Alaska Gasline Port Authority

Presentation to the Alaska Legislature

June 12, 2008

The All Alaska Project

Gas Conditioning Plant in Prudhoe Bay

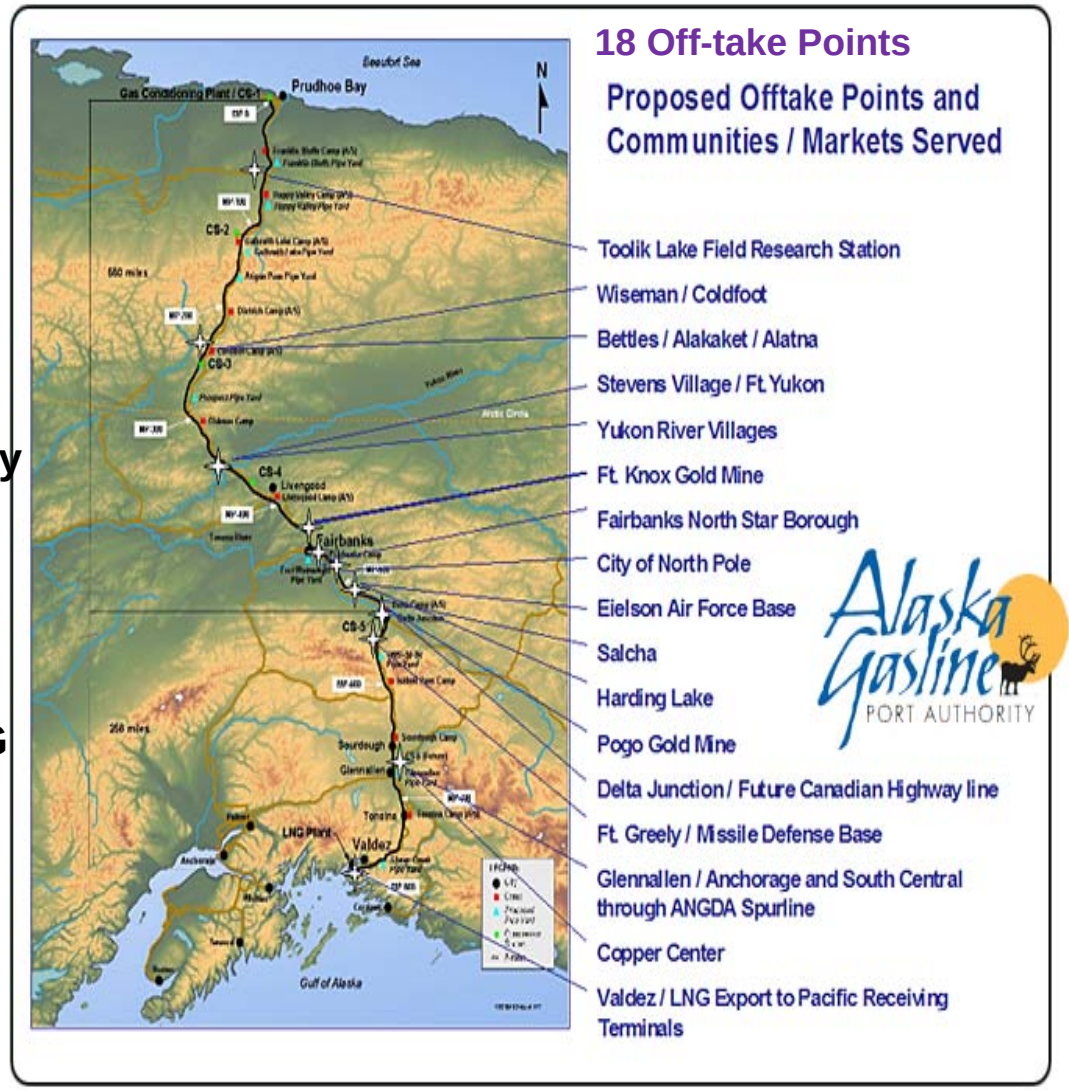
- **removes impurities**
- **compresses and chills gas to pipeline specifications**

