

Is LNG in California's Future?

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Natural Gas and Special Projects
California Energy Commission
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Today's Talk

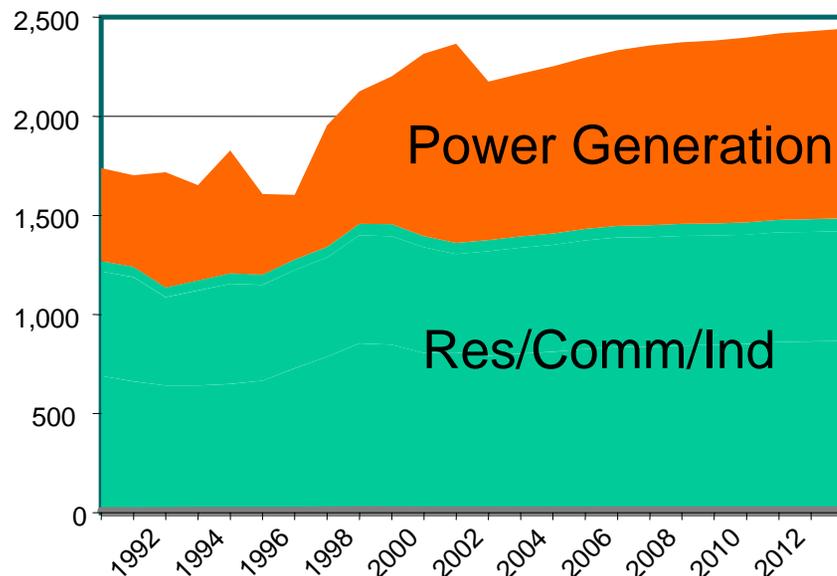
- California's Energy Policy
- California's Interest in Pipes and LNG
- Issues to Resolve and Actions Being Taken on LNG
- Government Coordination Models
- Future Work
- Concluding Remarks



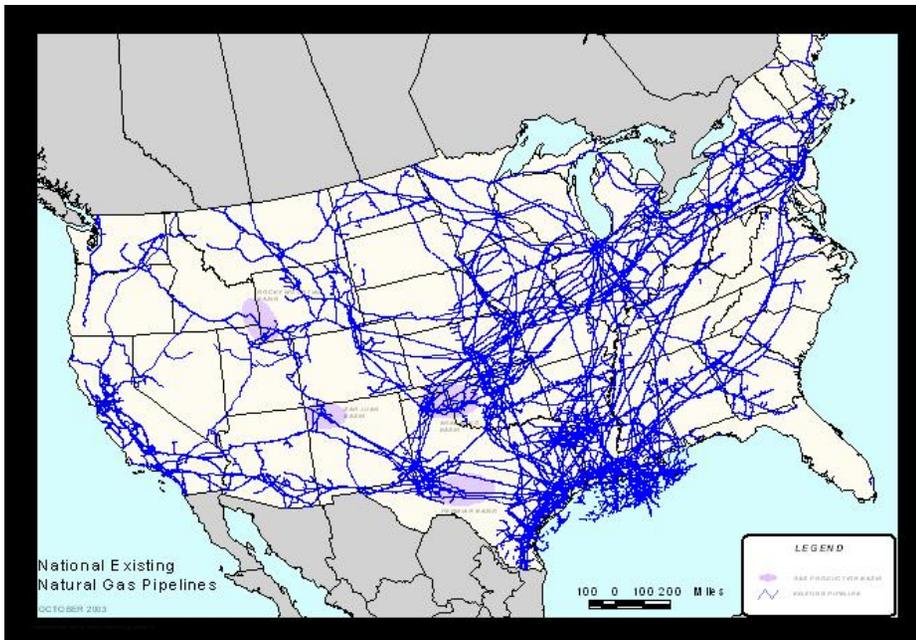
California Energy Policy

- California's natural gas demand is increasing.
 - ❖ Imports about 85% of state needs.
- Power generation accounts for as much as 40% of natural gas consumed in California and averages about 33%.

