

North American Natural Gas Outlook

May 16, 2008

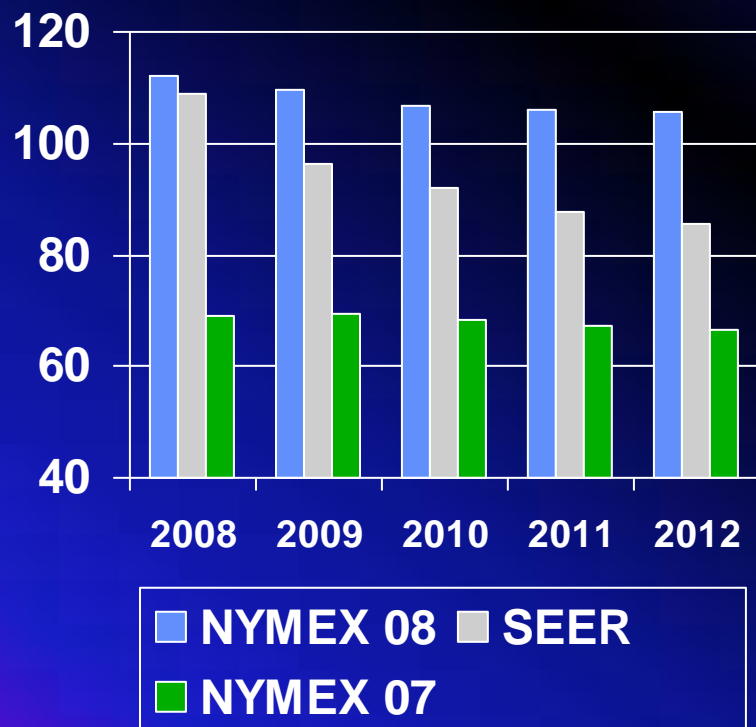
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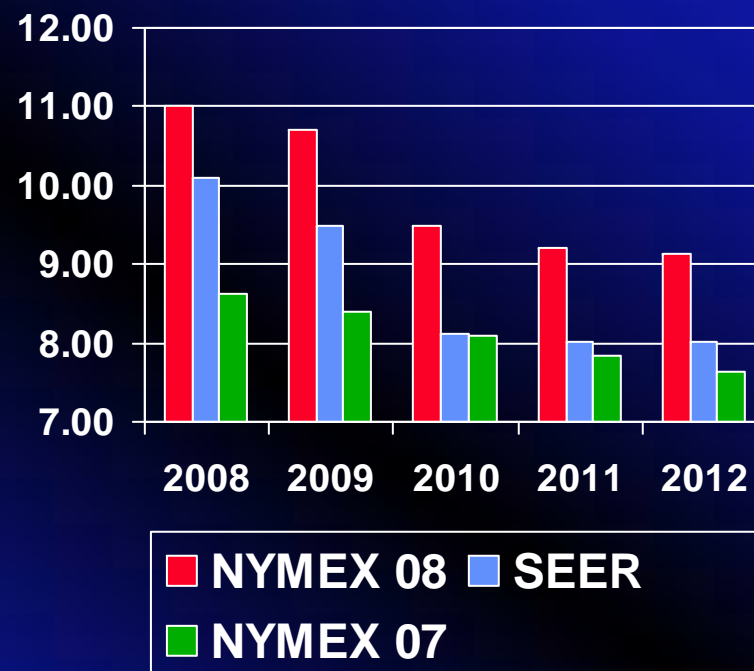
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The Future Isn't What It Use to Be – Yogi Berra

WTI (\$/bbl)



