HB 3001
SB 3001
7/9/08
SPECIAL SESSION DOCUMENTS

Alaska Gasline
PORT AUTHORITY

Presentation to
Alaska State Legislature

July 9th, 2008

Juneau, Alaska

Important Notice About Financial Projections

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Overview

1. **Economics of the LNG Project**
   - **Port Authority analysis vs. other analyses presented to the Alaska legislature**
   - **Why do results and conclusions differ?**

2. **Issue in Focus (I): Capital Cost of LNG Plant**

3. **Issue in Focus (II): Gas and LNG Prices**

4. **Netback Comparison: LNG vs. Pipeline to Canada**

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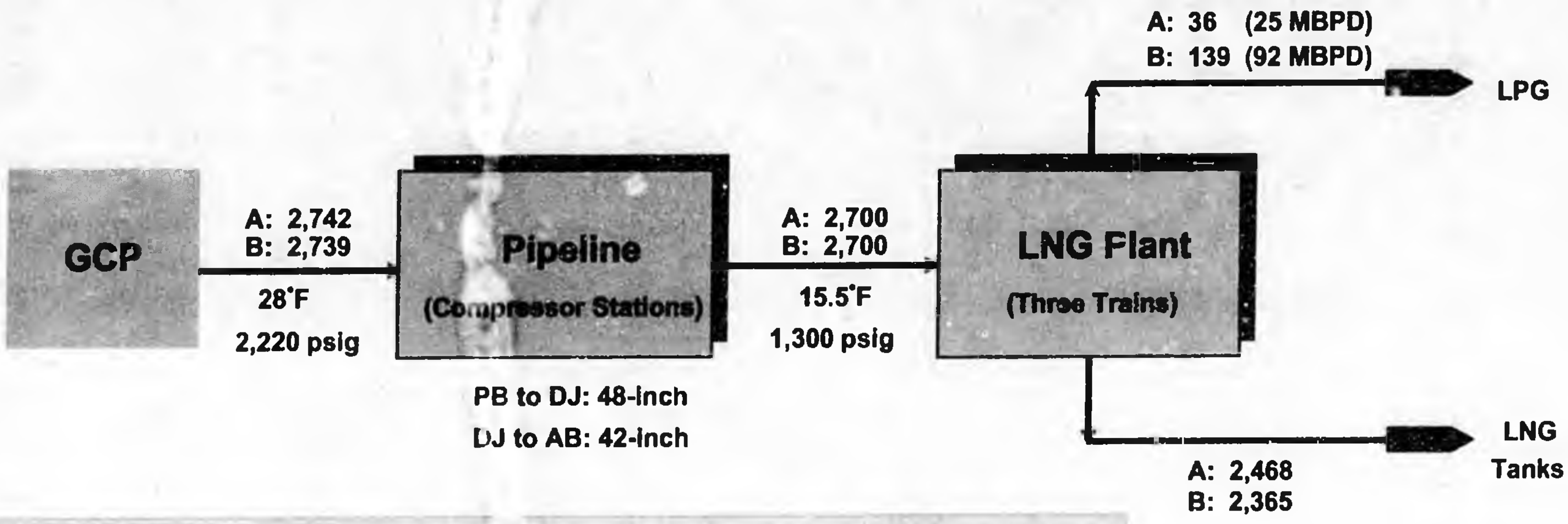
1. LNG Project Economics: Why Do Analyses Differ?

Port Authority Project

OVERALL FLOW SCHEME (Gas Compositions Year 2007 Winter Conditions)



Legend:

A. Lean Gas Case

B. Rich Gas Case

Notes:

All flow rates are in MMSCFD; Base Case LNG Plant Availability Assumption: 95%

PB: Prudhoe Bay; DJ: Delta Junction; AB: Anderson Bay

The difference between the inlet and outlet streams is fuel consumption

Port Authority Project

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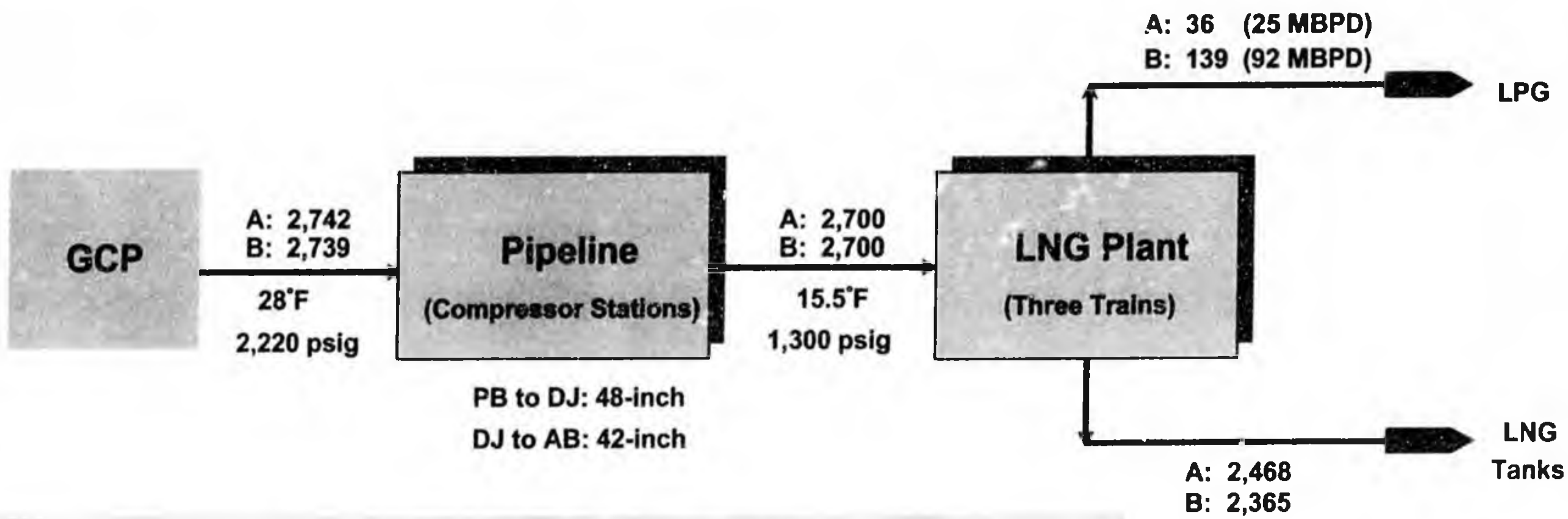
OVERALL FLOW SCHEME (Gas Compositions Year 2007 Winter Conditions)



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The difference between the inlet and outlet streams is fuel consumption

Analyses of LNG Project Presented to Legislature

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Several analyses presented to Alaska Legislature:

Economics of an LNG Project (not necessarily the Port Authority's proposed project) compared with the economics of a Pipeline Project to Canada

- Port Authority: concludes LNG Project is more attractive than Pipeline Project
- Administration (and consultants): concludes LNG Project is less attractive than Pipeline Project
- EconOne: shows LNG Project more or less attractive than Pipeline Project, depending on assumptions

Principal Drivers of Netback Results

- What accounts for the substantively different results and conclusions of the above analyses?

- Netback price results are a function of: (i) market price; and (ii) transportation cost

- Different assumptions for:
  - capital cost of project components
  - difference in prices in Asian LNG market and Alberta gas market

  ⇨ different results for netbacks for the two projects

Capital Cost Assumption Comparison

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Capital cost assumptions:

- 2.7 Bcfd LNG Project
- Port Authority assumptions include EPC costs, owner's costs during construction, and development costs
- excluding escalation after 2007, property taxes during construction, IDC and EDC

	Port Authority	Administration (P50)
Pipeline from Prudhoe Bay to Valdez	$13.2 billion	$11.4 billion
LNG Facilities	$8 billion	$14 billion

- The Administration's analysis uses substantially higher capital cost assumptions for the LNG Facilities in Valdez
- Part 2 of this presentation discusses LNG plant capital costs in detail

Gas and LNG Price Assumptions

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- Asian LNG Prices:
  - bilateral, long-term sales and purchase agreements
  - price formulas with oil price indexation provisions
  - pricing provisions reflect market supply and demand dynamics at time of contract execution
  - at each point in time, multiple active supply contracts, negotiated at different times, with varying pricing provisions

- North American gas prices
  - price discovery is driven by a gas spot market at regional trading hubs

Gas and LNG Price Assumptions (continued)

- The assumed price differentials LNG sales price in Asia and gas prices in Alberta have a direct impact on netback comparison
- Administration's analysis:
  - LNG price formulas from Gas Strategies report
  - North American gas prices from Wood Mackenzie
- EconOne analysis:
  - shows netback results under a range of price assumptions
- Part 3 of this presentation provides further discussion on gas price assumptions
- Part 4 shows netback comparisons under a range of assumptions

2. Issue in Focus (I): LNG Plant Capital Cost

Port Authority Cost Estimate

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Port Authority assumptions for LNG Facilities capital cost:

- EPC cost estimate developed by Bechtel in 2007
- Based on extensive technical work for the project, taking into account project-specific conditions, including: site conditions and accessibility, feed gas composition and pressure from pipeline, local climate, applicable labor rates, cost of transportation of materials to site, etc.
- Proven, well-established plant design
- Fewer cost uncertainty factors in comparison with the pipeline

Administration's Cost Estimate

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- Administration's estimate for LNG plant capital cost*:
  - "Top-down" cost estimate
  - Derived by "data mining" of database of existing LNG projects around the world
  - Cost-per-ton estimate derived from project database applied to the Alaska LNG project
- Administration's cost estimate not developed on the basis of detailed technical work based on the specifics of the Alaska LNG project

* Note: Description of Administration's methodology as described in Chapter 4, Section E.3 of the Written Findings and Determination by the Commissioners of Natural Resources and Revenue for Issuance of License under AGIA

Administration's Cost Estimate (2)

