LNG: Meeting California’s Energy Needs

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Workshop

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Today’s Workshop

- Why the Sudden Interest in LNG?
- Energy Policy Affecting LNG
- California’s Interest in LNG
- Issues to Resolve and Actions Being Taken
- California’s Permit Coordination
- Need for Public Information
- Concluding Remarks
Why the Sudden Interest for LNG on the West Coast?

- California’s natural gas demand is increasing.
- Power generation accounts for as much as 40% of natural gas consumed in California.
Why the Sudden Interest for LNG on the West Coast?

- California is at the end of a long, “leaky” pipeline network.
- Demand east-of-California continues to impact delivery capacity to California.
Why the Sudden Interest for LNG on the West Coast?

- Natural gas prices are expected to exceed $4.50 per MMBtu in the future.
State Policies on LNG Are Developing

- Governor Schwarzenegger has expressed an interest in LNG.

  - Recognizes LNG as a potential energy supply source.
  - Recognizes value of LNG to California.

- Energy Action Plan Commitment (CEC/CPUC/CPA)
  - “License and, where appropriate, fund construction of new energy facilities that are consistent with the reliability, economic, public health, and environmental needs of the state.”
  - “Partner with governmental and other groups in western North America to pursue commonly held energy goals.”
Energy Policy Affecting LNG

• California Public Utilities Commission
  – Recently issued rulemaking on natural gas policies will include LNG contracting issues.

• Coordination Among State Agencies
  – CEC, CPUC, State Lands Commission, California Coastal Commission all committed to working together.
  – Agencies also coordinating with federal and local agencies.
Potential Value of LNG

• LNG identified as a supply option
  – New pipelines also identified

• LNG imports specifically analyzed

• LNG provides significant economic benefit to California
  – Potential overall price reduction
  – Supply diversity
  – Additional import capacity

CNG Vessel
Photo courtesy of CH-I-V international, http://ch-i-v.com
California’s Future Natural Gas Needs

- Electricity and Natural Gas Assessment Report
- Natural Gas Market Assessment Report

CEC Reports available at www.energy.ca.gov
California’s Future Natural Gas Needs
General Observations

- Current supply/infrastructure is adequate
- Prices are higher than desired
- Demand for natural gas is growing
  - In spite of aggressive EE and renewables activity
- Additional import capacity is needed
- Prices will continue to increase
- Prices will become more volatile
Why the Sudden Interest for LNG on the West Coast?

Potential Benefits

- Delivery capacity, similar to a pipeline
- Additional supply, similar to a gas field
- Additional storage, similar to a local facility
- Supply diversity, gas from a new, price-competitive source
- Fuel diversity, liquid fuel for transportation
Potential Value of LNG

- Terminals in Baja and California
- California energy policy endorses West Coast terminals
- Value to Baja
  - Supply diversity for Baja
  - Balanced with pipes
- Value to California
  - Reduces risk of supply disruptions
  - Least-cost access to LNG
Potential Societal Risks of LNG

• Terminals:
  – High consequence / low probability events
  – Safety risks
  – Environmental risks

• Supplies:
  – Reduced control over supply source
  – Supply disruption could have significant impacts
West Coast LNG Proposals

Proposed and Announced West Coast LNG Terminals and Capacity (in MMcfd)

- **Offshore, California**
  - Cabrillo Deepwater Port, BHP Billiton
    - 800 MMcfd
  - Crystal Clearwater Port
    - Crystal Energy, Small Ventures, et al.
    - 800 MMcfd

- **Long Beach Harbor**
  - Long Beach LNG Facility
    - Sound Energy Solutions
    - 700 MMcfd

- **Offshore Tijuana, Baja California**
  - Terminal GNL Mar Adentro de Baja California
    - Chevron Texaco
    - 700 MMcfd

- **Ensenada, Baja California**
  - Energia Costa Azul
    - Sempra & Pacific LNG Consortium/Shell Group
    - 1,000 MMcfd

Port Penguin LNG Terminal
Chevron Texaco
(Location and capacity to be determined)

California Energy Commission
March 2006
Issues Needing Resolution

- Clarify natural gas quality standards
- Provide equal access to markets in California
- Define role of longer term purchase contracts
- Clarify potential pipeline upgrades
- Reduce uncertainty in terminal permitting
- Clarify international trade issues
- Provide additional public information
- Define public safety risks in more detail
Natural Gas Quality Standards

- State gas quality standards
  - Pipeline Quality (CPUC)
  - CNG Vehicles (CARB)

- Differing standards in other states

- Worldwide LNG Btu content too hot
  - NOx emissions too high

- Little flexibility in standard
Actions Underway

• Natural gas quality standards
  – Joint research study on emissions—SoCalGas
  – ARB reconsidering standard
  – Looking for LNG developer commitment
    • LNG gas conditioning at import terminal
    • LNG gas conditioning at export terminal
  – Natural Gas Working Group
  – FERC Technical Conference
  – ARB resolution expected by early next year
Potential Pipeline Upgrades

• In-state pipe system not designed for significant flows from West or South

• Flows from Baja
  – Can use existing pipe/Ehrenberg hub
  – Limited new capacity
  – Significant flows require pipe upgrades

