

PRESENTATION ON
ALASKA GAS PIPELINE PROJECT
to Alaska State Legislative Budget & Audit Committee
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Natural Gas Prices and Tariffs

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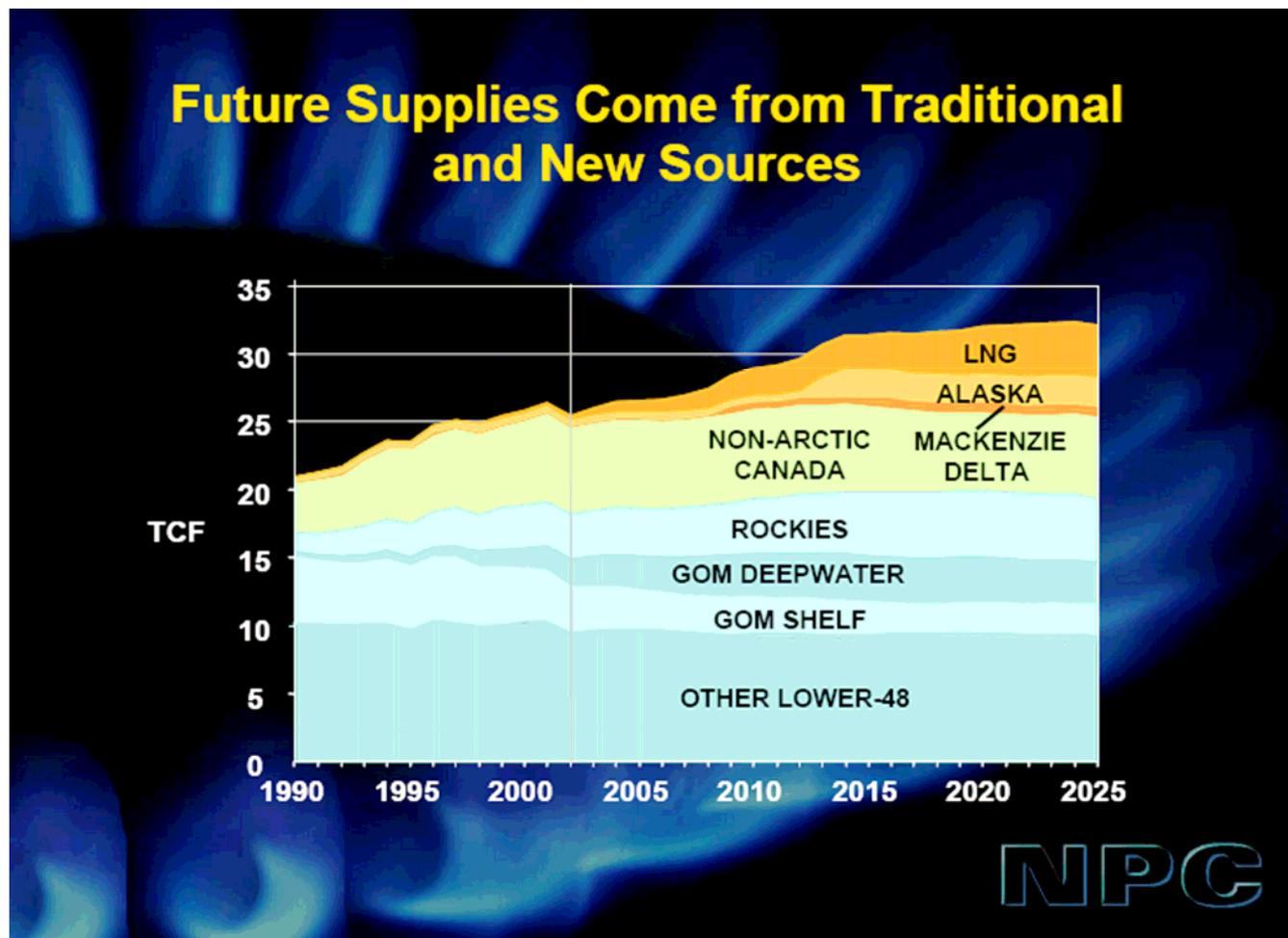
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The need for Alaskan Gas and LNG have been a feature of energy forecasts for many years