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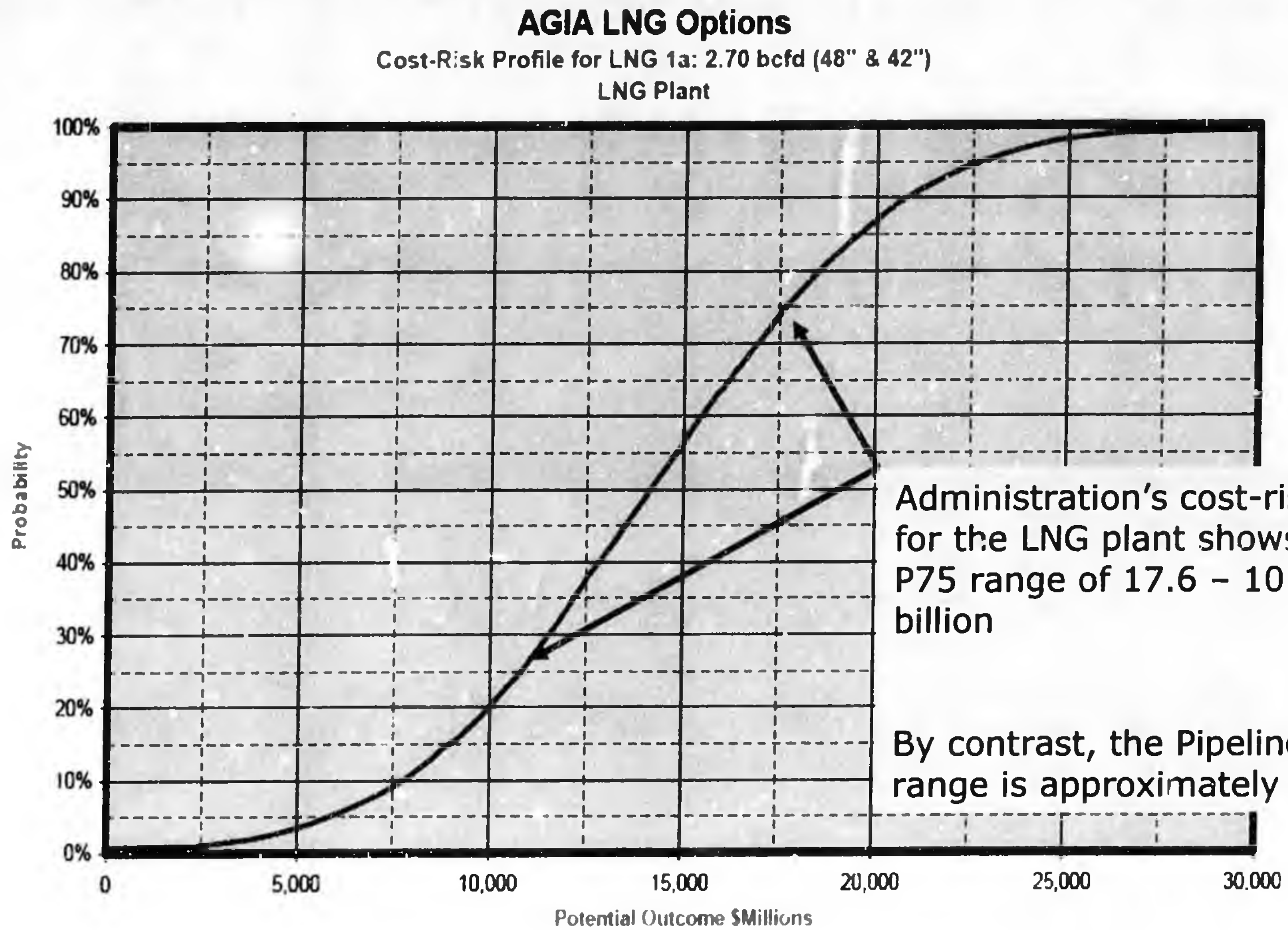

Administration's cost-risk profile for the LNG plant shows a P25 to P75 range of 17.6 - 10.8 = 6.8 billion

By contrast, the Pipeline P25-P75 range is approximately 2 billion

Administration's Cost Estimate (3)

- The Administration's cost risk profile shows a significantly higher capital cost variability for the LNG plant than for the pipeline

- Furthermore, the P50 estimate is significantly higher than the Port Authority's base case assumption

- The principal reason for this discrepancy is the Administration's cost estimation methodology
  - data mining from database of various international projects captures variability associated with project-specific factors that do not apply to the Alaska LNG project
  - certain technical factors specific to the Alaska LNG project have been considered by Bechtel's design, but apparently not included in the Administration's analysis

LNG Plants Are Not the Same

- "Dollars per ton" comparisons of LNG project capital costs are frequently cited

- However, LNG projects are not the same: project location, project scope, feed gas composition and other project-specific factors make valid project comparisons difficult*

* For a detailed discussion of this topic, please see KBR's technical publication "LNG Liquefaction – Not All Plants Are Created Equal", available from KBR's website: www.kbr.com

LNG Plants Are Not the Same (2)

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- Variations in LNG plant scope and configuration:
  - many LNG projects include cost of gas treatment
    - liquid slug removal
    - condensate stabilization
    - acid gas removal
    - water removal
    - mercury removal
  - for the Alaska LNG project, gas treatment occurs at the GCP on the North Slope

- Feed gas pressure
  - high pressure feed gas from the pipeline to Valdez
  - significant reduction in the cost of compression at the Valdez LNG Plant

LNG Plants Are Not the Same (3)

- Ambient temperatures at project site
  - most LNG projects in warm climate
  - Valdez plant benefits from cold climate
- Other location-specific conditions
  - site preparation: cost varies significantly with soil conditions and location; Bechtel estimate based on Anderson bay site
  - marine terminal facilities: entirely dependent on location of project – is dredging required, location of jetty, is breakwater required, etc.; Bechtel estimate based on Anderson Bay site
- Other factors: labor costs, sponsor vs. contractor costs, cost inclusions in publicly cited figures, etc.

LNG Plants Are Not the Same (4)

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- The cost-risk profile for the LNG facility
  - should capture the capital cost risks associated in the execution of the Alaska LNG project
  - should not capture the variability of site-specific and project-specific factors across projects of different scope, in different locations and subject to different conditions

- In the absence of a project-specific cost estimation study, "cost-per-ton" type of approximation derived from historical LNG projects may be the only option for a back-of-the-envelope quick estimation

- However, due to the inherent difficulty of making valid project comparisons across projects with divergent characteristics, the limitations of this approach should be recognized

"Bottom-Up" Approach Yields More Reliable Estimate

- The "top-down" cost-per-ton estimation is no substitute for detailed cost estimation analysis performed by qualified engineers, taking into account the specific parameters of the project
- Bechtel's work with the Port Authority dates back to 1999
- A significant amount of technical work for the Alaska LNG has been performed by a large Bechtel engineering team, with extensive experience in successfully executing LNG and pipeline projects worldwide
- Bechtel's most recent cost estimate used in the Port Authority's analysis was developed in the summer and fall of 2007

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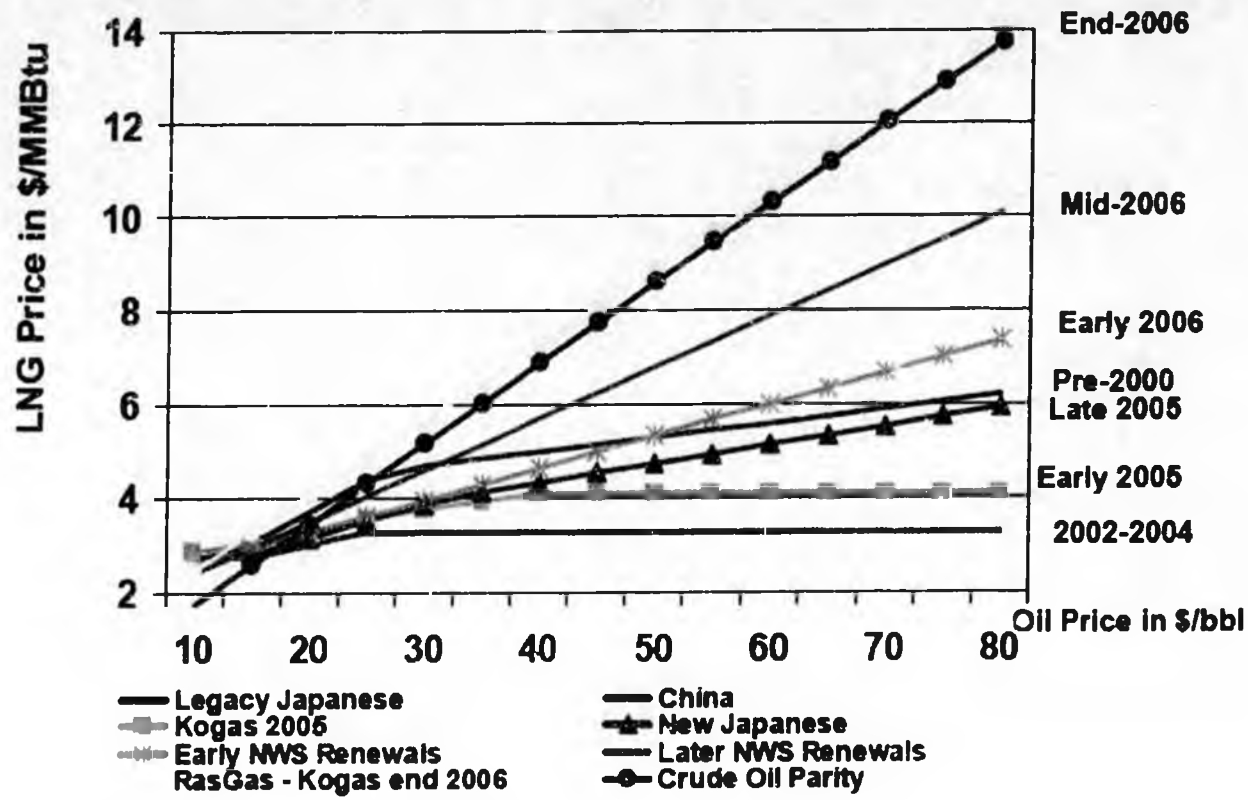
3. Issue in Focus (II): Gas and LNG Prices

Evolution of Asian LNG Prices



Source: Gas Strategies Consulting

- Recent LNG sales contracts in the Asian LNG market have been executed on terms highly favorable to sellers
- Kogas contract from late 2006: LNG price formula reportedly above parity with oil