Pipeline from Prudhoe Bay to Valdez

- **pre-build to Delta Junction for later tie-in for the Alaska/Canada Highway Project**
- **tie-in at Glennallen for a spur line to South Central natural gas grid**

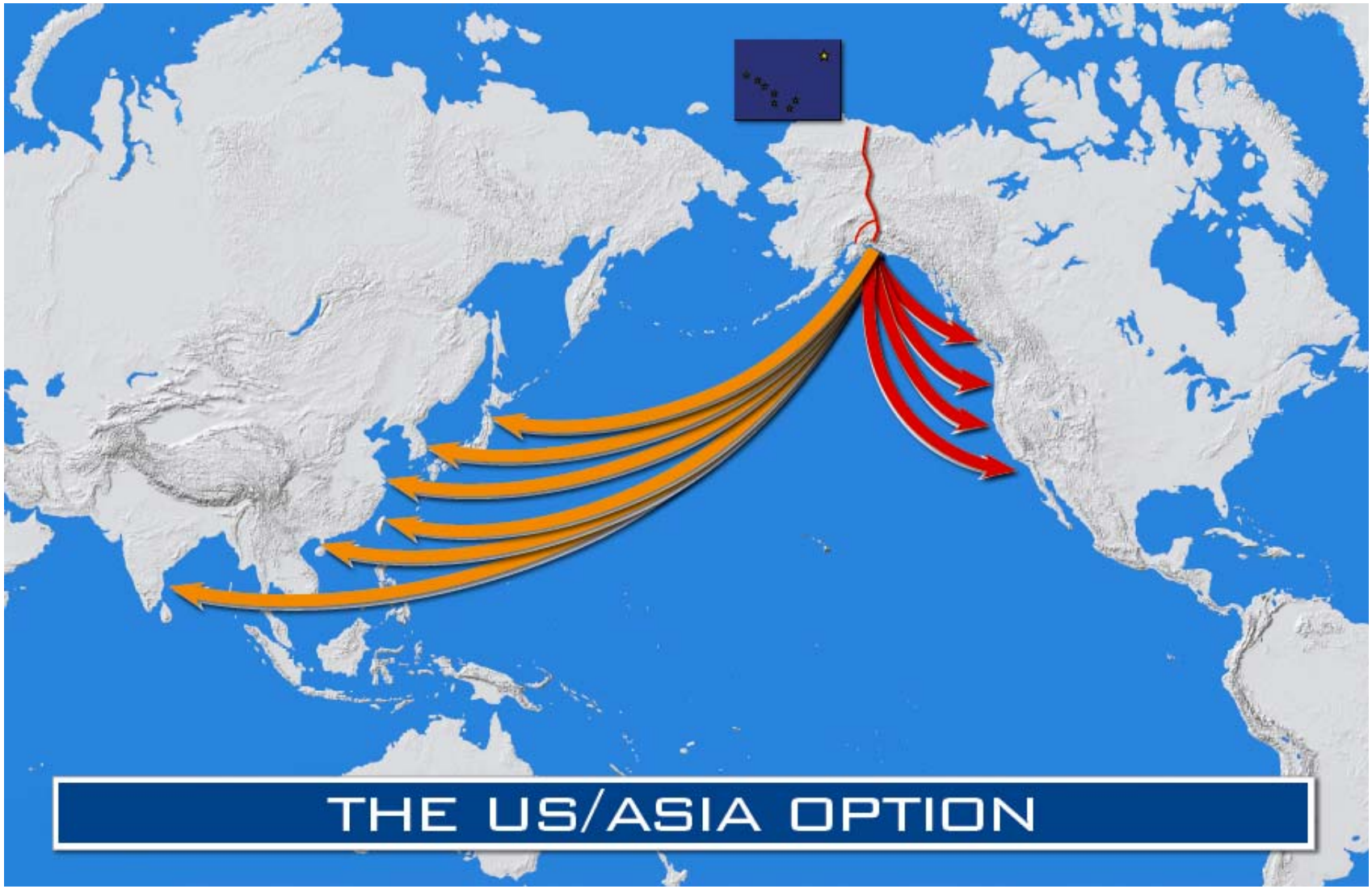
LNG Facility in Valdez

- **integrated LNG liquefaction and LPG extraction facilities**
- **includes storage and vessel loading facilities**