Source: National Petroleum Council "Balancing Natural Gas Policy"
September 2003

Some Critical Uncertainties Facing Alaskan Gas

- **Strength of natural gas market**
- **Extent of LNG penetration**
- **Competition of gas with alternative energy**

Future Natural Gas Markets

- **North American natural gas supply tight**
 - **Lower-48 (L-48) continues decline**
 - **Canadian supply increases**
 - **LNG limited**
- **Electric Utilities growth**
 - **May face competition from coal at sustained \$4-5/mmbtu gas prices**
- **Household/Commercial growth in line with income growth**
- **Industrial growth in line with GNP growth**
- **Little or no penetration in Transportation markets**
- **Current natural gas prices at cyclical high**

U.S. Natural Gas Demand Outlook

- Half of incremental growth in natural gas consumption expected to be for electricity generation
 - 75% of new electricity generation capacity expected to be gas plants

U.S. Natural Gas Consumption (TCF per year)

Sector	2005	2025	Change
Residential & Commercial	8.1	10.0	+1.9
Industrial	7.2	9.0	+1.8
Electric Utilities	5.2	9.4	+4.2
Transportation & Other	1.8	2.2	+0.4
Total	22.3	30.6	+8.3

Source: US DOE EIA "Annual Energy Outlook 2005" (January 2005)

LNG

- **LNG needed in supply mix ~3-4 TCF/yr**
- **Can be delivered to market for \$3.00 - 3.50/mmbtu, but will be sold at prevailing domestic gas prices**
- **Limited regasification facilities**
- **LNG is not marginal supply and will NOT set future gas prices. Set by needed higher cost L-48 supplies**