California Natural Gas Demand (MMBtus)

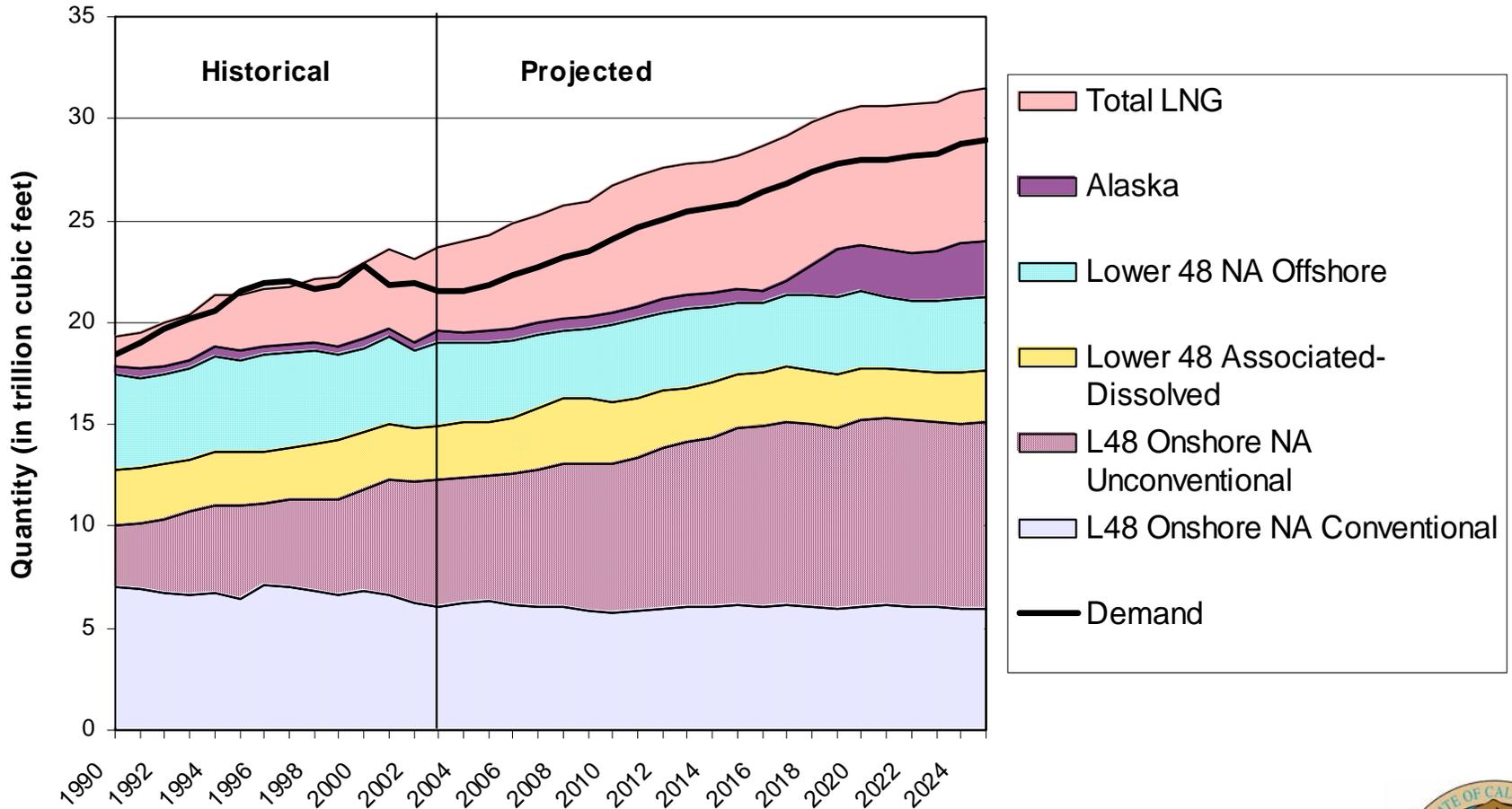


California's Energy Policy



- California is at the end of a long, “leaky” pipeline network.
- Demand east-of-California continues to impact delivery capacity to California.