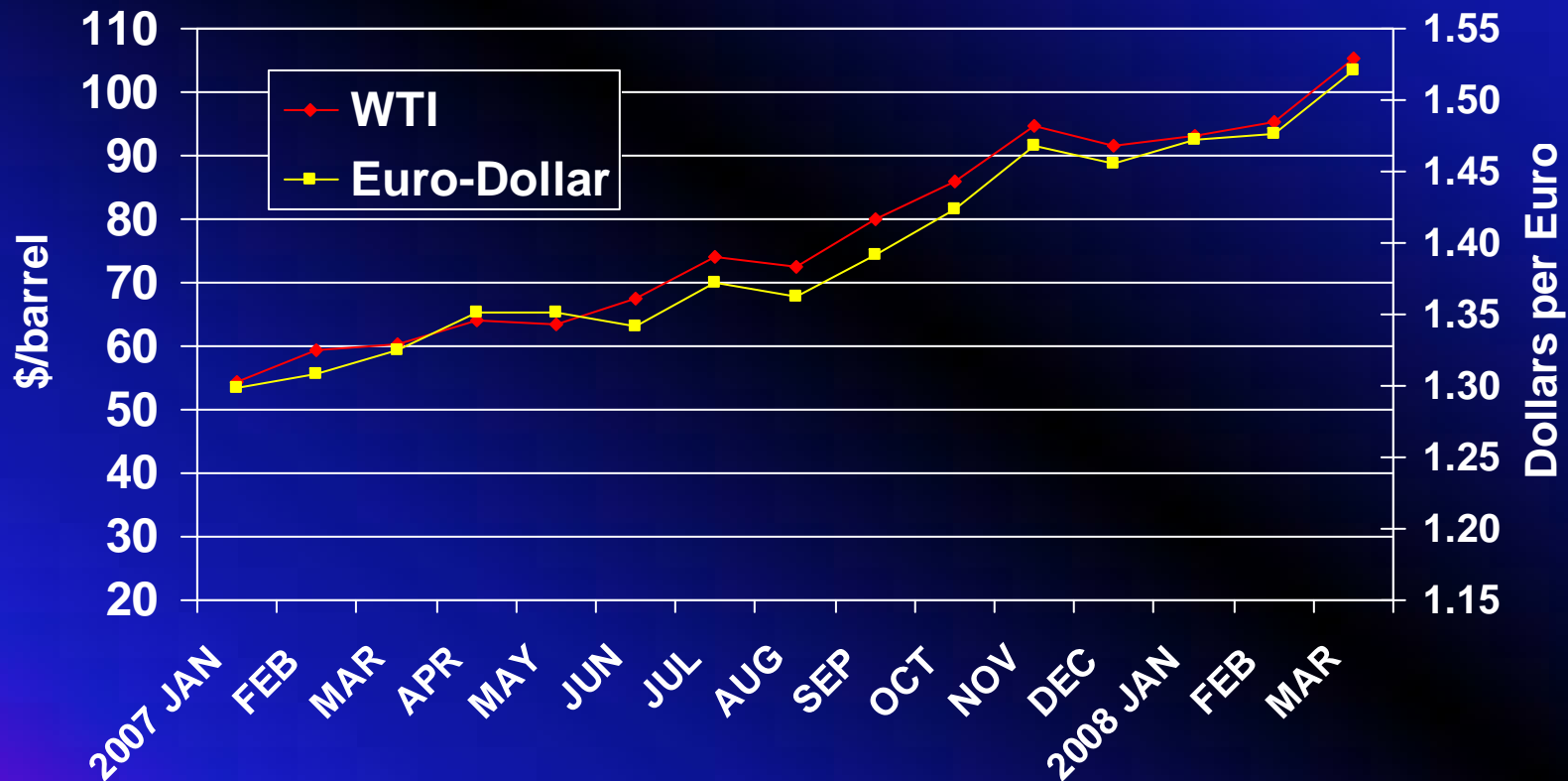
Henry Hub Prices \$/MMBtu



Why such a dramatic shift?

- **Oil market fundamentals tightened slightly.**
- **Natural gas market is tight because of strong demand for LNG (high oil prices, low hydro in Spain, 7 GW nuclear generation in Japan, carbon pricing in Europe, declining North Sea production).**
- **Coal market – Perfect Storm**
- **Flow of funds to commodities – poor investment alternatives and weak dollar**

A weak dollar has contributed to strong oil prices. The correlation of Euro – Dollar exchange rate and WTI has been .81 since 1999 and .99 since Jan 2007. A 1% change in value of Euro implies a 5.5% change in WTI.