Alternative Energy Sources

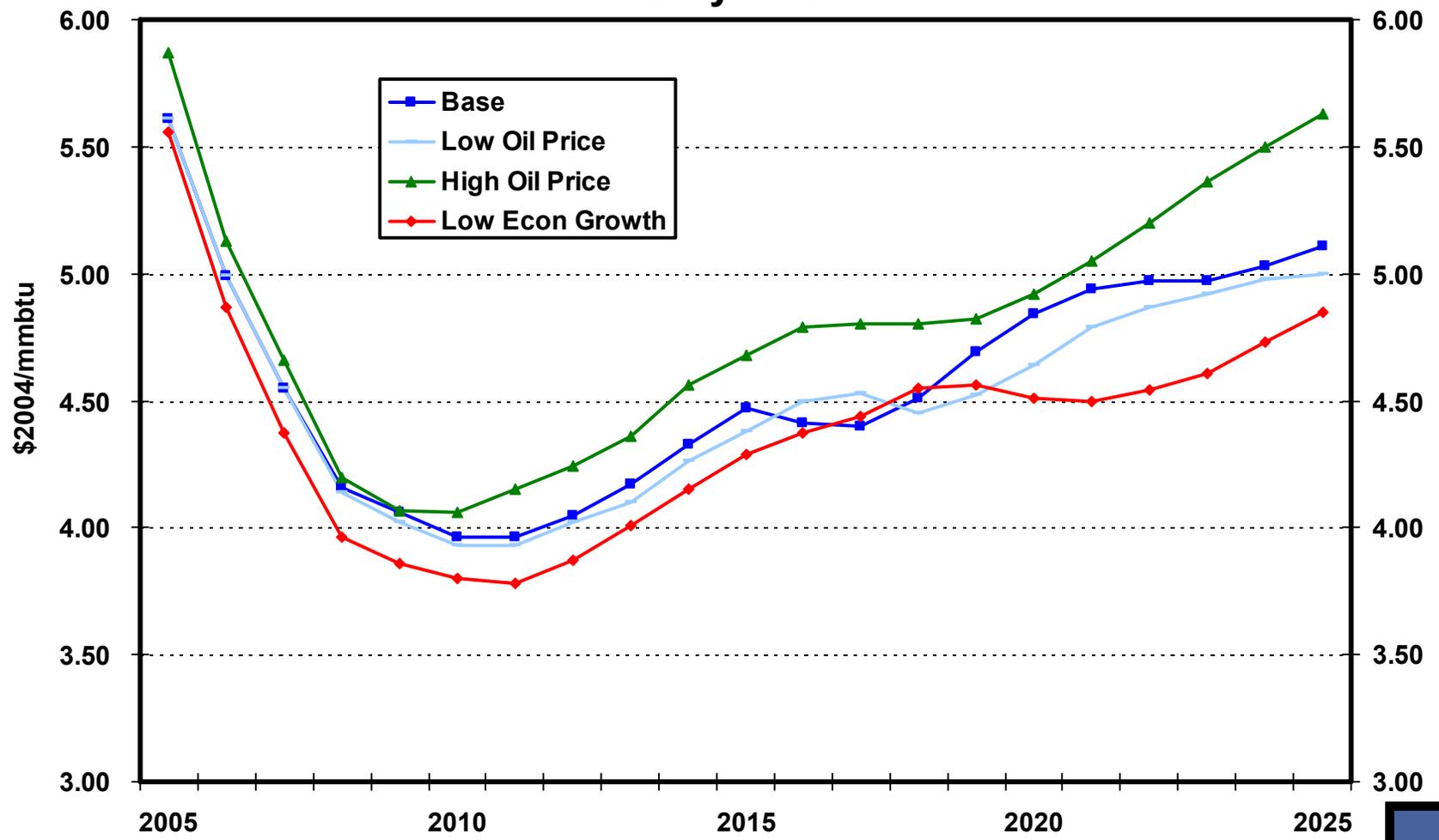
- **Natural gas faces threat from alternative power technologies when prices are high**
 - **CCGT (Combined-Cycle Gas Turbine) and with thermal coal break-even about \$4/mmbtu**
 - **Coal has higher capital cost but low variable costs**
 - **Clean Coal IGCC (Integrated Gasification Combined Cycle) power technology competitive at sustained \$4-5 /mmbtu gas price**

Public Natural Gas Price Forecasts

- **EIA's Annual Energy Outlook (AEO) – January 2005**
 - Forecast of average wellhead prices (through 2025, converted to Henry Hub)
 - Alternative scenarios are too closely clustered for sensitivity use
- **National Committee on Energy Policy (NCEP) – October 2003**
 - Balanced commission of prominent energy stakeholders, including business, labor, academic, environmental, and political persons
 - Includes former chairman of Conoco
 - Developed Alternative Scenarios (through 2025) – AECO and Chicago hubs
 - Econ One has received permission to use details publicly and has created probability distribution of prices, allowing stress case use
- **NYMEX Futures market**
 - Natural gas contract (tied to Henry Hub) traded since 1990
 - Offers implied price forecast out 5 years – recently about \$5.25 (\$2005)
- **Canadian gas consultants**
 - Sproule (May 2005), GLG (April 2004), McDaniel (July 2004), AJM (2004)
 - Forecasts out to 2025
- **Note: The Administration has done detailed (confidential) work on probabilistic forecasts**