Markets

- Port Authority Markets
  - Alaska
  - Asia (Japan, Korea, Taiwan)
  - West Coast
  - Hawaii


THE US/ASIA OPTION

Export License

- DOE Viewpoint
  - Presumption of export
  - Allow market to work
  - Balance of payments
- Kenai 1967
  - Renewals: 1982,1987,1988,1999, 2008
- Valdez 1989 (FERC Order 350)
  - 14 MTA 25 years (Japan, Korea, Taiwan)

Btu Content

- ANS gas very high in liquid content (1084 btu/scf)

- Liquids in Alaska for value added – Options
  - LNG base case: extract propane & butane (1060 btu/scf)
    - 23,000 barrels per day
    - 30 x Alaska LPG consumption (30,000 gal)
  - Extract more liquids in Alaska
    - Can also extract ethane for value added
    - In current market environment lean gas to Asia not an issue

LNG imports into Asia: examples of gas composition

HV Level (Btu/scf)		Super Lean		Lean	
		1010-20	1020-40	1040-90	1090-
Project		Kenai	Egypt T&T	Nigeria Abu Dabi Qatar E. Guinea	Malaysia Oman Algeria Brunei Indonesia Australia
Typical Components	C1	99.6	98.1	92.2	90.1
	C2	0.2	1.8	5.1	5.4
	C3+	0.2	0.1	2.7	4.5
Gross Heating Value		1010	1025	1090	1120
Typical Project		Kenai	Egypt	Nigeria	Malaysia

Record of Receiving Lean LNG (Japan)

Most of Japanese Utilities are Capable of Receiving Super Lean Cargoes.

Utilities Capable of Receiving:

Super Lean

(<1040 Btu/scf: Egypt, T&T, Kenai)

- Tokyo Electric
- Tokyo Gas
- Chubu Electric
- Osaka Gas
- Kansai Electric

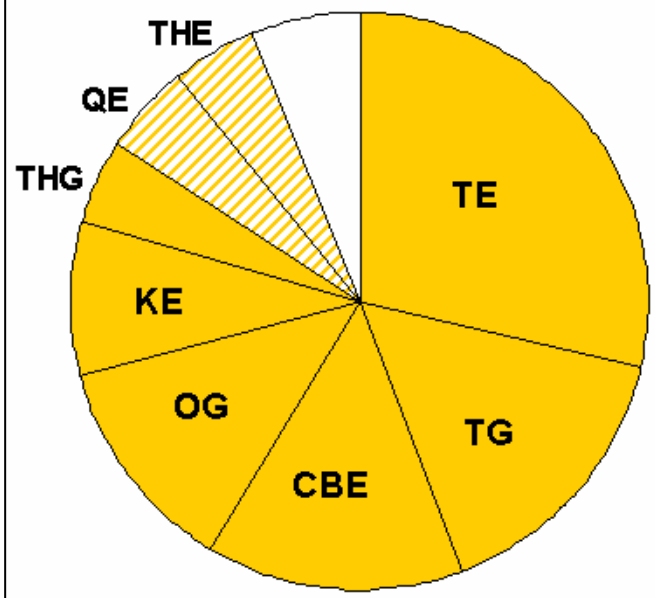
Total LNG Share:
Approx. 85%

Lean

(<1090 Btu/scf: Abu Dabi, Qatar, Nigeria, E.Guinea)

- Tohoku Electric
- Kyushu Electric

Approx. 10%



"LNG Share by Utilities in Japan"

Total (2007) 61,580,000 ton

Record of Receiving Lean LNG (Korea)

All Korean Utilities are Capable of Receiving Super Lean Cargoes.

