

Public Confidence and LNG Shipping

Kendall G. Chen
Chairman
Energy Group, Inc.

28-Feb-05

Historical Context

- Early history of LPG and LNG
 - Tank failures
 - Staten Island explosion in 1970's
 - Technology was rocket science, literally
 - Crew training systems had to be invented
 - ETG order book was 18 ships on order, but 10 were cancelled due to Staten Island explosion and public confidence issues
 - Public lacked confidence in LNG

Historical Context

- Current history
 - LNG has a safety record that other shipping sectors envy
 - Technology is robust
 - Industry is still project driven
 - Geopolitics still plays a role in all project decisions
 - Public confidence still an issue

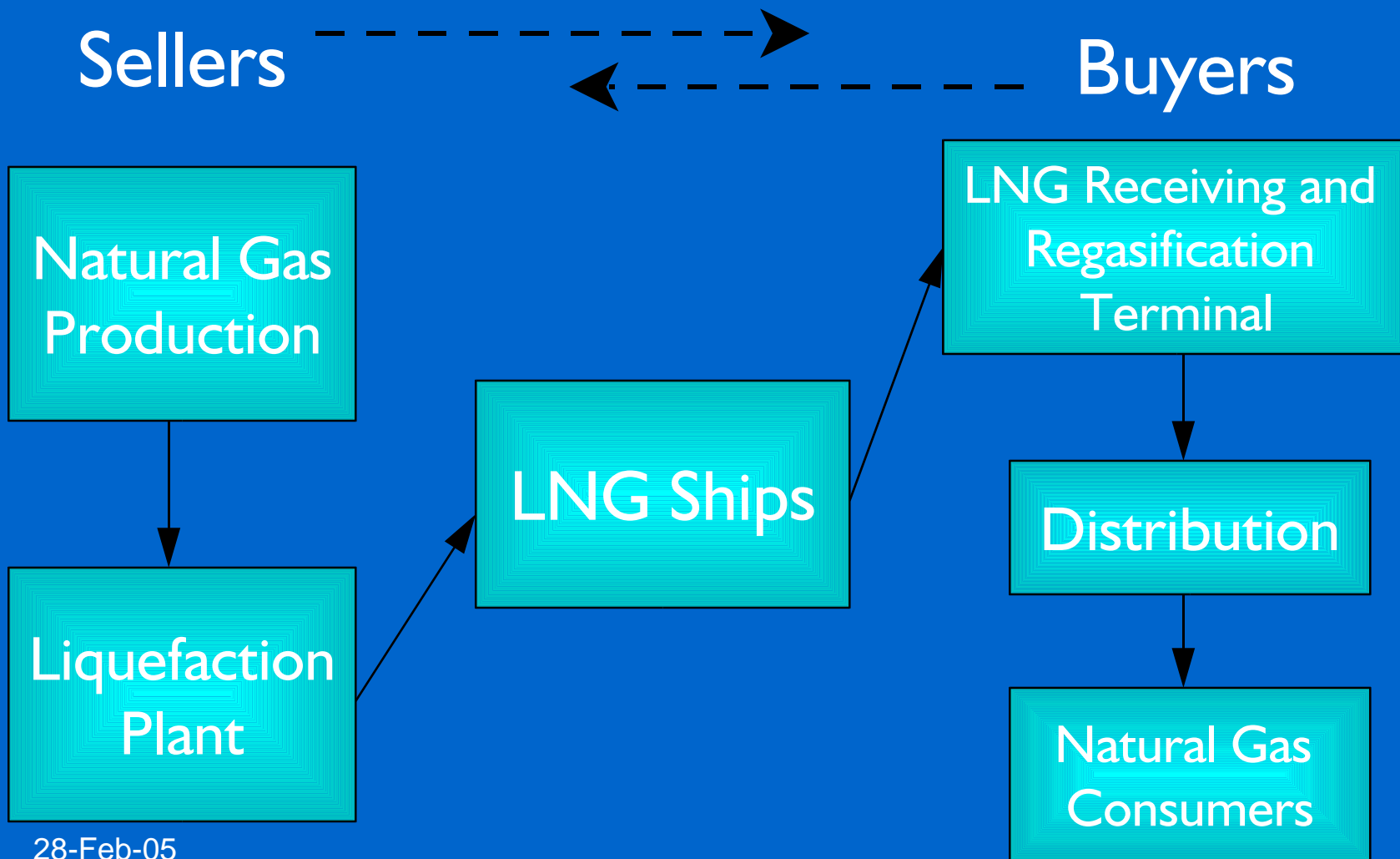
Public Confidence

- Public views LPG and LNG with the same fears
- Not in my back yard mentality faced by the 40+ FERC applications for new terminals in the US
- Energy independence frequently overruled by local issues
- New security concerns
 - Senator Barbara Mikulski’s letter to FERC on the reopening of Cove Point – “What were you thinking?”
 - Mayor of Boston closed Everett terminal after 9/11

Project Orientation

- LNG Chain
 - The purpose of the LNG Chain is to supply gas on a reliable, predictable schedule to gas consumers

LNG Ships – Essential Part of the LNG Chain



28-Feb-05

How the LNG Shipping Industry Responded and Evolved

- Continue project orientation, spot trading still on the horizon
- Primary objective remains the safe, reliable, cost effective transportation of LNG
- Technically complex ships require continuous focus on safety and reliability
- Reliability requires long term approach to maintenance and repair
- To achieve cost effective operations requires expertise

How the LNG Shipping Industry Responded and Evolved

- Focus on crew training
 - Crew is the most important element in any LNG transportation project
- Proactively address safety issues
- Safety record reflected in insurance rates
- Early adoption of ISM & ISO
- LNG training schools run by ship managers

How the LNG Shipping Industry Responded and Evolved

- Development of specialized crew qualifications
 - Proficiency in LNG cargo management
 - Operation of steam propulsion (declining)
 - Operation of onboard re-liquefaction systems
 - Maintenance of specialized electronics
 - Ability to communicate clearly in English

LNG Shipping Challenges

- Growth of projects and fleet
 - To 250 ships
 - US expanded role (40+ terminal applications)
- Spot trading
- Geographic diversity
- Security concerns
- Safety will continue to be a key concern

LNG Shipping Challenges

- Continued technological and economic development
 - Diesel propulsion
 - Re-liquefaction on board
 - Cost pressures

LNG Crewing Challenges

- Recruitment
- Crew development
 - LNG specialization at academies
 - Curricula development to keep pace with technological and economic development
 - Post graduate courses (refreshers, new technologies)
- Retention

Suggestions

- LNG Crew Clearinghouse
 - Centralized source for LNG qualified officers and crew
 - Assistance from IAMU member universities
 - Needs acceptance from LNG projects, ship owners and managers
 - Standard crew qualification review
 - Continuously updated
 - Periodic reviews of curricula
 - Encourage crew to continue training after university

Summary

- Public confidence remains a key element of successful LNG projects
- Maintaining an exemplary safety record for LNG shipping is essential to maintaining public confidence
- Crewing LNG ships is the single most important element needed to maintain safety and public confidence

Public Confidence and LNG Shipping

Questions?