AEO 2005 Natural Gas Forecasts

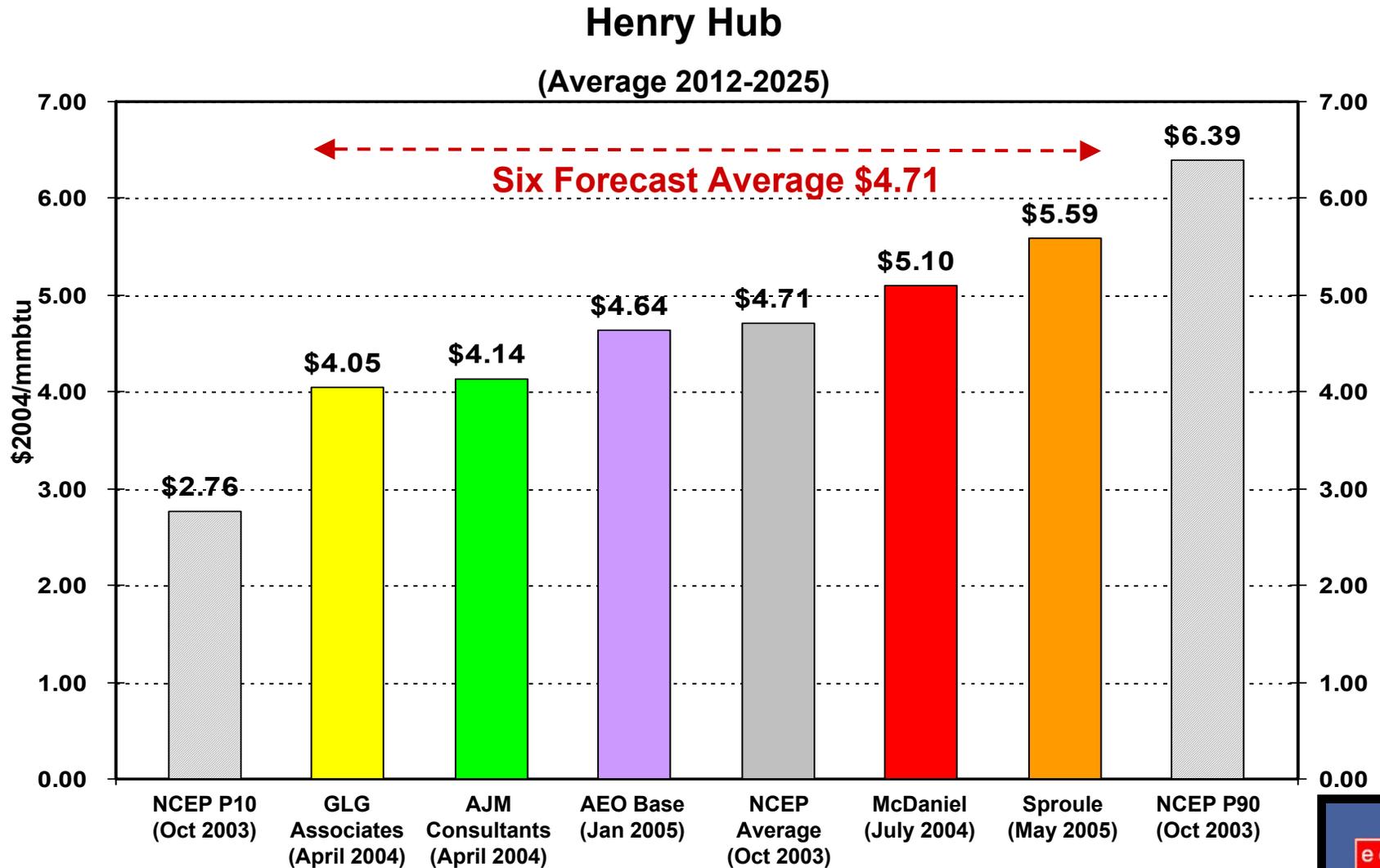
Henry Hub



Source: EIA, Annual Energy Outlook (January 2005)