What might happen?

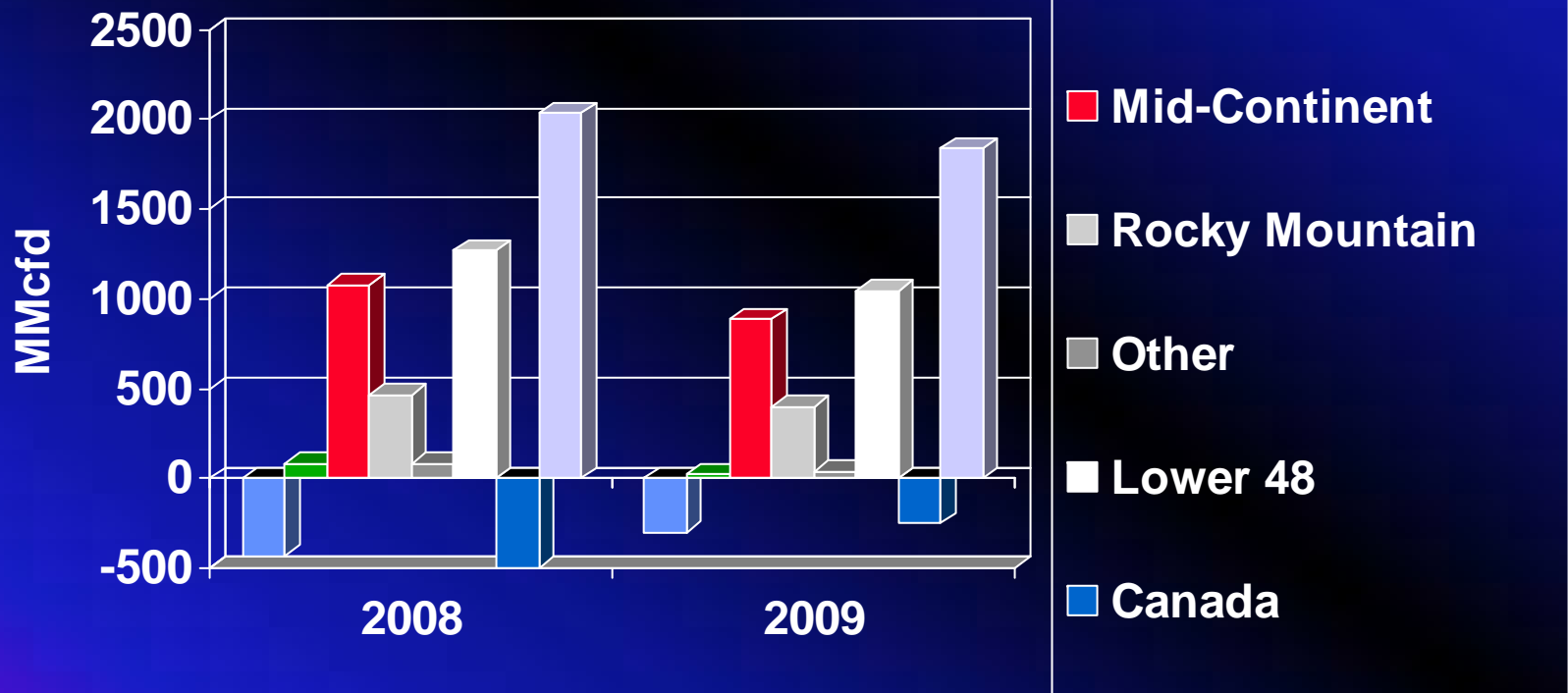
- **US dollar stays weak for another two or three years and provides upside for all commodities.**
- **As measured by Purchasing Power Parity Index dollar appears to be toward the end of a long downward cycle and could recover significantly in 2 or 3 years.**
- **World economic growth could be substantially lower than “mainstream” economists are acknowledging. Housing markets are in trouble throughout the world and there is still substantial market credit risks.**
- **Strong demand response could weaken prices of both oil and natural gas.**
- **Higher than expected growth than natural gas production could cause a substantial decline in natural gas prices.**

Lippman Consulting Inc. (LCI) North American Intermediate Term Natural Gas Production Model

- **111 different supply types**
- **Production by vintage at the basin level**
- **Associated and non-associated gas**
- **Conventional, coal seam, tight gas, shale modeled separately**
- **Driven by producer plans**

Lower 48 production is projected to grow between 2% and 3% but declines in Canada will result in net production growth below 1% and LNG imports will be down this year.