U.S. Natural Gas: Historical and Projected Demand and Supply



source: U.S. Energy Information Administration

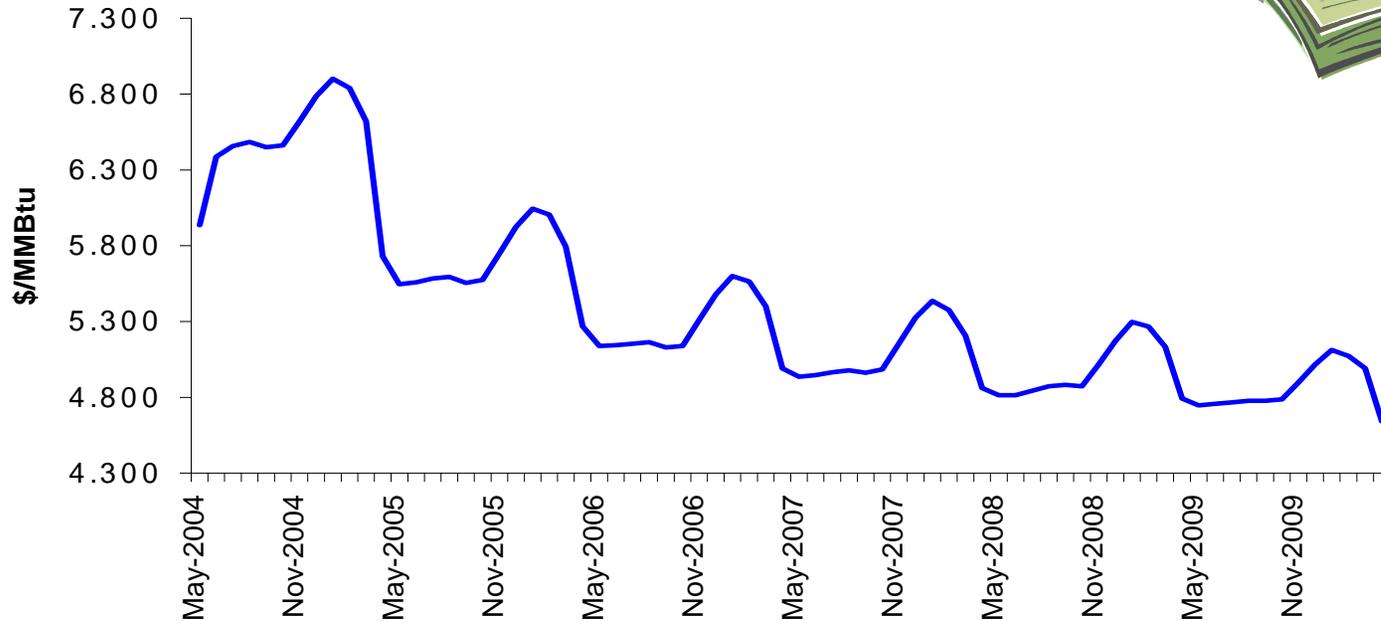


California's Energy Policy

- Natural gas



NYMEX Natural Gas Prices (May 11, 2004)



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



California's Energy Policy

- 2003 Integrated Energy Policy Report
- 2003 Energy Action Plan
- 2003 Electricity and Natural Gas Assessment Report
- 2003 Natural Gas Market Assessment Report

CEC Reports available at www.energy.ca.gov



State Energy Policies on Pipes

- **2003 IEPR**
 - ❖ - “It is paramount that California continues to develop additional interstate pipeline capacity...”
- **2003 Energy Action Plan**
 - ❖ “Partner with governmental and other groups in western North America to pursue commonly held energy goals.”
 - ❖ - “Support electric utilities and gas distribution companies entering into longer term contracts as a hedge against volatile and high spot market prices.”



State Energy Policies on LNG

- Governor Schwarzenegger has expressed an interest in LNG.
- Integrated Energy Policy Report (CEC)
 - ❖ 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.”



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, others 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-IV International, <http://ch-iv.com>



Why the Sudden Interest for LNG on the West Coast?