Price Assumption for Alaska LNG (E. Asia DES)

- Port Authority expects the current highly seller-favorable market to swing back towards more buyer friendly terms

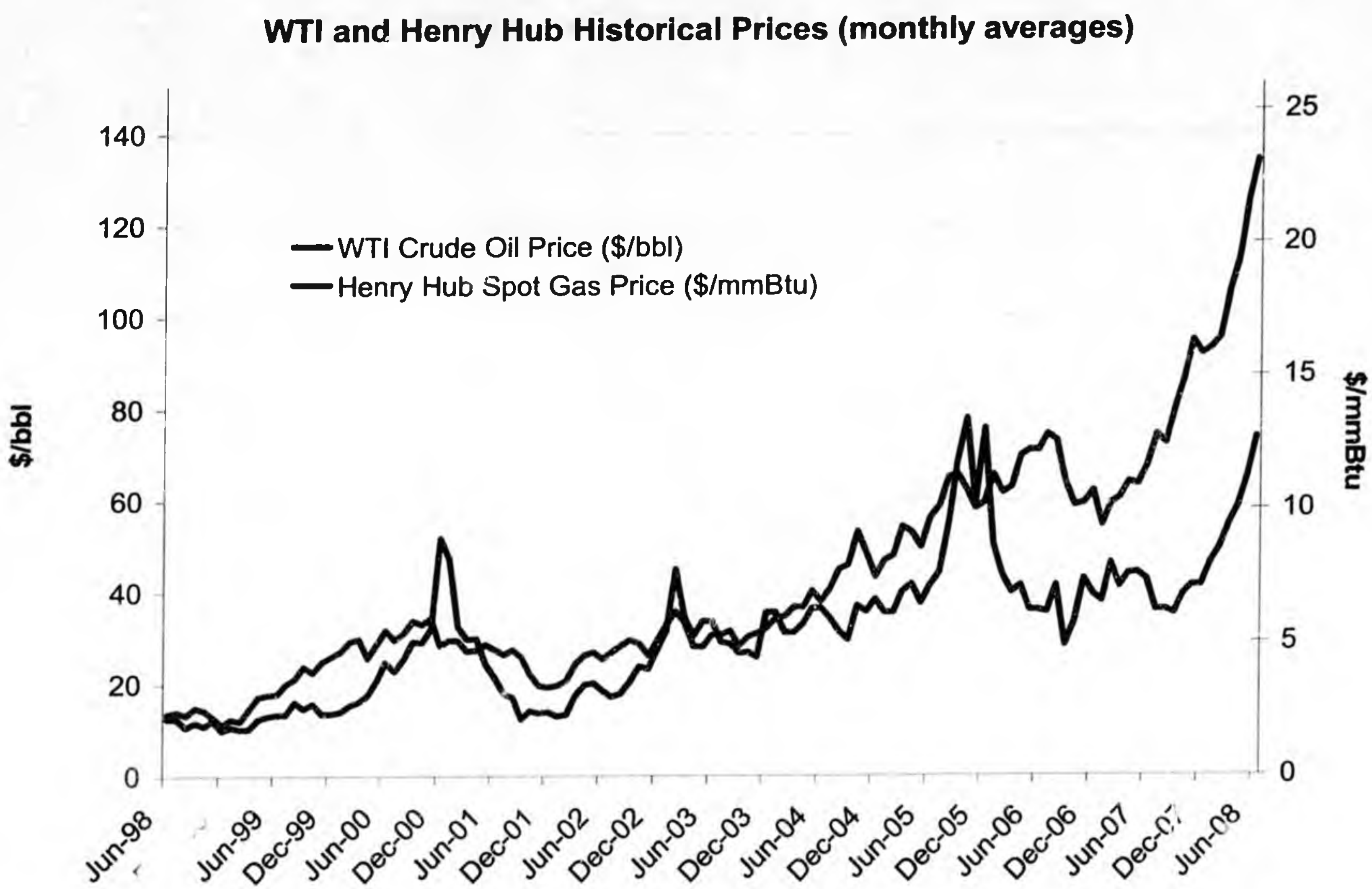
- Gas Strategies' report to the Administration projects the following price scenarios for Alaska LNG (LNG Price in /mmBtu, Oil Price in /bbl):

  - Base Case: LNG Price = 0.1485 * Oil Price + 0.90 *
  - High Case: LNG Price = 0.162 * Oil Price + 1.00
  - Low Case: LNG Price = 0.9 * Henry Hub – 0.50

- The Port Authority views Gas Strategies' base case forecast as reasonable and has incorporated it for the purposes of the analysis herein
  - High Case generates very favorable results for the Alaska LNG Project

* Note: For simplicity, this presentation uses the term "Oil Price" interchangeably with JCC, Brent and WTI prices. In a detailed analysis, the price variations between different crude prices should be taken into consideration.

North American Prices: WTI and Henry Hub



WTI and Henry Hub Price Ratio

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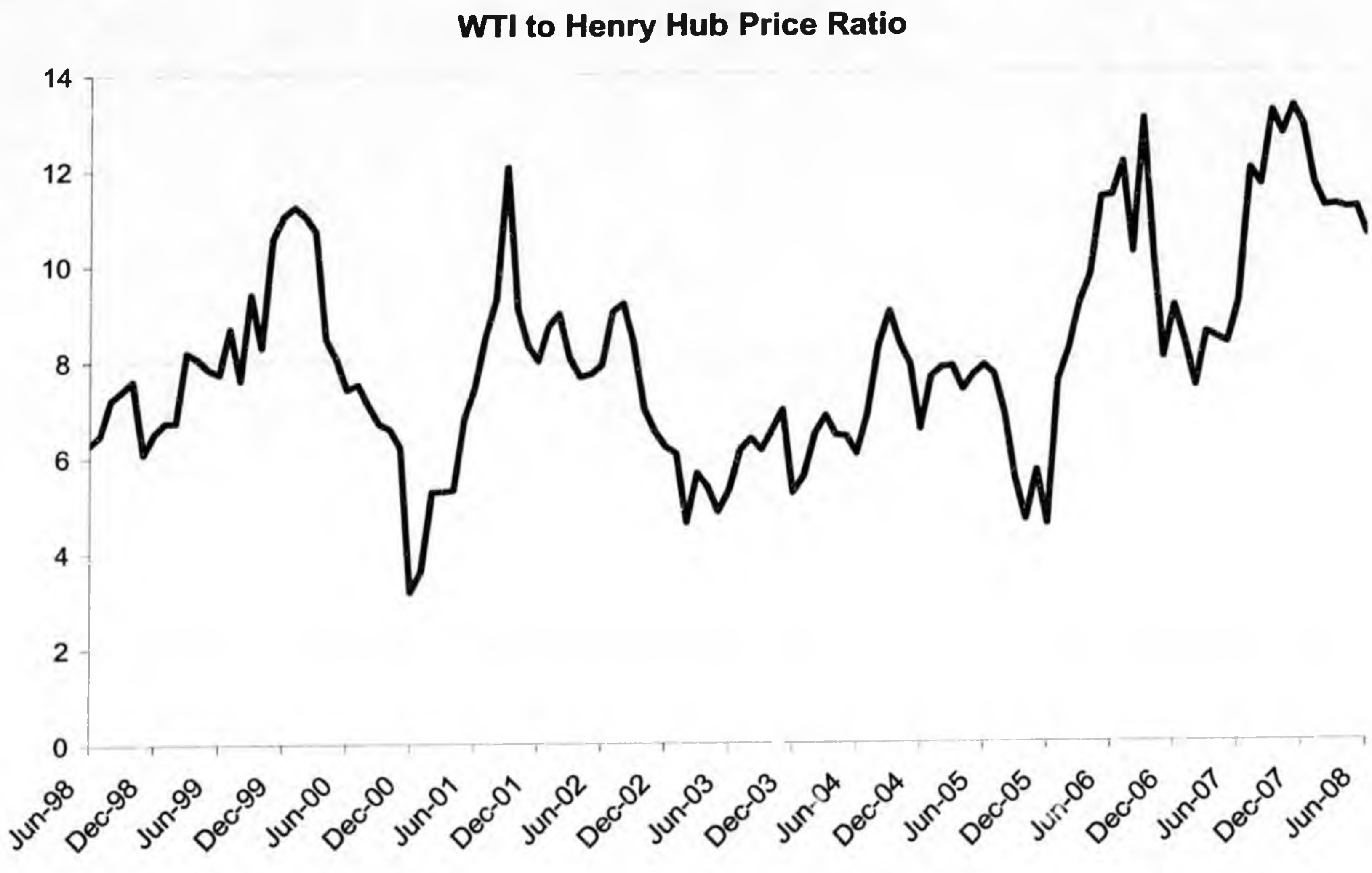
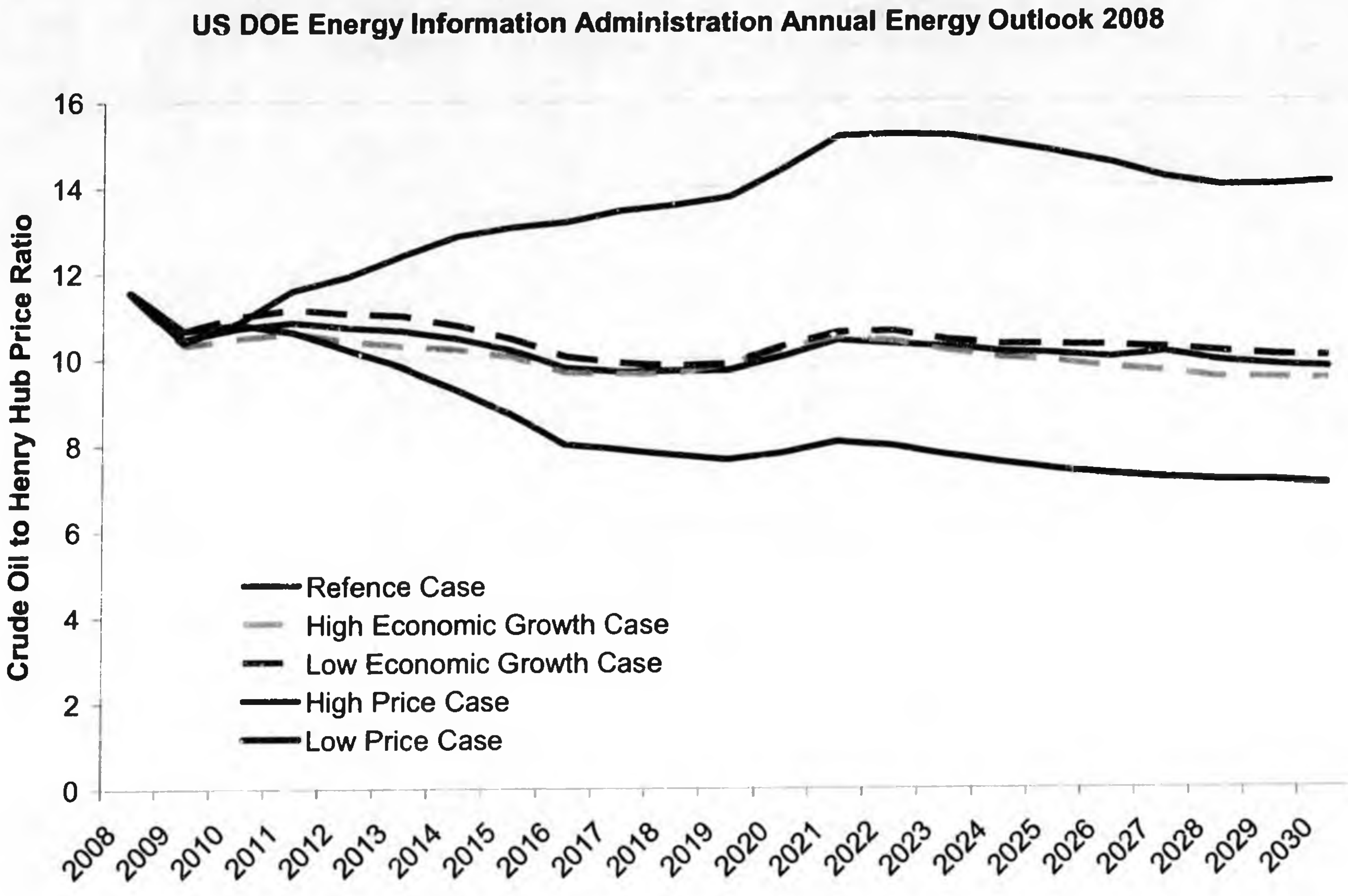