Utilities Capable of Receiving:-

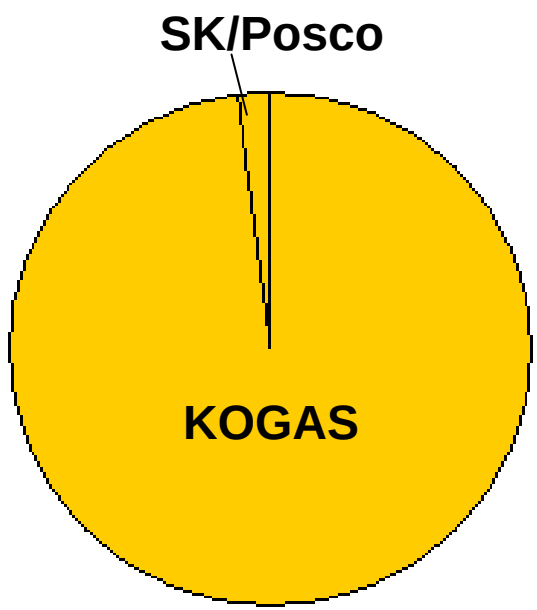
Super Lean

(>1040 Btu/scf : Egypt, T.T, Kenai)

- Kogas
- SK
- Posco

Total LNG Share:

Approx. 100%



"LNG Share by Utilities in Korea"

Total (2007) 25,568,900 ton

Initial Project Volume

- All-Alaska project volume 2.7 not 4.5 bcf/d
- Reasons AGPA Chose 2.7 bcf/d
  - AOGCC (PBU Off-take)
  - Market Acceptance
  - Prove up reserves for expansion
- Better fit if no short-term PTU availability

Liquefaction Cost

- Administration costed LNG plant using “comparable worldwide projects”
  - “The Technical Team did not have an AGIA-compliant application to directly evaluate regarding the cost of liquefaction.”
  - $22.5 billion (4.5 bcf)

- Dangers of data mining – appears that administration’s process
  - May have included upstream costs as part of integrated project costs
  - Missed 40% savings on compression resulting from high pressure of dense phase pipeline and ambient conditions in Valdez

Liquefaction Cost

- Bechtel LNG plants: Kenai, Algeria, Indonesia, UAE, Libya, Egypt, Trinidad, Australia, Angola, etc.
- Only licensee for ConocoPhillips Cascade Process
  - Single most creditable source for cost estimate

4th Train - Trinidad

Liquefaction Cost

- Bechtel's Work for AGPA
  - 2000-05: $8 million cost estimate, 55,000 man hours
  - 2007: $2 million AGIA update, 50+ engineers

- Results - Valdez LNG Plant
  - $7.0 billion* for 2.7 bcf (vs. $22.5 for 4.5 bcf)
  - Bechtel estimates low level of cost overrun risk on liquefaction because proven technology and design
    - Alaska pipeline component has highest capital cost uncertainty because substantially more unknowns

* Excludes owner and financing costs.

Netback

- Econ One (Fall 2006)
  - LNG first on Y-line has higher NPV if LNG 3 years before Canadian leg
  - This was when LNG had inferior netback
- LNG has superior netback, period.
  - ~$1.00 / mmBtu for 2.7 bcf LNG vs. 4.5 bcf Highway
  - Greater advantage for 3.5 bcf Highway
  - Even greater advantage if market optionality considered