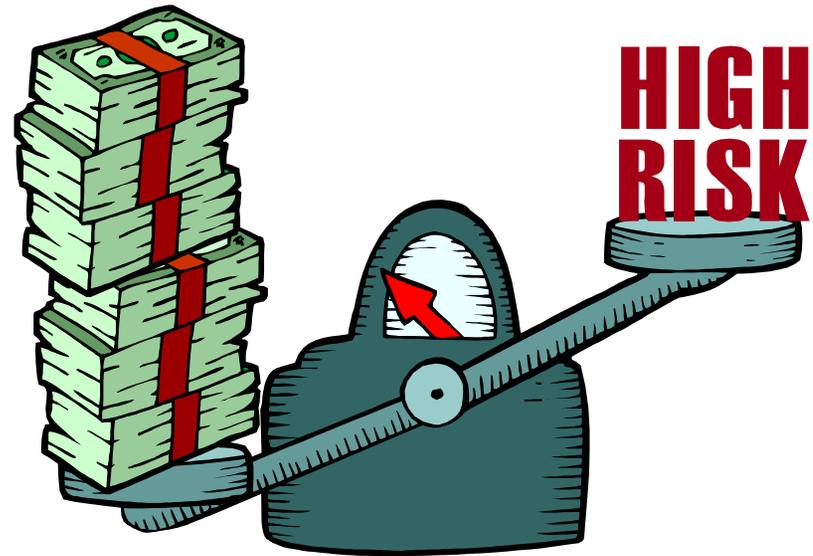
- **Potential Benefits**

- ❖ 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

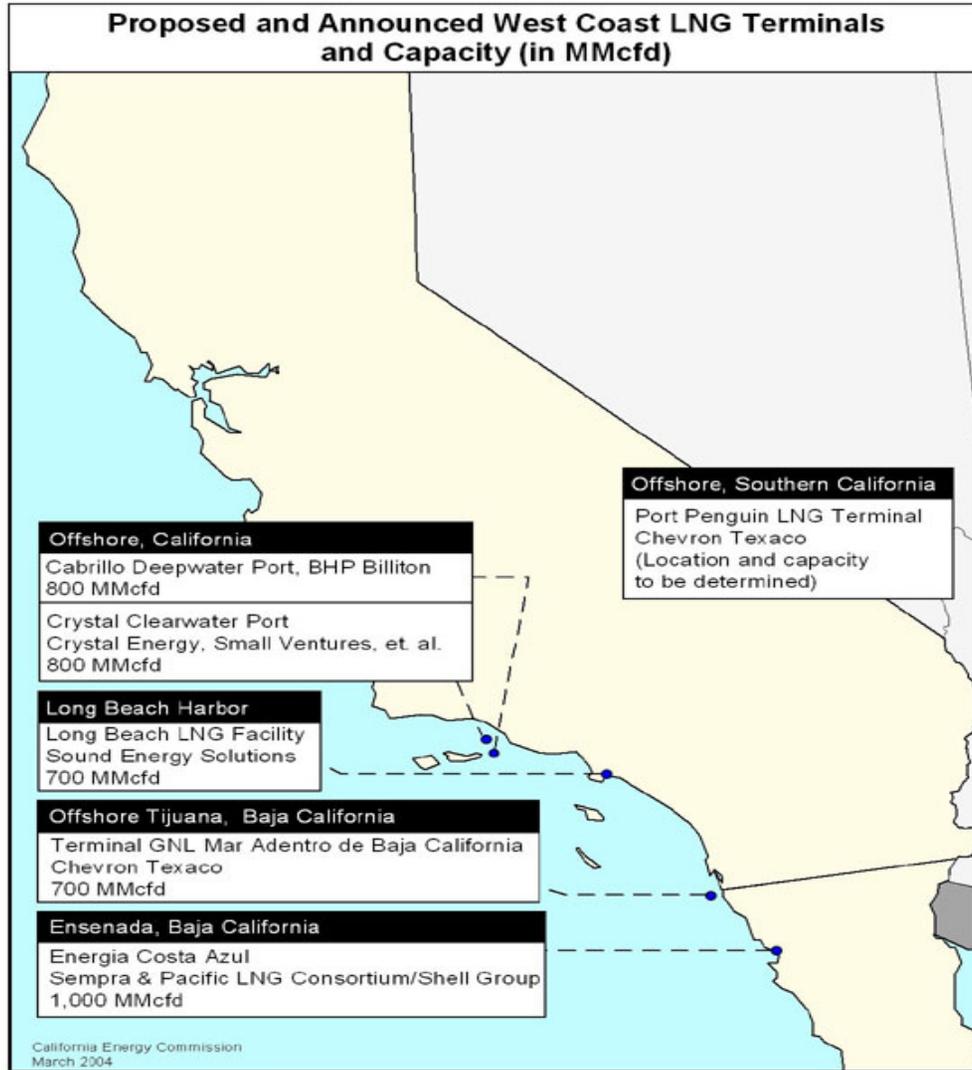


Potential Societal Risks of LNG

- Terminals:
 - ❖ High consequence / low probability events
 - ❖ Safety risks
 - ❖ Environmental risks
- Supplies:
 - ❖ Reduced control over supply source
 - ❖ Supply disruption could have significant impacts