Significance of Assumed Oil/Henry Hub Price Ratio

- Higher crude oil to Henry Hub price ratio means:
  - differential between Asian LNG prices and North American gas prices is higher
  - netback prices from LNG Project are relatively more attractive
- Recently observed price ratios are significantly higher than historical values
- What should be the assumed crude oil to Henry Hub price ratio for the future?

DOE EIA Annual Energy Outlook 2008



Administration's Forecast (Wood Mackenzie)

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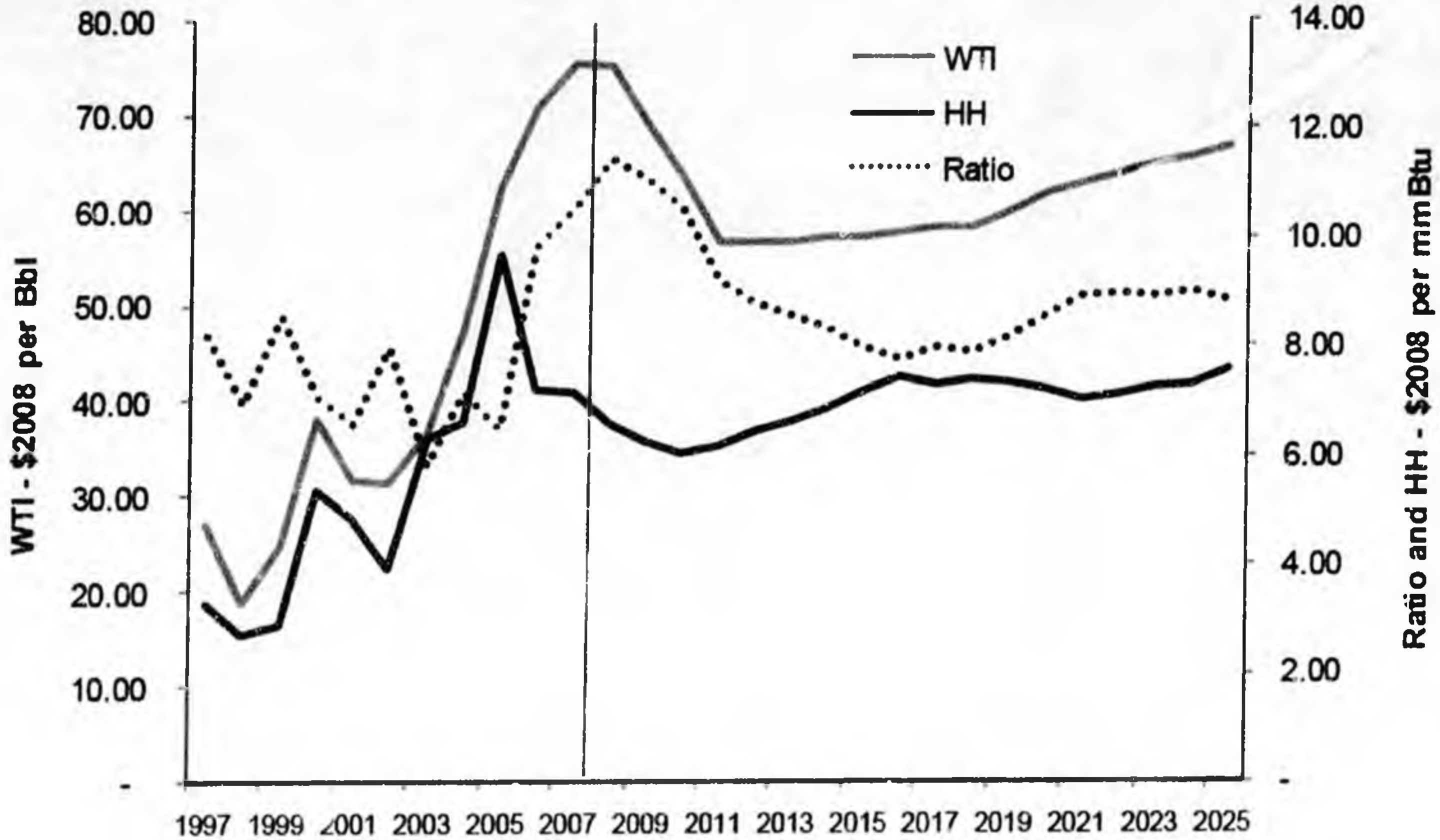

Source: Commissioners' Findings, Appendix N: Wood Mackenzie Gas and Power Long Term Outlook Briefing Paper

Crude Oil to Henry Hub Price Ratios (continued)

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- Crude oil to Henry Hub price ratios:
  - historical average 1998-2008: 8.1
  - DOE EIA Annual Energy Outlook 2008 (average 2008-2030):
    - Reference Case: 10.2
    - High Growth Case: 10.1
    - Low Growth Case: 10.5
    - High Price Case: 13.4
    - Low Price Case: 8.5
  - NYMEX futures market recent prices (average 2008-2016): 12.5
  - Wood Mackenzie (Administration's analysis)*
    - above 10 until 2011
    - decreases to around 8-to-9 from 2012

* Source: Commissioners' Findings, Appendix N: Wood Mackenzie Gas and Power Long Term Outlook Briefing Paper

Alberta Gas Price Assumptions

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- AECO Basis (Alberta gas price less Henry Hub price)
  - historical: typically between -0.50 and -1.50/mmBtu
  - futures market basis swap for 2012-2013: -0.73 to -0.78 (NYMEX data from July 2008)
  - TransCanada assumption: - 0.75/mmBtu
  - Wood Mackenzie forecast: negative AECO basis gradually reduced; AECO parity with HH after 2026*

* Source: Commissioners' Findings, Appendix G1, Figure 4-14

4. Netback Comparison: LNG vs. Pipeline to Canada

Capital Cost Assumptions

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	2007 billions	Source of Assumption
Development Phase Costs:		
LNG Project	0.65	Administration
Pipeline to Canada Project	0.69	Administration
Execution Phase Capital Costs:		
GCP for 2.7 Bcfd LNG Project	4.9	Administration
GCP for 4.5 Bcfd Pipeline Project	8.2	Administration
GCP for 3.5 Bcfd Pipeline Project	6.4	Administration
2.7 Bcfd Pipeline Prudhoe Bay–Valdez	11.1	Administration
4.5 Bcfd Pipeline Prudhoe Bay–Border	10.5	Administration
4.5 Bcfd Pipeline Yukon-Alberta	12.4	Administration
3.5 Bcfd Pipeline Prudhoe Bay–Border	9.7	Administration
3.5 Bcfd Pipeline Yukon-Alberta	11.4	Administration
LNG Facilities	7.8	Bechtel/Port Authority