Alternative Natural Gas Price Forecasts

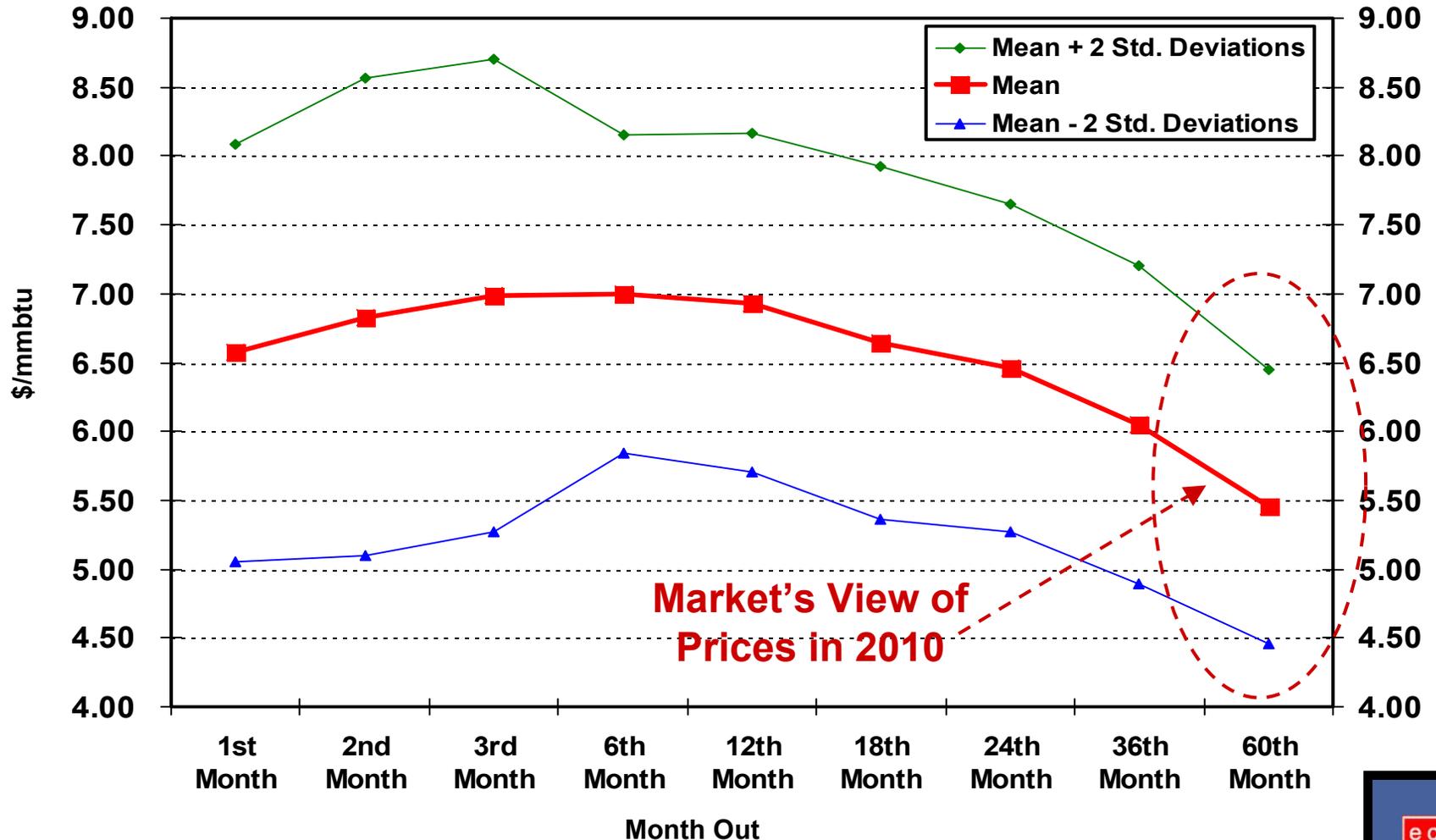


Forecasting Content of NYMEX Futures

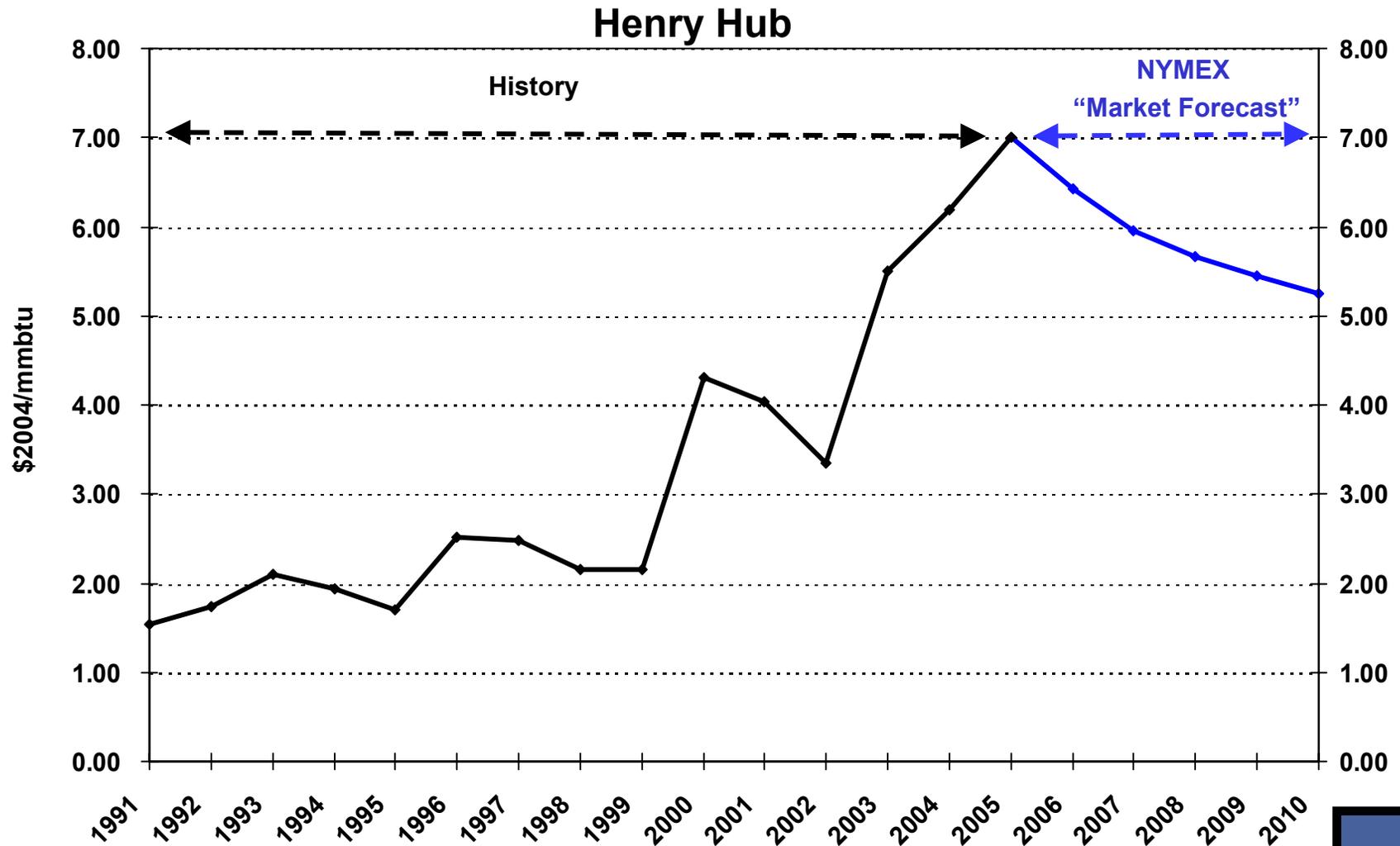
- **Reflects market's expectation of future gas prices, but ...**
 - **Not highly accurate forecasts of gas prices**
 - June 2002 NYMEX view of June 2005 was \$3.72, actual was \$6.56
 - **They do outperform model based forecasts, e.g. EIA's AEO**
 - Currently, future "strip" is well above EIA's forecast