All-Alaska Route Permitted

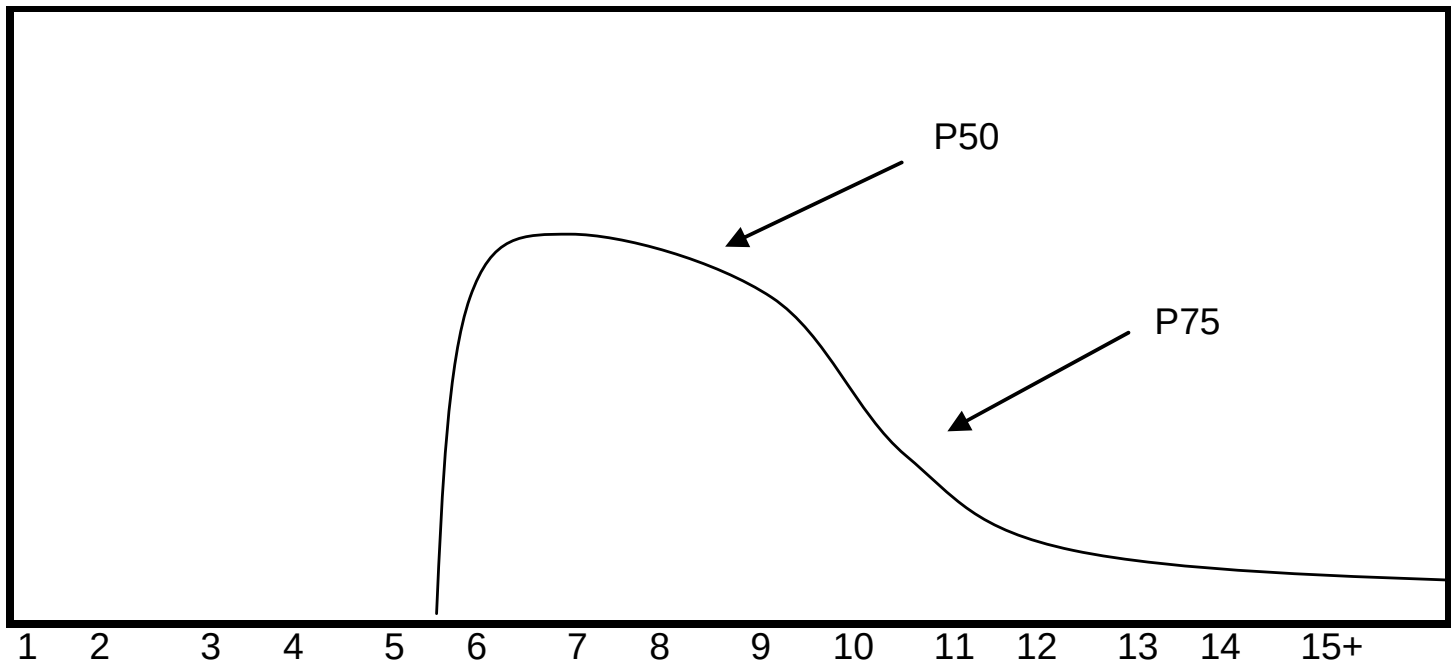
- Pipeline 100% within existing TAPS corridor
- No foreign issues
- YPC – 20+ years ($100 million) of permits & process
  - Saves years
  - We know the answer is “yes”

Canadian Delay – Bennet Jones Report

- Environmental (NPA vs. Newer Laws)
  - No legal or even identified right-of-way
  - “likely” pressure for review process similar to Mackenzie Gas Project
- First Nations (40+)
  - Constitutional obligation to consult
  - Legal challenge “likely” and take “several years” to resolve
  - Can be “fatal” since they can stop project until adequate consultation
- NPA exclusivity to TransCanada
- Mackenzie goes first

Canadian Delay

Hypothetical Timing Profile



Risk

- LNG vs. Pipeline
- Structural vs. Commercial
- Alaska/U.S. vs. Canada
  - LNG - Alaska controls project risks

Risk

- The greatest risk in the project is Alaska's future

Which Project Goes First

- Administration states Canadian leg should go first
- AGPA states All-Alaska leg should go first
  - David Keane (BG) testified last session that the LNG project would be the enabler for a later Canadian Highway project
- Let market/shippers decide – eliminate no options

Way Forward Options

- Build All-Alaska gas pipeline now
- Pass AGIA but…
- Take control of Alaska's future
  - State contracts for building of All-Alaska gas pipeline now and begin moving Alaska's gas to Alaskan and other markets.