Other Assumptions

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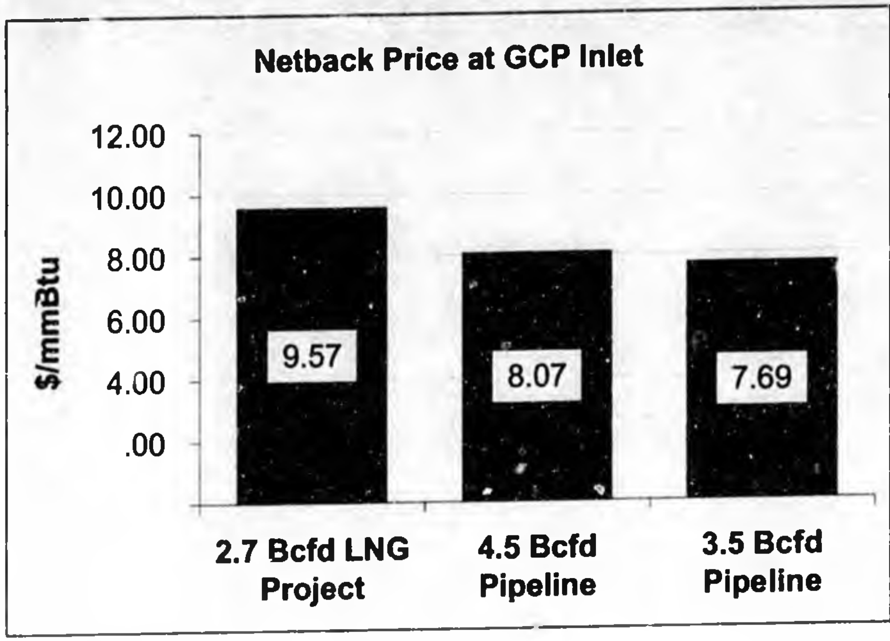
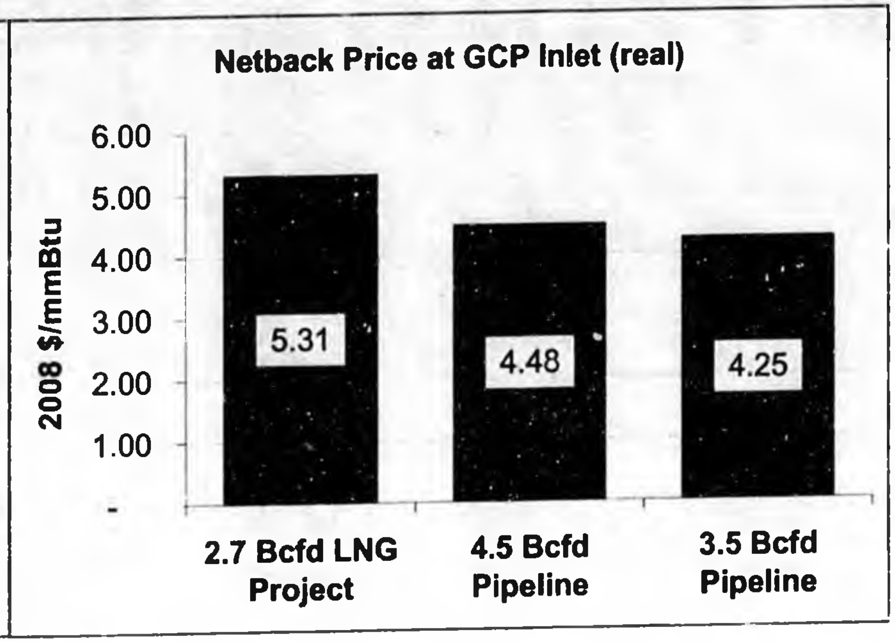
	Assumption	Source of Assumption
D:E for Tariff (Pre-Completion)	70:30	Admin/TCPL
D:E for Tariff (Pre-Completion)	75:25	Admin/TCPL
Return on Equity	14%	Admin/TCPL/EconOne
Cost of Guaranteed Debt	5.50%	EconOne
Cost of Non-Guaranteed Debt	7.00%	EconOne
LNG Plant Availability Factor	95%	Bechtel
LNG Sales Price (DES E. Asia)	0.1485*JCC+0.90	Administration
LNG Shipping Costs (incl. fuel and boil-off)	~$1.10/mmBtu [1]	MOL / PA
Pipeline Gas HHV	1133 Btu/scf	Administration
Capex Escalation	4% p.a.	Administration
Opex Escalation	3% p.a.	Administration

Notes: [1] Nominal dollars in 2019

Netback Results: Case 1





Key Assumptions (Case 1):

- Henry Hub and Oil Prices: EIA Annual Energy Outlook 2008
- AECO Basis: parity after 2026

Netback Results: Case 2

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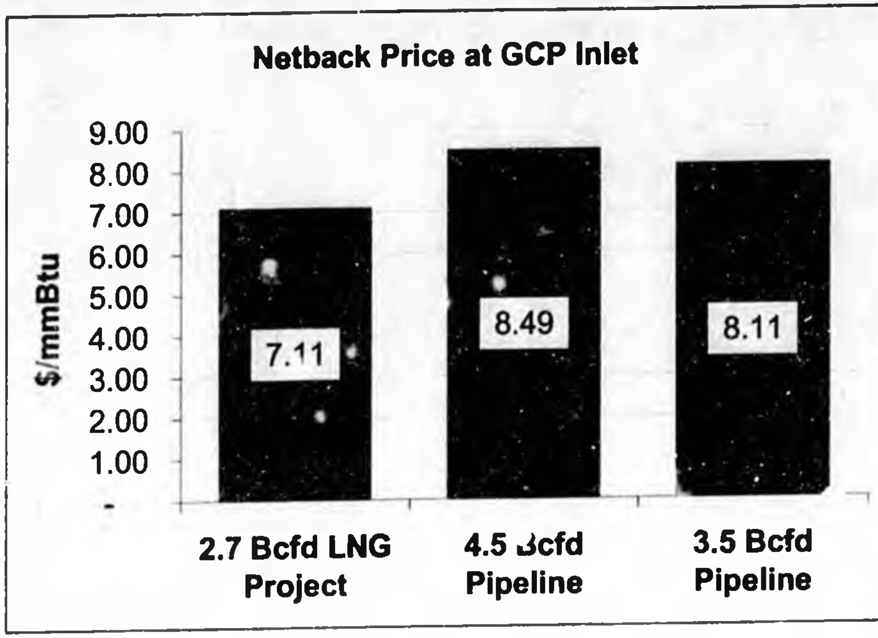
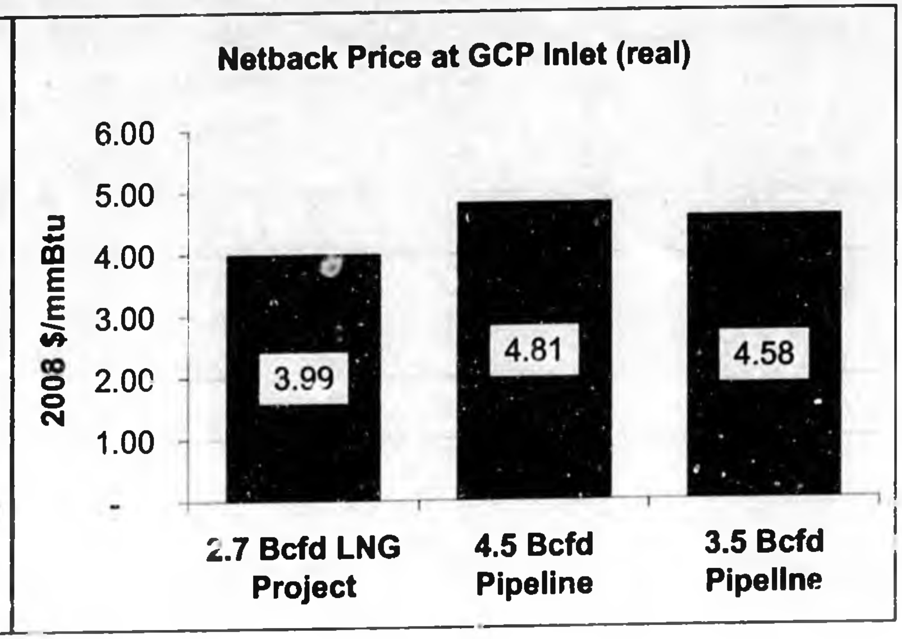
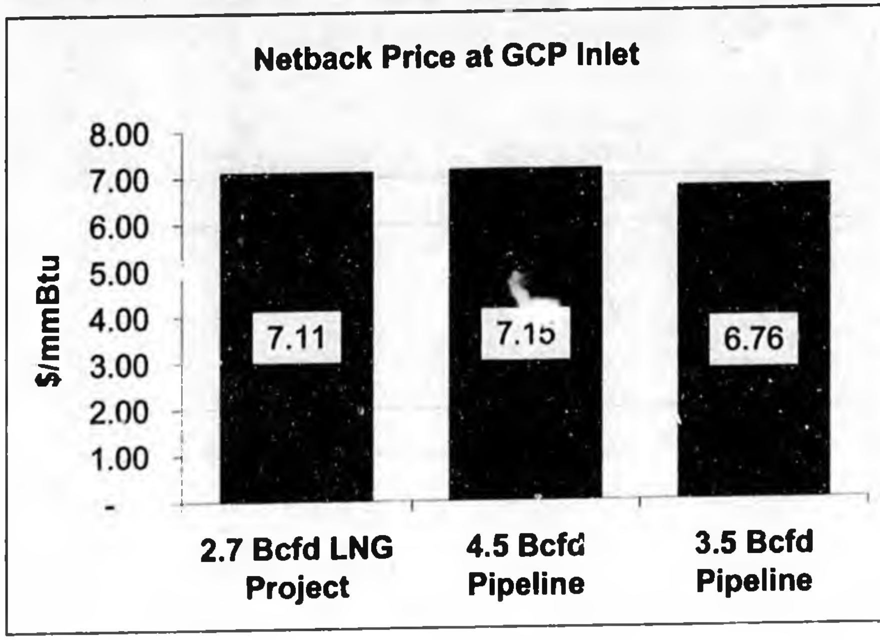


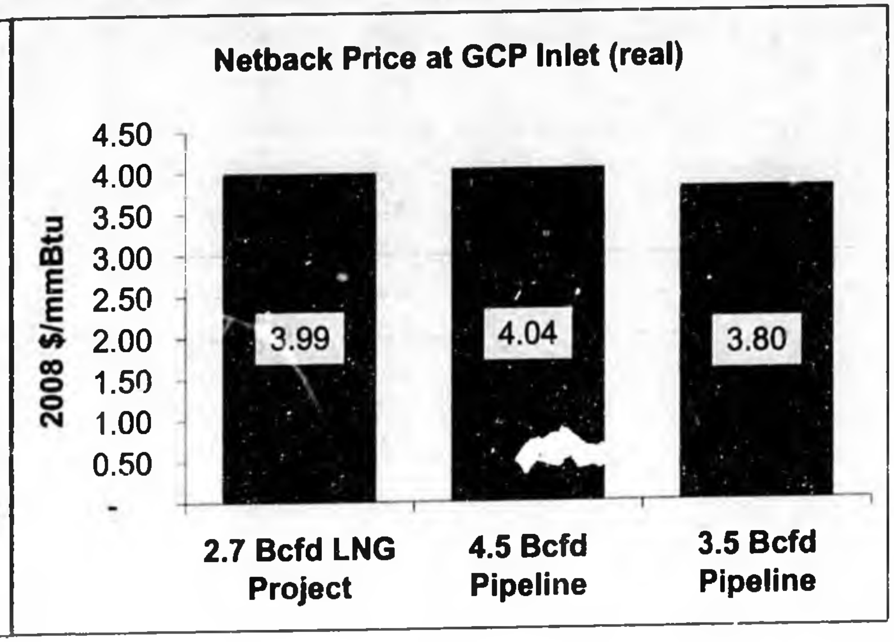


Key Assumptions (Case 2):

