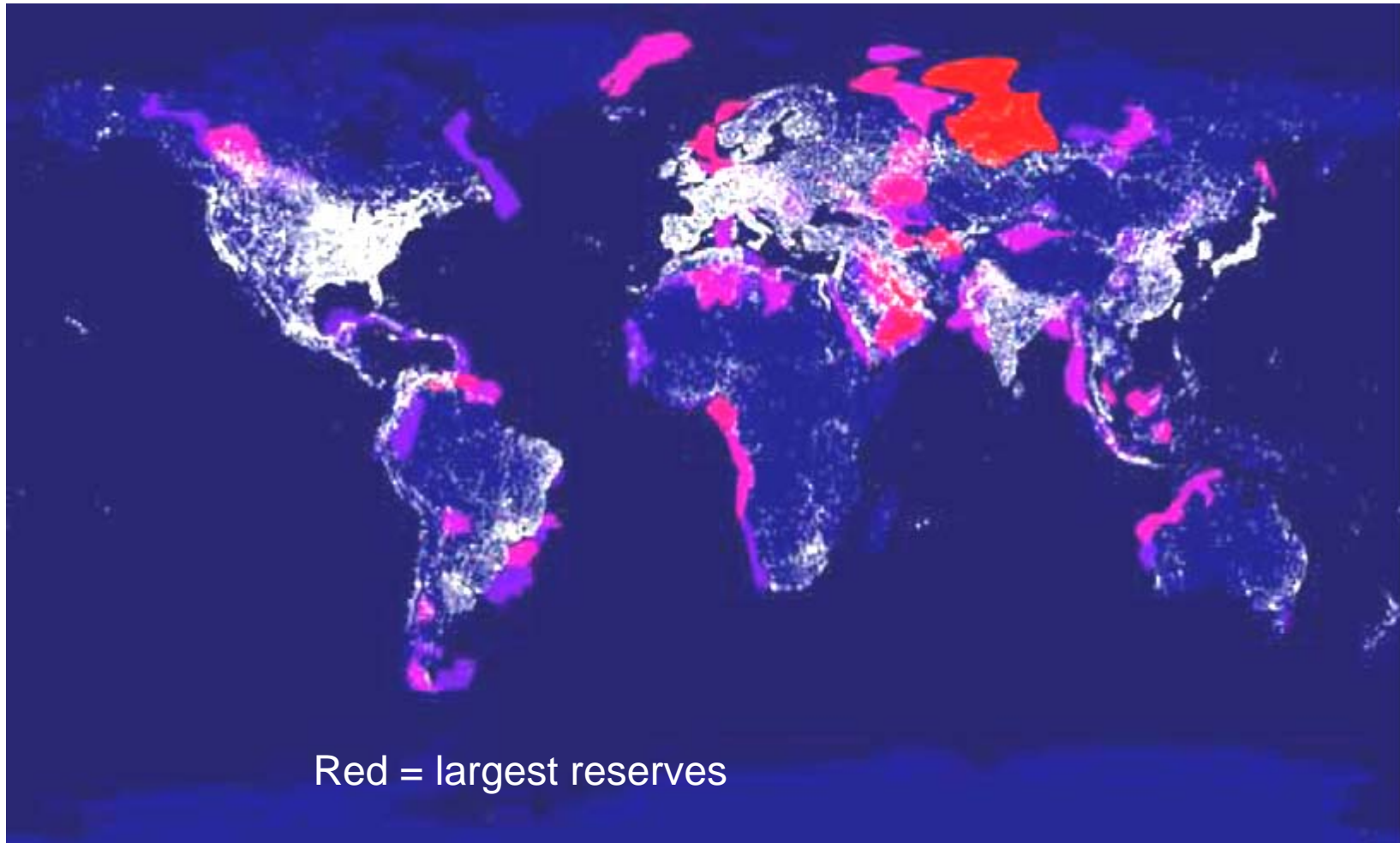
## Recommendation 2



- PUCs should evaluate the benefits of allowing LDCs and regulated utilities to secure long term gas supply contracts with LNG importers
  - Such contracts provide security of supply and a hedge against price volatility