Change in US Production



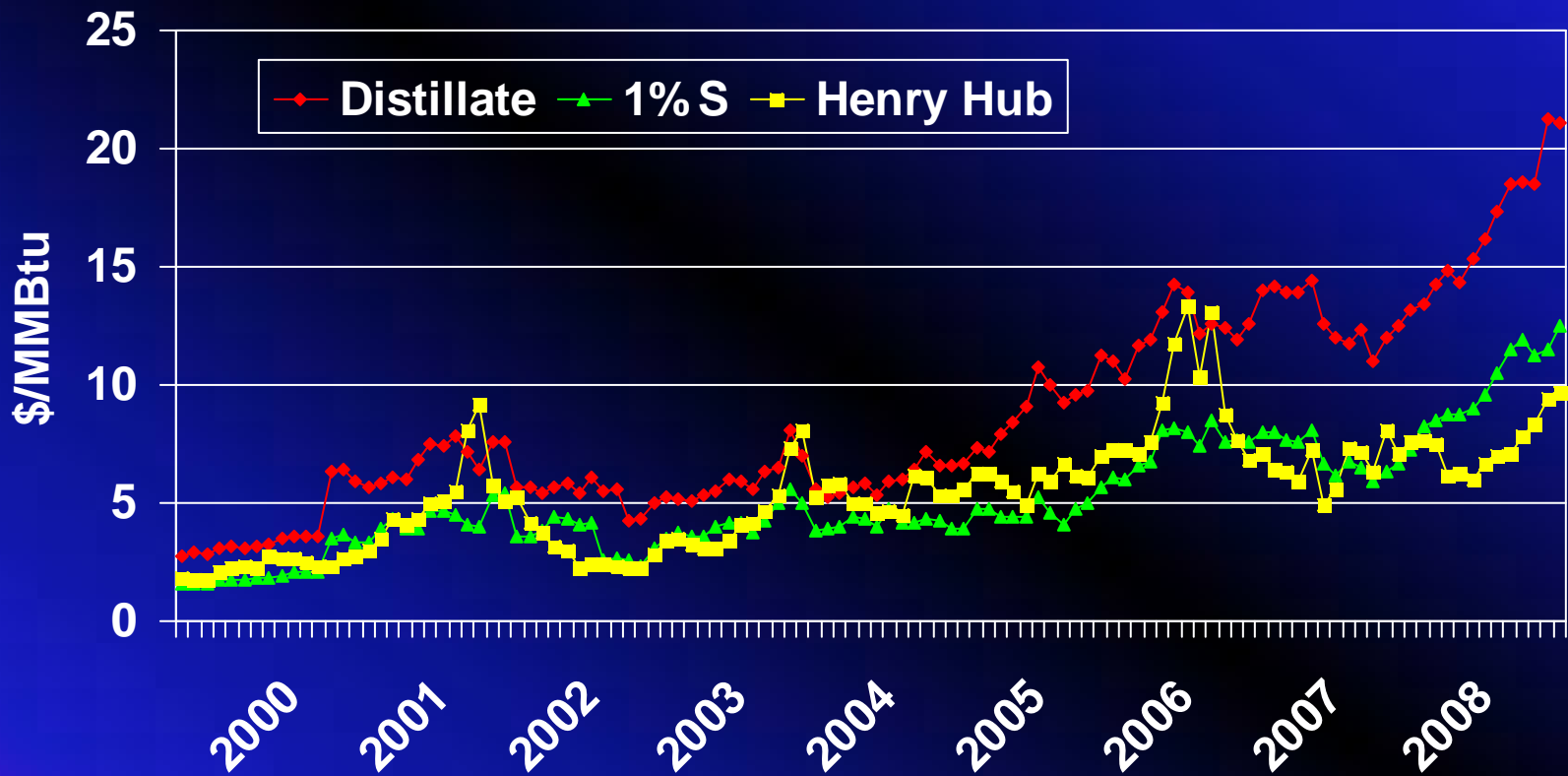
Market looks tight this summer. Under current assumptions working gas storage ends October at 3425 Bcf, 142 Bcf lower than last year.