- $60 per bbl real oil price (2008)
- 8:1 Oil to Henry Hub price ratio
- AECO Basis: parity after 2026

Netback Results: Case 3

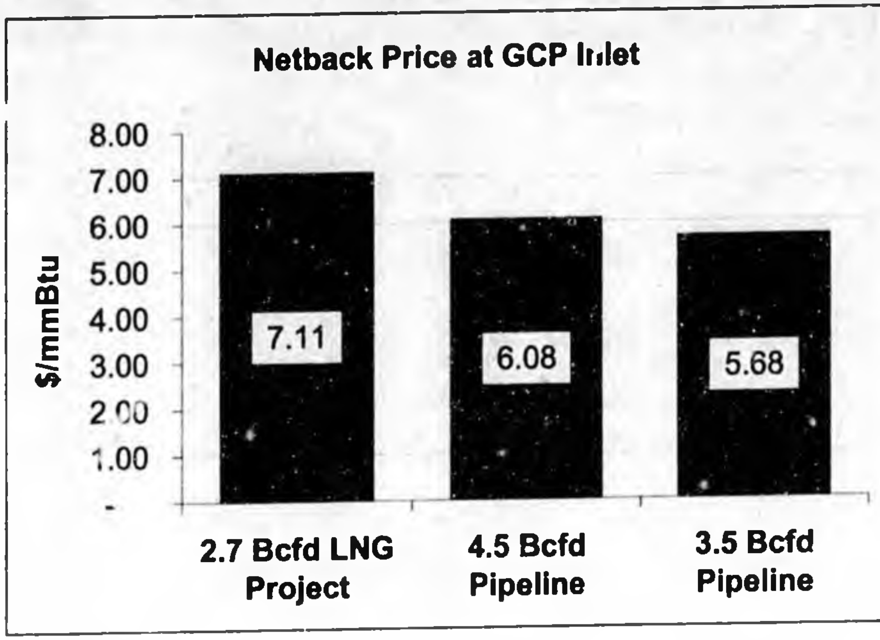


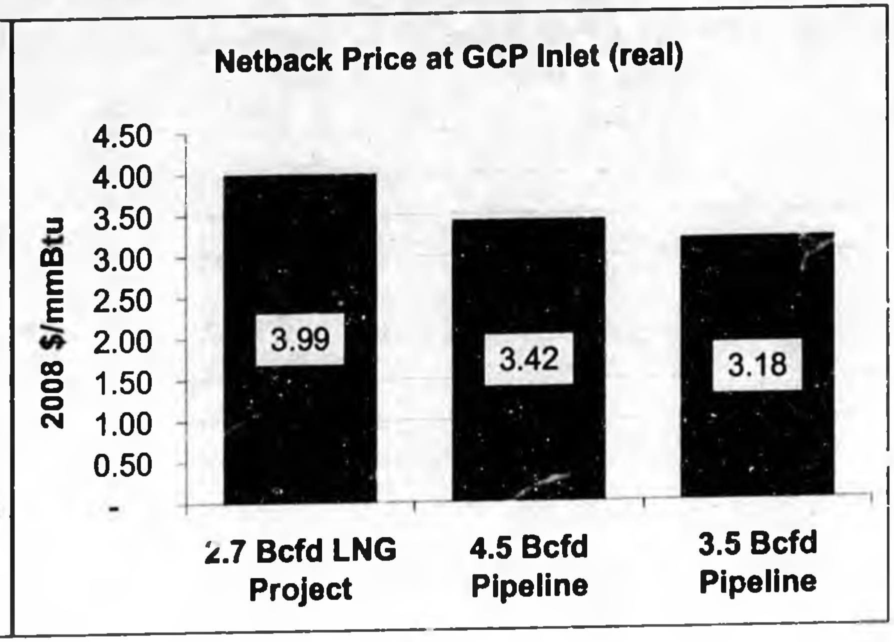


<u>Key Assumptions (Case 3):</u>

- $60 per bbl real oil price (2008)
- 9:1 Oil to Henry Hub price ratio
- AECO Basis: parity after 2026

Netback Results: Case 4





Key Assumptions (Case 4):

- $60 per bbl real oil price (2008)
- 10:1 Oil to Henry Hub price ratio
- AECO Basis: parity after 2026

Netback Results: Case 5

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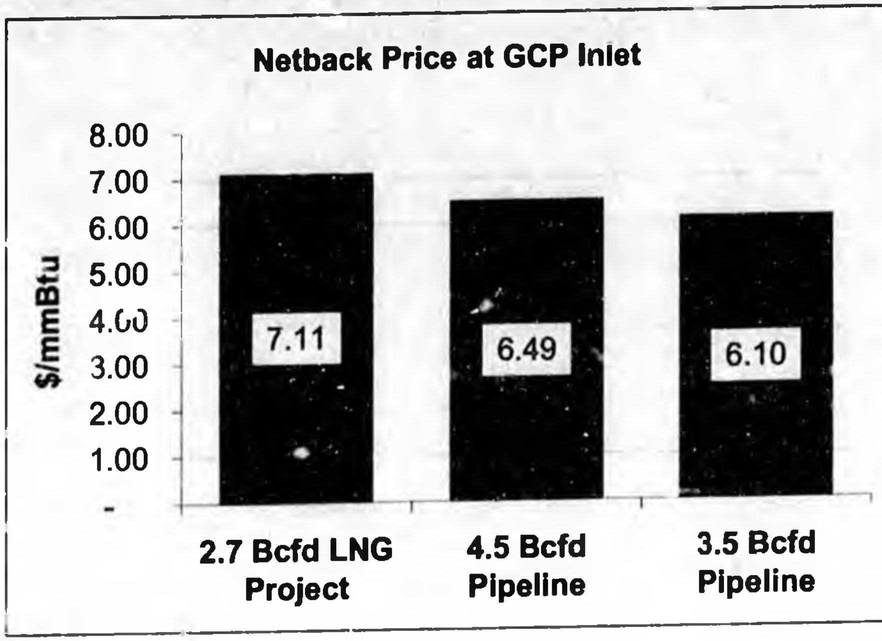
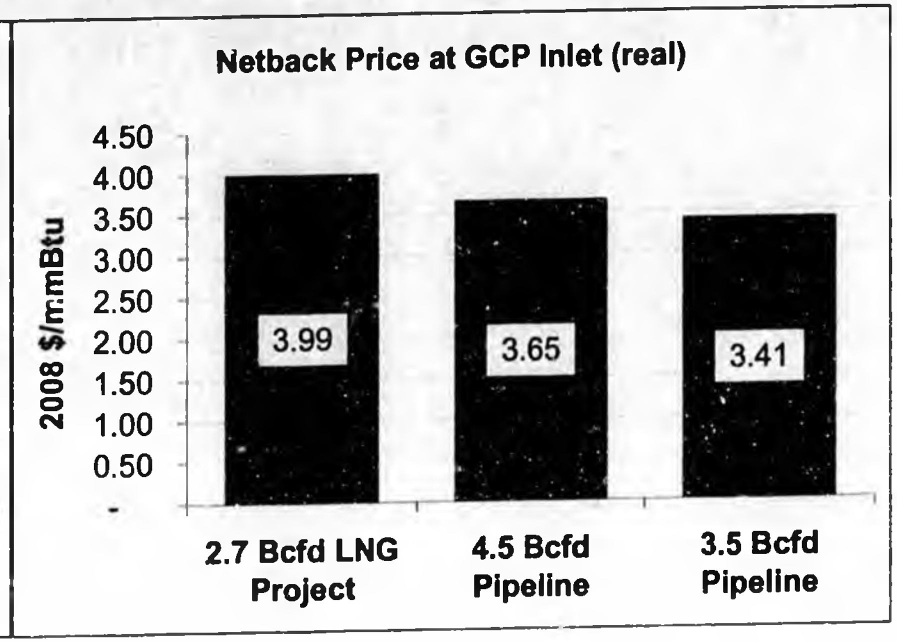
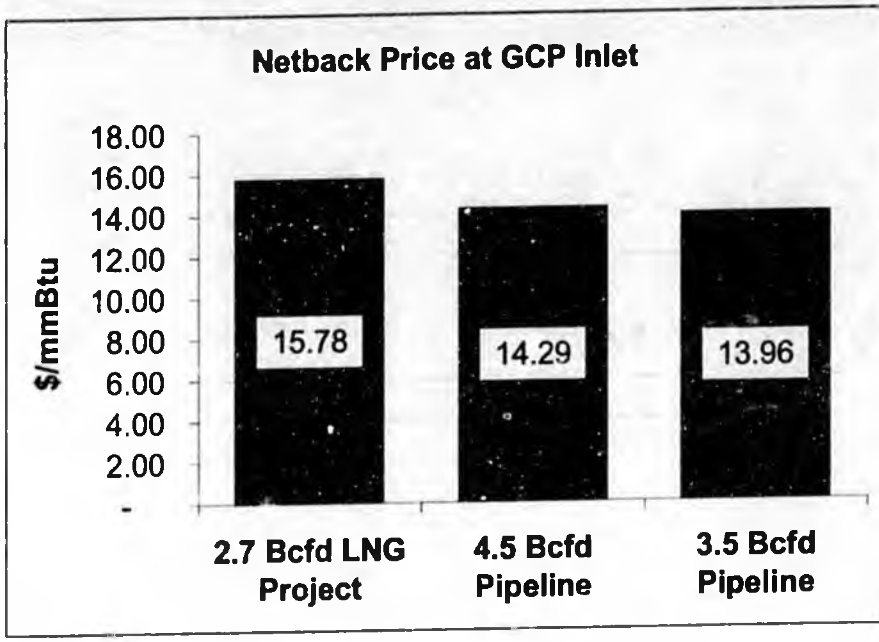