NYMEX Natural Gas Futures Prices

Average July 2004-June 2005



Henry Hub Gas Prices: History and Market Forecast



Expected Price, High and Low/ Stress Price Cases

“Best Practices”

- Requires evaluation against a range of price cases, including a “Low Price” or “Stress Price” case in addition to an Expected Price case
 - Gasline project should have at least a “modest” return in the low price case

“Expected” Prices

- NYMEX offers a “Market Forecast” – recently, average about **\$5.00/mmbtu**
- Average of publicly available forecasts – about **\$4.75/mmbtu**

“Low/Stress” Price Test Case

- Rating agencies test projects against a sustained low price
 - Moody’s and S&P currently using \$3.75-4.00/mmbtu
- Can use the mean less two standard deviations (Mean-2 σ) from NYMEX prices - recently about **\$4.00/mmbtu**
- \$3.50/mmbtu has been used in recent times, but now seems too low

“High” Price Case

- Can use the mean less two standard deviations (Mean+2 σ) from NYMEX prices - recently about **\$6.00/mmbtu**

Note: all prices are Real \$2004/mmbtu in Chicago

Public Pipeline Costs

Billions of Dollars

	Producers* (\$2001)	Producers (\$2005)	Tristone Capital ***(\$2005)
Gas Treatment Plant	2.6	2.8	
Pipeline: Alaska	4.4	4.8	
Pipeline: Alaska to Alberta (Gordondale) **	4.8	5.2	
Pipeline: Alberta (Gordondale to Vegreville) **	2.4	2.6	
	7.2	7.8	
NGL Plant	.6	.7	
Total: North Slope to Alberta	14.8	16.0	18.0
Pipeline: Alberta to Chicago	4.6	5.0	6.0
Total: North Slope to Chicago	19.4	21.0	24.0

*\$125 M feasibility study as reported by Producers, June 2004. Range $\pm 20\%$.

** Producers did not split out Gordondale/Vegreville capital. Estimated split on basis of mileage.

*** "Monetizing Northern Frontier Gas," Tristone Capital, May 2005

Pipeline Tariffs

**Assumes Project ends at Gordondale, Alberta
\$/mmbtu**

	Estimated Tariff*
Gas Treatment Plant	.29
Pipeline: Alaska (includes PT Feeder)	.48
Pipeline: Alaska to Gordondale, Alberta	.50
AECO Entry Fee	.16
Total Pipeline Charges: North Slope to Market (Alberta)	1.14
Total Pipeline Charges + GTP: North Slope to Market (Alberta)	1.43 ± 20%

*** Assumes publicly available capital, 4.2 bcf/d sales, financial parameters (80/20 Debt/Equity, Allowed Rate of Return 14% US, 12% Canada, Debt 5.0%)**

Implied Netbacks Under Alternative Gas Prices

Assumes Project ends at Gordondale, Alberta

Initial Year Values - \$/mmbtu

	“Stress” Price	“Forecast” Price	“Futures Market” Price	“High” Price
Chicago Price	\$4.00	\$4.75	\$5.00	\$6.00
Chicago/AECO Differential (exclusive of AECO entry fee)	.90	.90	.90	.90
AECO Entry Fee	.16	.16	.16	.16
Pipeline + GTP +PT Feeder	1.26	1.26	1.26	1.26
Netback at Inlet to Pipeline	\$1.68	\$2.43	\$2.68	\$3.68
Operating Costs & Fuel Use	.07	.08	.09	.11
Royalty and Taxes	.34	.49	.54	.74
Netback to Producers	\$1.27	\$1.86	\$2.05	\$2.83