- **Canadian production down .5 Bcf**
- **LNG imports down .8 Bcfd**
- **US production up 1.5 Bcfd (2.8%).**
- **Lower demand from improved hydro, nuclear generation, and high prices causing a decline in the industrial sector and a average recession**
- **Assuming 5% greater gas weighted CDDs. (Same as last year).**

Non-Heating Season Supply - Demand

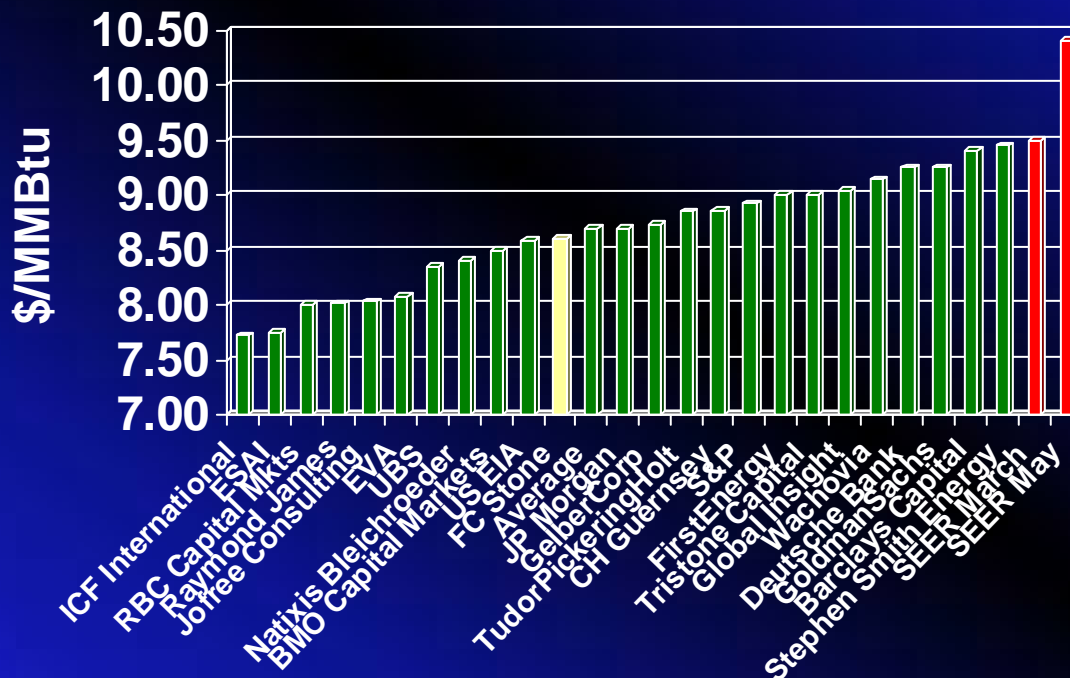
Sector	2008	2007	Change	%Change
Residential	5.6	5.5	0.0	0.8%
Commercial	4.8	4.7	0.0	0.8%
Industrial	16.8	17.2	-0.4	-2.1%
Electric Power	21.6	21.7	-0.1	-0.4%
Other	4.84	4.75	0.1	1.9%
Total Deliveries	53.6	53.8	-0.3	-0.5%
Dry Gas Production	54.3	52.8	1.5	2.8%
Canada & Mexico	7.6	8.1	-0.5	-6.9%
LNG	1.7	2.5	-0.9	-52.7%
Net Imports	9.3	10.7	-1.4	-15.1%
Supplements	0.2	0.2	0.0	-5.6%
Total New Supply	63.7	63.6	0.1	0.1%
Storage Withdrawals	-10.1	-8.8	-1.4	13.5%
Total Primary Supply	53.6	54.4	-0.8	-1.4%
Storage (Bcf)				
MAR 2008	1257		OCT 2008	3425
MAR 2007	1603		OCT 2007	3567
Difference	-346			-142

Henry Hub prices are well below their historic relationship with residual fuel oil. This suggests upside potential for natural gas prices.