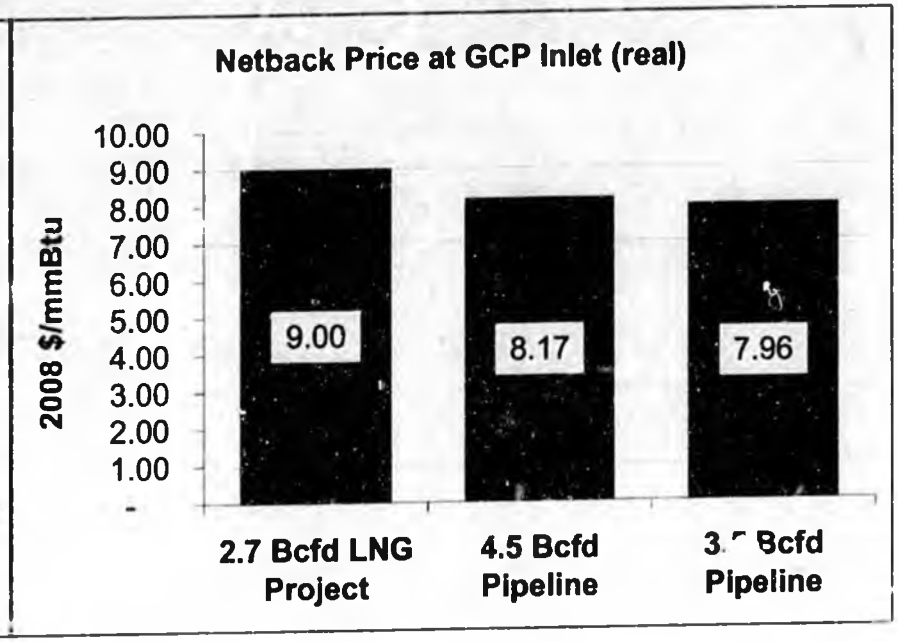


Key Assumptions (Case 5):

- $60 per bbl real oil price (2008)
- 9:1 Oil to Henry Hub price ratio
- AECO Basis: - $0.75

Netback Results: Case 6

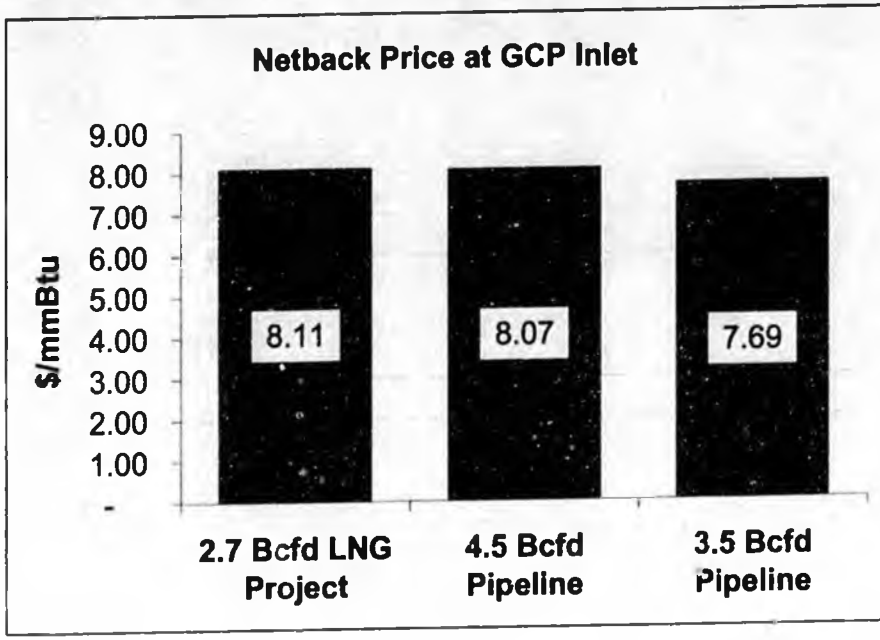


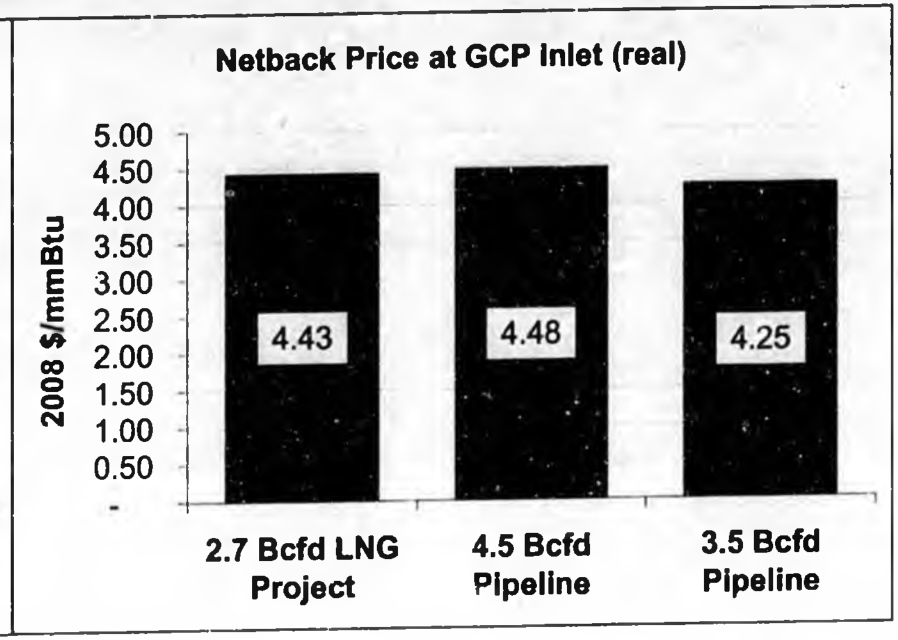


Key Assumptions (Case 6):

- $100 per bbl real oil price (2008)
- 9:1 Oil to Henry Hub price ratio
- AECO Basis: parity after 2026

Netback Results: Case 7





Key Assumptions (Case 7):

- LNG Plant capital cost is 85% higher than Base Case (increase from $7.8 billion to $14.6 billion)
- No cost overruns assumed for any of the pipeline or GCP segments

- Henry Hub and Oil Prices: EIA Annual Energy Outlook 2008
- AECO Basis: parity after 2026

Netback Comparison Summary

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- The LNG Project generates higher netback prices than the Pipeline project under a wide range of oil and gas price assumptions
  - The Gas Strategies High Case LNG price scenario has not been used in the analysis (netback price advantage of the LNG Project would increase further)
- High netback prices from the LNG Project are preserved under substantial increases in the capital cost of the LNG Plant relative to the other project components
- The LNG Project has significantly lower gas requirements, enhancing the prospects for successful procurement of gas supplies

Point Thomson Unit Agreement

Section 21

21. RATE OF PROSPECTING, DEVELOPMENT AND PRODUCTION. The Director is hereby vested with authority to alter or modify from time to time in his discretion the quantity and rate of production under this agreement when such quantity and rate is not fixed pursuant to state law or does not conform to any statewide voluntary conservation or allocation program which is established, recognized and generally adhered to by the majority of operators in such state, such authority being hereby limited to alternation [sic] or modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alternation or modification. Without regard to the foregoing, the Director is also hereby vested with authority to alter or modify from time to time at his discretion the rate of prospecting and development and the quantity and rate of production under this agreement when such alternation or modification is in the interest of attaining the conservation objectives stated in this agreement and is not in violation of any applicable state law.

Powers in this section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than ~~fifteen (15)~~ *thirty (30)* days from notice, *and shall not be exercised in a manner that would (i) require any increase in the rate of prospecting, development or production in excess of that required under good faith and diligent oil and gas engineering and production practices; or (ii) alter or modify the rates of production from the rates provided in the approved plan of development and operations then in effect or, in any case, curtail rates of production to an unreasonable extent, considering unit productive capacity, transportation facilities available, and conservation objectives; or (iii) prevent this agreement from serving its purpose of adequately protecting all parties in interest hereunder, subject to applicable conservation laws and regulations.*

The language that is struck out in Section 21 above was deleted, and the italicized language in Section 21 was added in 1985 amendments to the Point Thomson Unit Agreement.