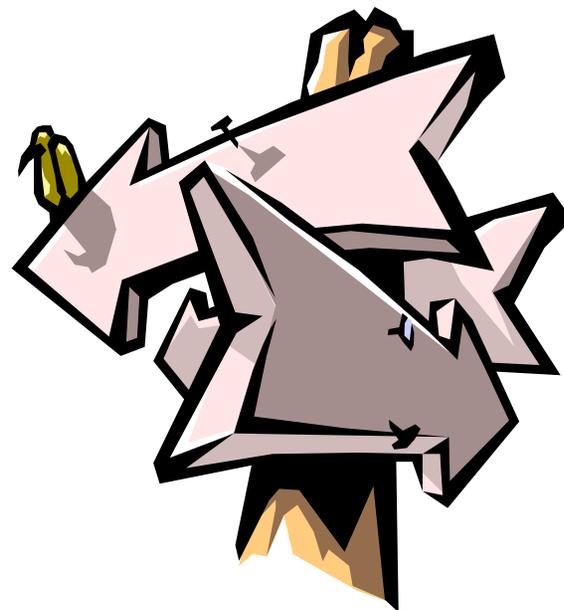


West Coast LNG Proposals



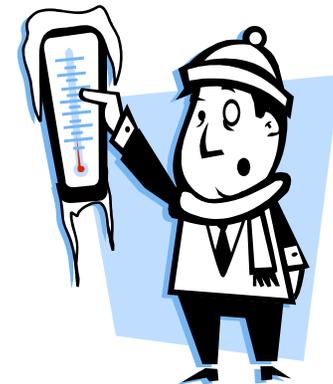
LNG Issues Needing Resolution

- ❖ 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



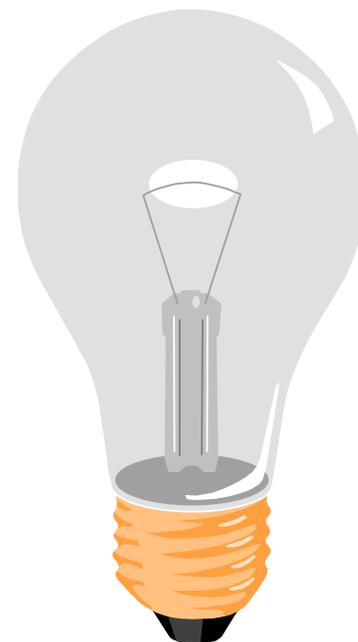
Natural Gas Quality Standards

- 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



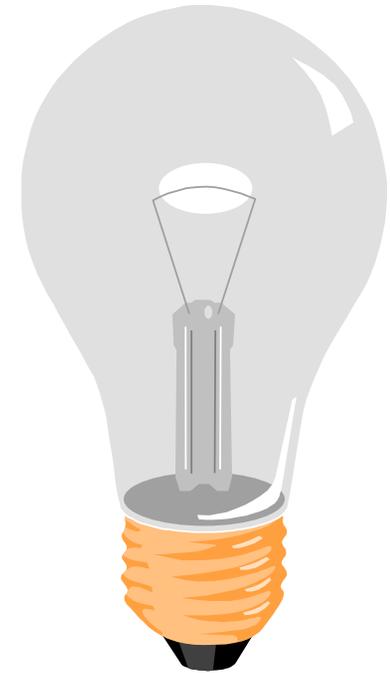
Potential Pipeline Upgrades for LNG

- 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



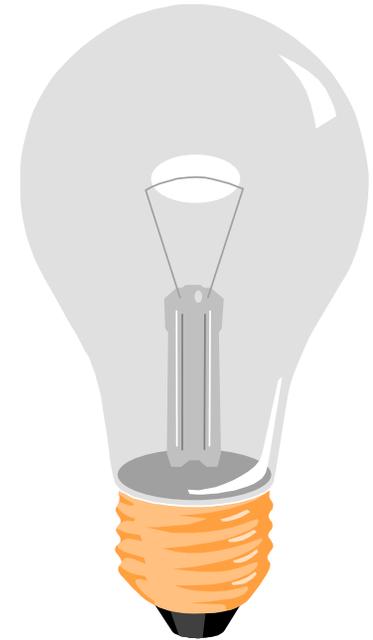
Equal Access to Markets

- 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
 - Draft decision on Phase I now out for review



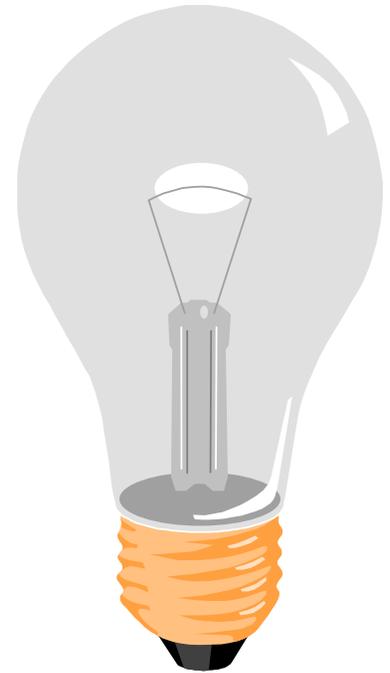
Longer Term Purchase Contracts

- 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?



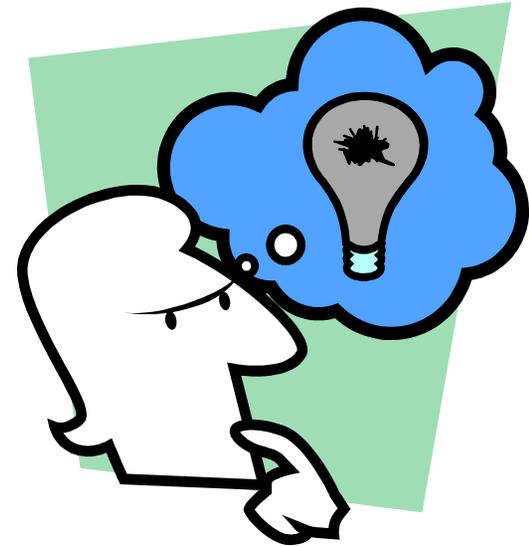
Actions Underway

- Longer term purchase contracts
 - ❖ Integrated Energy Policy Report
 - ❖ Energy Action Plan
 - ❖ CPUC NG OIR
 - ❖ Long term vs. longer term
 - ❖ Portfolio approach to contracts
 - ❖ Preliminary guidance next 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 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



Issues Needing Resolution

- These issues can be resolved from a technical perspective.



Government Coordination Model

- Natural Gas Working Group
 - ❖ All state agencies involved in natural gas
 - ❖ Meets regularly
 - ❖ Exchange information
 - ❖ Alerts for upcoming issues
 - ❖ Helped expedite pipeline permitting
 - ❖ Notification to Governor's Office for action when needed
 - ❖ Chaired by California Energy Commission



Government Coordination Model

- CEC/CPUC Collaboration
 - ❖ Close communication at Commission level
 - ❖ Close communication at staff level
 - ❖ Frequent meetings
 - ❖ CEC providing analytical support in a collaborative approach



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



Future Work

- 2005 IEPR
 - ❖ Natural Gas Assessment
 - ❖ Initial workshops already started
 - ❖ Western Gas Assessment
 - ❖ Energy Assessment of LNG
 - ❖ LNG Fact Sheets



CONCLUSIONS

- California's infrastructure is adequate for now.
- Additional infrastructure will soon be needed.
- Demand for additional gas is growing.
- California governmental agencies are working together to attract new investment and supplies.



Thank you.

Questions?