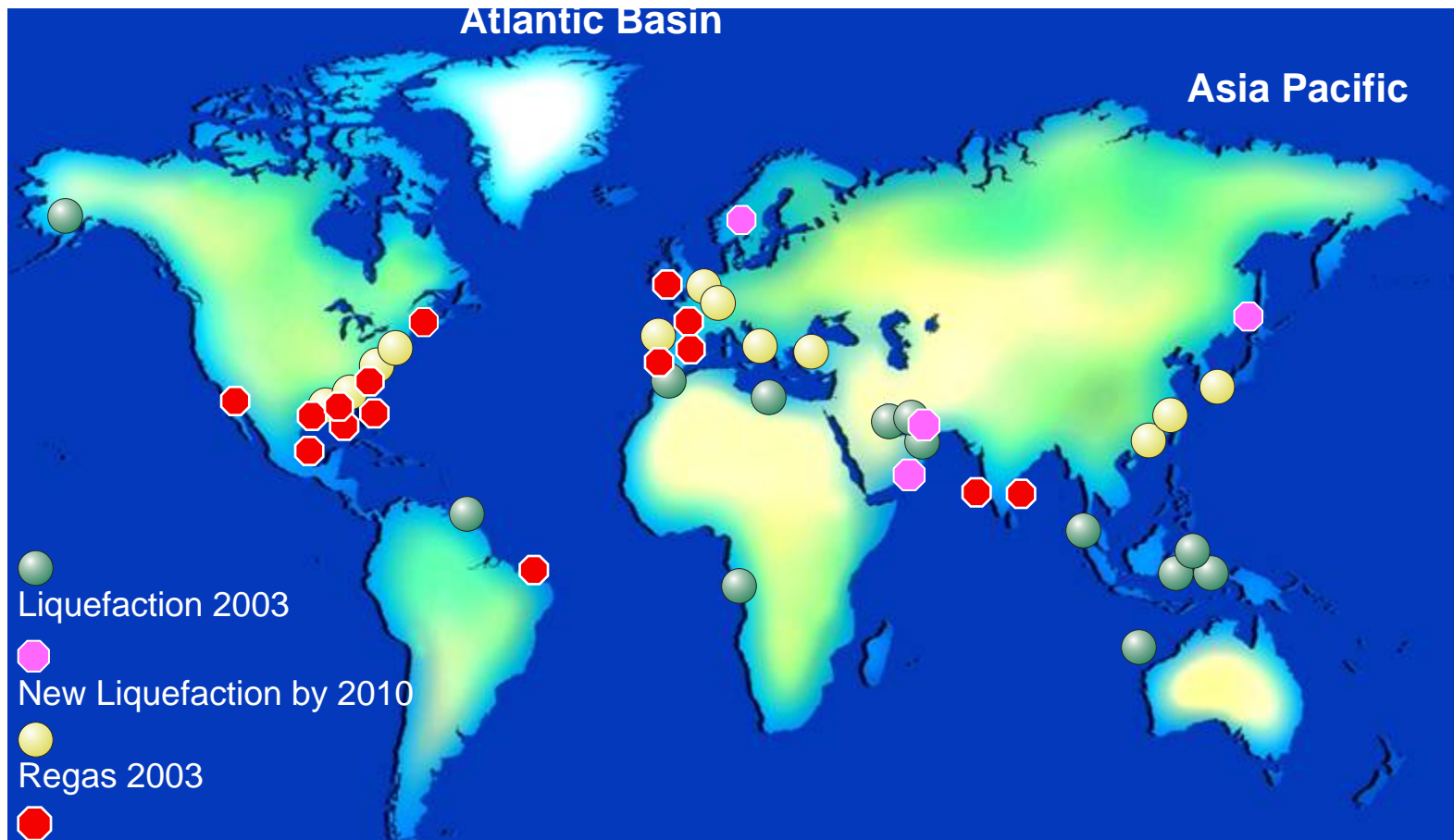
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# Stranded Gas Supply is Far From Markets