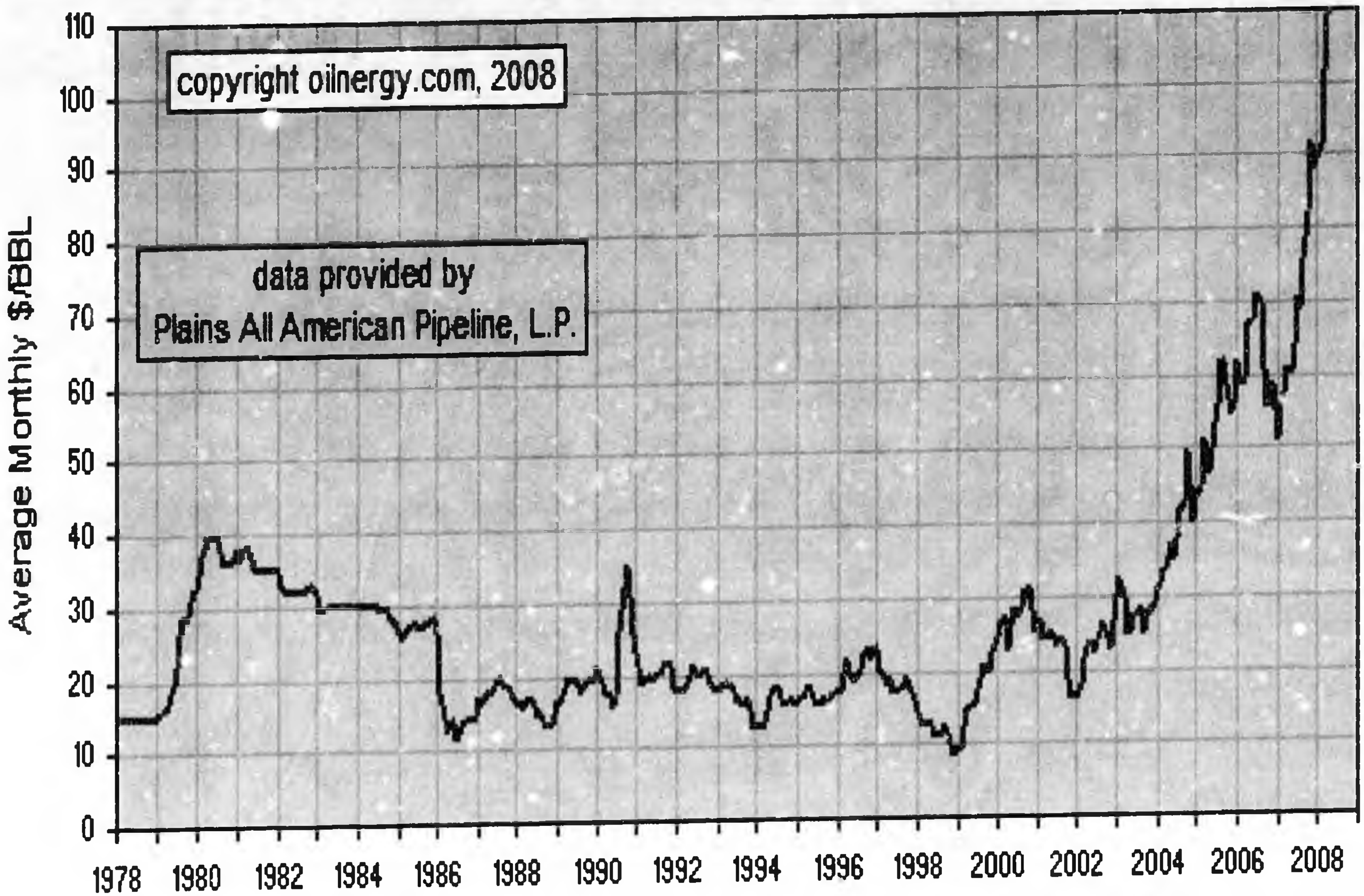
The Point Thomson Dilemma

A problem to be solved

or

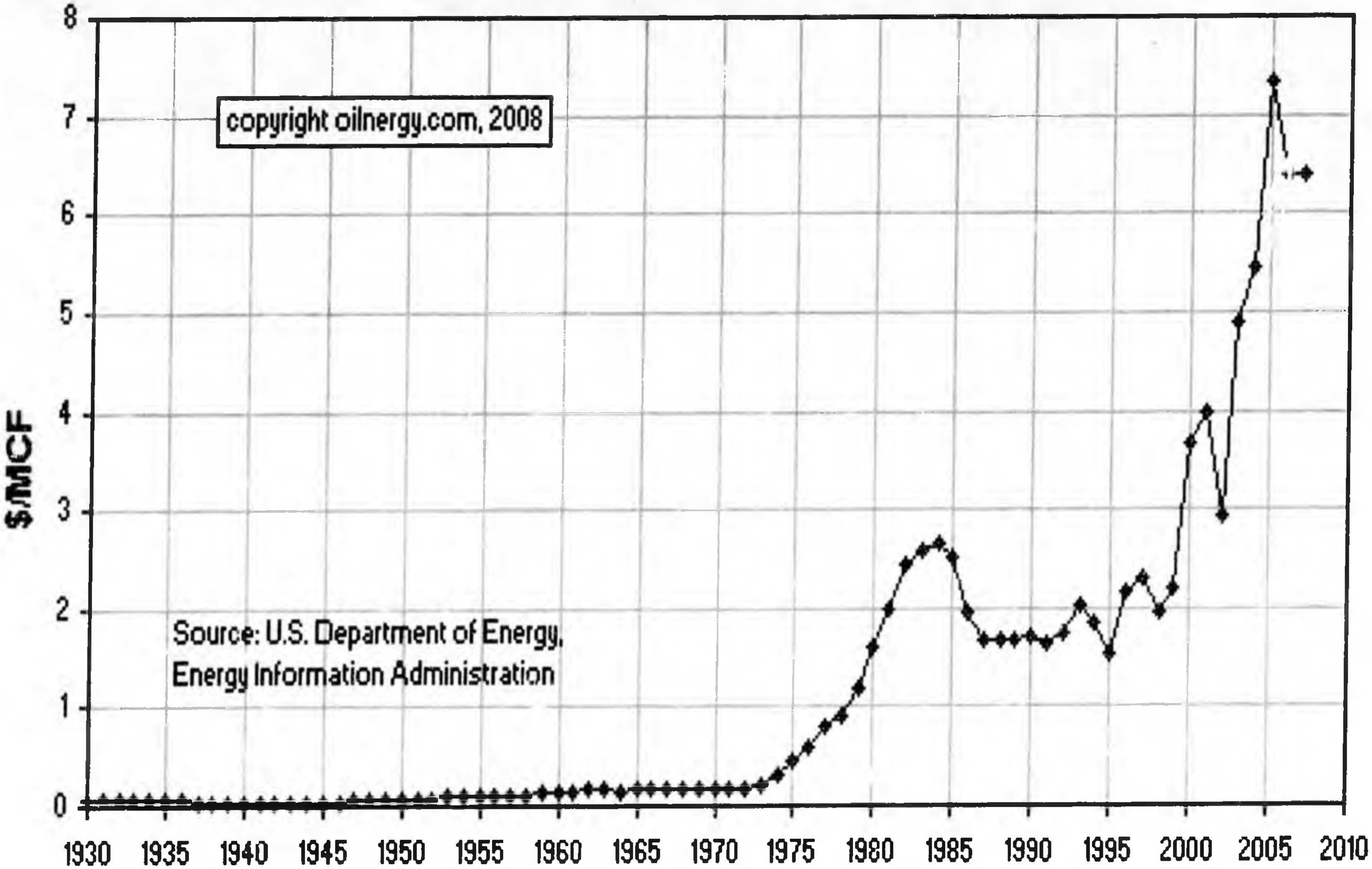
A war to be won

Plains All American L.P.'s WTI Crude - Posted Price



Average monthly data from January 1978 through May 2008

U. S. Wellhead Natural Gas Price



Point Thomson Unit Status prior to Director's Decision

- 21 Plans of Development
- State's continuing desire to move to production
- Point Thomson owners unwillingness to move to production

Director's Decision

- 22^{nd} POD disapproved because it does not provide for the reasonable delineation and timely development of the unit.
- Failure to submit an acceptable POD is grounds for termination of the Unit
- Individual leases with certified wells must commence production by October 1, 2009

Commissioner's Decision

- Rejects Plan of Development because it does not commit to put the unit into production
- Terminates the Point Thomson Unit
- Revokes the certifications of the PTU wells.

May 1 Decision

- Will allow the process to move forward
- “the undisputed fact remains that the Department certified these wells pursuant to 11 AAC 83.361, and that as a result of these certifications, the wells “will be considered capable of producing hydrocarbons in paying quantities” for purposes of 11 AAC 83.374”
- DNR failed to follow its own statutes and regulations when it decertified the wells

Dec 26 Court Decision

- Plan of Development
  - DNR has broad authority to accept or reject POD
- Unit Termination
  - DNR has the authority to terminate the Unit but not without a hearing to determine the appropriate remedy for rejection of the POD
- Consider appropriate remedy for rejection of POD
  - Termination of unit is only one possible remedy
    - "consider the import of Section 21 of the PTUA, as amended in 1985, in determining the appropriate remedy."
- Certified wells
  - See our May 1 comments

Point Thomson Unit Agreement

- Section 21
  - See handout Section 21 detail
    - "and shall not be exercised in a manner that would (i) require any increase in the rate of prospecting, development, or production in excess of that required under good faith and diligent oil and gas engineering and production practices; . . . or (iii) prevent this agreement from serving its purpose of adequately protecting all parties in interest hereunder, subject to the applicable conservation laws and regulations."

23^{rd} POD

- Phased development proposal
  - Met or exceeded DNR prior request and positions to the court.
  - Did not propose penalties as an alternative to compliance with obligation

Commissioner's Decision on Remand

- Rejected Point Thomson 23rd POD
  - Proposal was either unpersuasive or incredible
  - "credibility is most persuasively established by actions, not words."
  - "promise to commit gas from this unit to the first open season of a gas pipeline is of no value."
  - Most importantly, the public's interest would not be protected if I approve the 23rd POD because I do not believe, based on this record, that the Appellants will perform as promised this time."
- Terminated the Unit

Probable Outcome

- Unit termination and certified wells
  - State Success on both points (low probability)
    - Timing of new development – 10 year delay
  - State partial success (equally as probable as next possible outcome)
    - Timing of new development – 10 year delay
      - Point Thomson retains leases with certified wells.
  - Court overturn of state decision (equally as probable as previous outcome)
    - Point Thomson proceeds ahead on schedule
      - Gas condensate and oil production
      - Earlier participation in gas pipeline (gain of 10 years)

State's Obligation under Contract

- Principles of Prevention in Contract Law
  - Actions of one party prevents another party from complying with contractual obligations
    - Cannot benefit from own wrongful acts
  - Failure to act prevents another party from complying with the contract
    - act in "good faith" and cooperation toward other contracting party
    - Cannot benefit from the omission to act

State's Obligation under Point Thomson Contract

- Good faith participation to resolve the problem
- Contractual Relationship when you don't trust the other party
  - Make the damage provision match the potential breach
- Point Thomson obligation
  - Propose alternative that would meet the state's concerns
  - Comply with the intent of 11 AAC 83.343(b)

DNR's responsibility under regs.

- 11 AAC 83.343(b) The commissioner will approve the unit plan of development if it complies with the provisions of 11 AAC 83.303. If the proposed unit plan of development is disapproved, the commissioner will, in his discretion, propose modifications which, if accepted by the unit operator, would qualify the plan for approval.