• Flows from California coast
  – Require some downstream pipe upgrades
Actions Underway

• Potential pipeline upgrades
  – CPUC proceeding last year
    • Defined options
    • Defined preliminary costs
  – NG Infrastructure Workshop last December
  – CPUC NG OIR addressing issue
  – www.cpuc.ca.gov
Equal Access to Markets

- In-state pipe network designed to receive gas from East and North.
- Regulatory rules originally designed for pipelines and domestic supply sources.
- Delivery points and acceptance rules need reexamination.
Actions Underway

• Equal Access to Markets
  – NG Infrastructure Workshop last December
  – CPUC Natural Gas OIR
    • Specifically addressing LNG access
    • Expect preliminary ruling later this year
Longer Term Purchase Contracts

- LNG terminals are capital intensive.
- Investors need longer term assurance.
- California has a mixed history on long term contracts.
  - Risks of overpaying
  - Risks of buying too much
- Can ratepayer protection be balanced with investors’ needs?
Actions Underway

• Longer term purchase contracts
  – Energy Action Plan
  – CPUC NG OIR
  – Long term vs. longer term
  – Portfolio approach to contracts
  – Preliminary guidance later this year
Uncertainty in Terminal Permitting

- No single stop permitting agency
- Many agencies involved
- Local communities very concerned about safety risks
- LNG is “new” to California
Actions Underway

• Uncertainty in terminal permitting
  – California established the LNG Interagency Permitting Working Group
  – Agency review is now coordinated
  – FERC/USCG and State working closely together

Public information available at www.energy.ca.gov/lng
Clarify International Trade

- NAFTA addressed US exports of NG to Mexico, not imports
- Need symmetry in trade
- Need certainty in long term trade policies
Actions Underway

• Clarify international trade
  – Border Governor’s Conference will soon address issue
  – Stanford University conducting research
  – Energy Commission will be discussing this issue with our Mexican colleagues
  – Initiating discussions with US DOE
Public Information

• LNG is “new” to California

• Public agencies need objective information

• Local communities need objective information
Actions Underway

• Public information
  – Training session for public agency staff
  – LNG Website—www.energy.ca.gov/lng
  – Educational presentations for public
  – Project permitting websites
    – www.ferc.gov
    – www.slc.ca.gov
    – www.cabrilloport.ene.com
• These issues can be resolved from a technical perspective.
Public Issues Driving Siting Decisions

- Safety
- Risk from terrorism
- Inadequate information
- Public perception of safety risk
Public Issues Driving Siting Decisions

• SAFETY !!!
Public Issues Driving Siting Decisions

• The safety issue needs to be defined and addressed to the satisfaction of the public—from their perspective!!
Public Education Activities

• Local public forums
  – Sponsored by government and community groups

• Local public meetings on permitting
  – Sponsored by lead governmental permitting agency
  – Supported by involved permitting agencies
  – Solicit public input/concerns/issues

• Established government websites for project permitting
  – www.cabrilloport.ene.com

• Established government website for LNG information
  – www.energy.ca.gov/lng
Public Information Tools

• California Energy Commission LNG Website
  – Objective information
  – Verifiable
  – Updated as needed
  – Useful to state/local agencies
  – Useful to local community groups
  – Addresses public’s concerns
  – Provides a balanced perspective
Public Information Issues Needing Resolution

- Develop more detailed safety information
- Define public vs. confidential information boundary
- Provide adequate information to public to address their needs
- Ensure that government focuses on twin objectives:
  - Ensuring an adequate supply of energy
  - Protecting the environment and public health and safety
Government Coordination Model

• California’s LNG Interagency Permitting Working Group
  – Established in May 2003
  – Mission: to coordinate among potential permitting agencies and provide an effective response to future LNG permit applications
  – Includes federal/state/local agencies
  – Declared intent to work together
  – Declared intent to prepare joint fed/state environmental documents
  – Meets regularly
  – Chaired by California Energy Commission
Government Coordination Model

• LNG Interagency Working Group
  – Common information to all agencies
  – Helped define roles and responsibilities
  – Briefings by LNG developers
  – Ensures developers are fully aware of public and environmental concerns
  – Provides informal, early issue resolution
  – Focuses on common objectives and actions to achieve needed outcomes
Government Coordination Model

- Differing roles and responsibilities
- California Energy Commission
- California Public Utilities Commission
- State Lands Commission
- Port of Long Beach
LNG Import Terminals: How Will California Respond?

• LNG offers significant potential benefits

• LNG also poses potentially significant safety risks

• California has successfully analyzed controversial projects

• California is taking action to allow LNG to be fully considered
  – Baja terminals
  – California terminals

• California has established a program to provide public education

• California has organized its governmental agencies to effectively respond to permit applications
Conclusions

• Gas availability will become increasingly tighter as gas demand grows in North America.

• Pipeline capacity and storage expansions are critical to satisfying future natural gas demand.

• LNG has great potential to serve the energy needs of a growing North American population.

California is developing plans for an energy future that potentially includes LNG.
Thank you.

Questions?