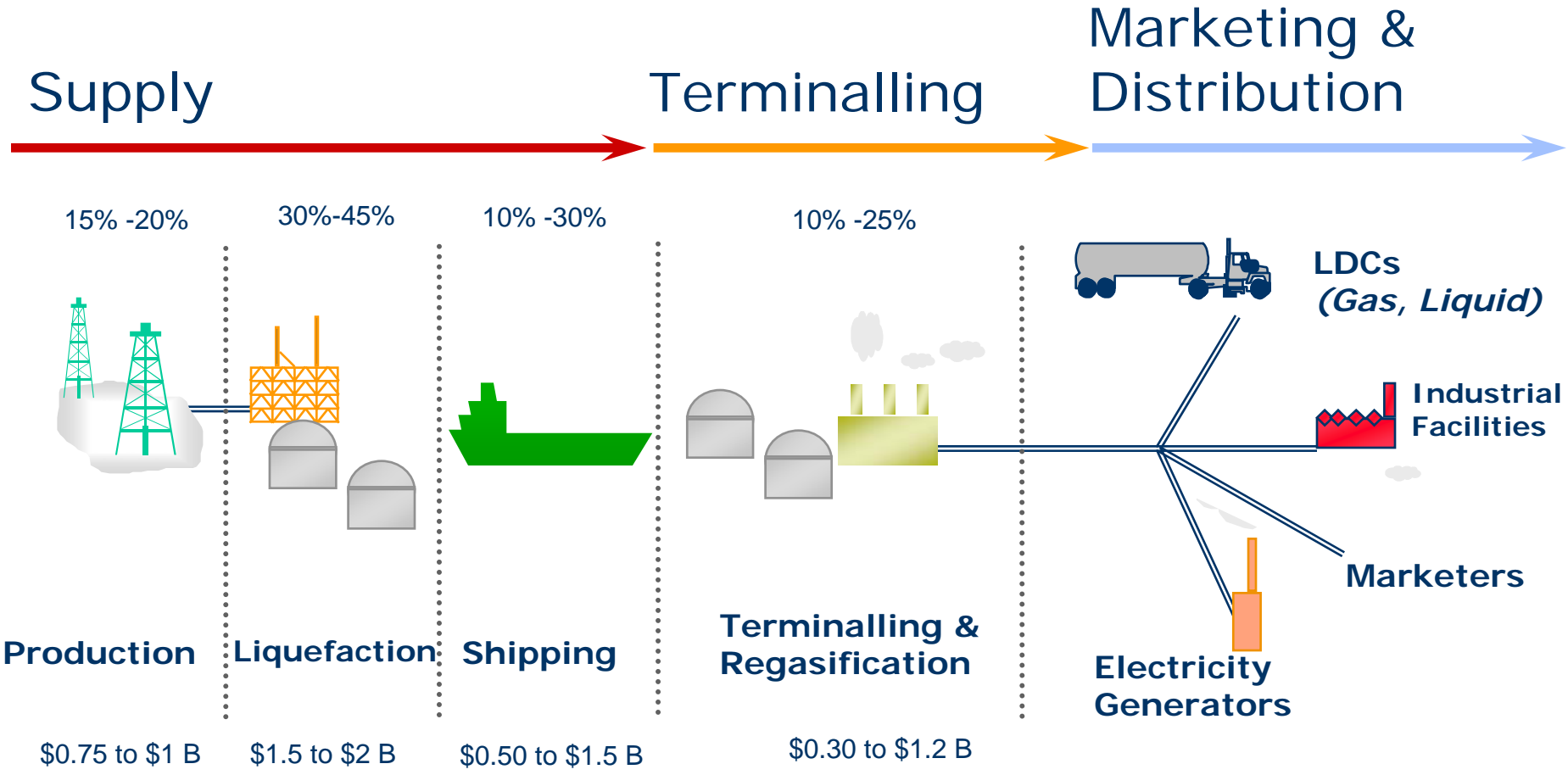


Source: Rice University, James Baker Institute, Geopolitics of Gas Conference

# LNG Infrastructure is Expanding



# LNG Costs Favor Long Term Contracts



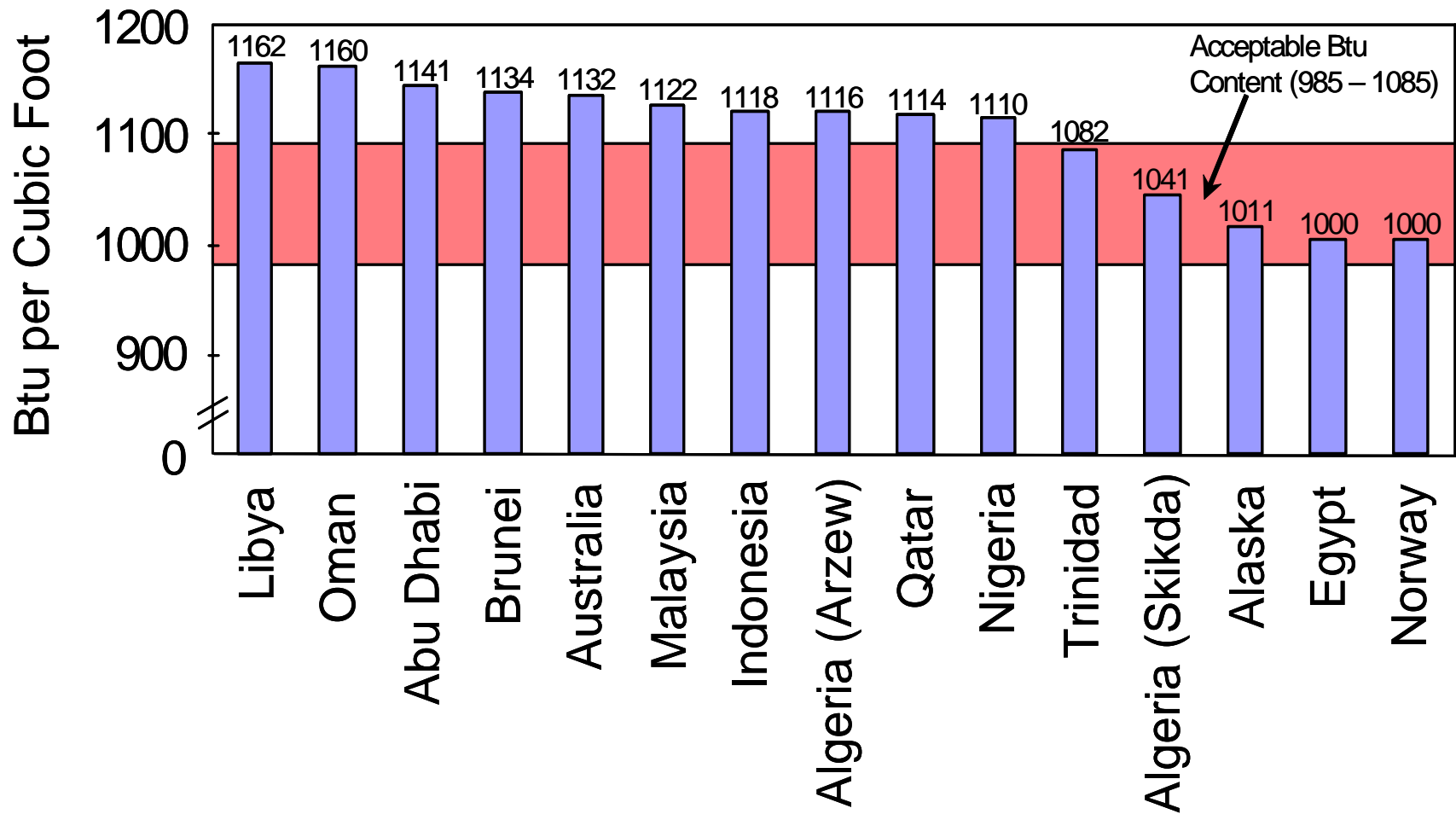
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## Recommendation 3



- Interchangeability between pipeline gas and LNG is a significant issue that PUCs should address
  - This has implications for cost, availability, and operational integrity

# Comparing Heat Content among Importers



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# Addressing the Interchangeability Conundrum



- FERC, Natural Gas Council, North American Energy Standards Board are working on resolving the questions about interchangeability
- The ultimate strategy will depend on a number of factors
  - Additional research
  - Better understanding of risks
  - Identifying a mix of strategies to mitigate the effects
  - Resolving the responsibility for mitigation

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## Recommendation 4



- PUCs should work with the relevant Federal agencies to ensure that state-of-the-art risk management systems are being applied at terminals and shipping
  - PUCs can help build public confidence that the management of risks meets the highest standards of public safety

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# Safety Remains an Overriding Public Concern



- LNG has a solid safety record
  - 60 years of design and operations improvements have resulted in a high degree of safety and reliability
- The Sandia National Laboratory report concluded that current practices minimize the effects of accidental spills
  - The effects of intentional spills (as from terrorists) can be minimized through appropriate security, planning, prevention, and mitigation
- Because LNG terminals are industrial facilities and are novel, siting continues to attract much opposition



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## Closing Remarks



- *If North American natural gas markets are to function with the flexibility exhibited by oil, unlimited access to the vast world reserves of gas is required. . . . Access to world natural gas supplies will require a major expansion of LNG terminal import capacity and development of newer offshore regasification technologies. Without the flexibility such facilities will impart, imbalances in supply and demand must inevitably engender price volatility. Alan Greenspan 2003*
- *The potential for successful siting of LNG facilities requires sound education, good communications and a need among all parties, the industry and public policy maker and the public, to respectfully and honestly address the concerns of one another. Commissioner W. Robert Keating (2005)*