In March SEER was the highest 2008 natural forecast price forecast and our expectations have been increased.

2008 Henry Hub Prices (Current Dollars)



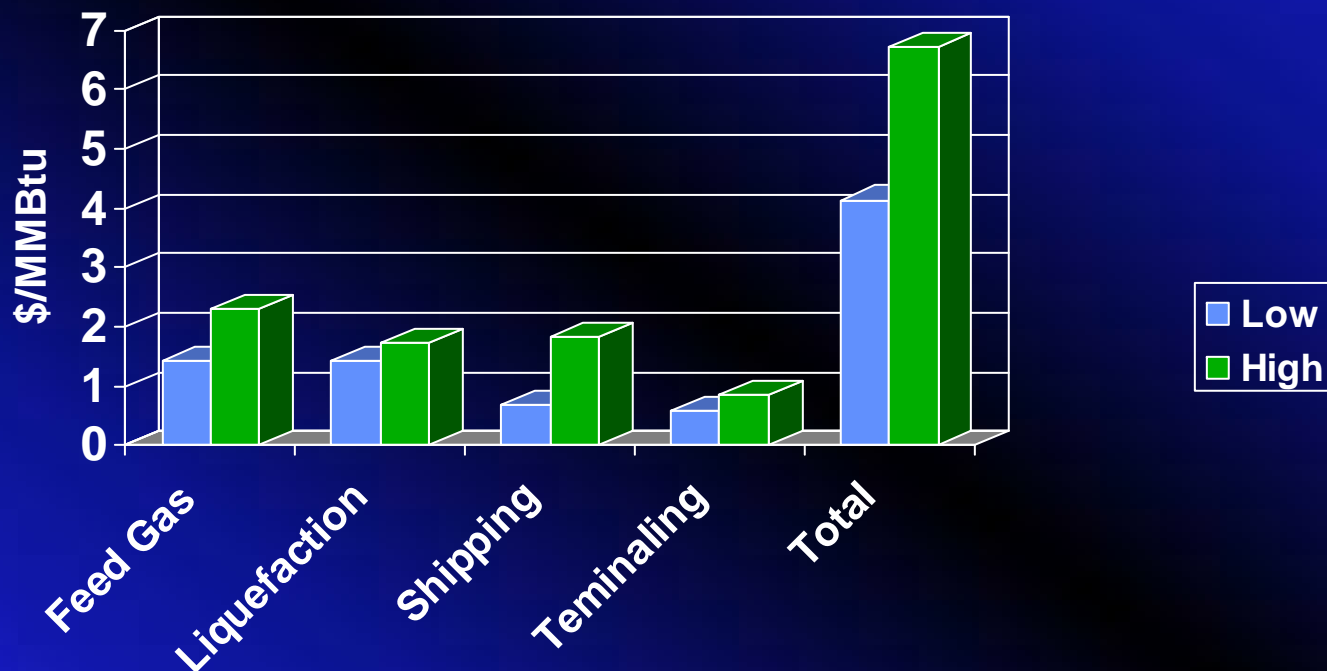
Source Reuters April 9, 2008

Slight changes can make a huge difference in prices

- **1% error in supply or demand is equal to 220 Bcf over non heating season. Data is not accurate within 1 or 2%.**
- **Most recent EIA data shows natural gas production 10% higher than last year. If production were at the level for the remainder of the non-heating season, working gas storage would end 185 Bcf higher than our projections.**
- **LNG is 10% of world market slight changes in world supply and demand will have a major impact on the US.**

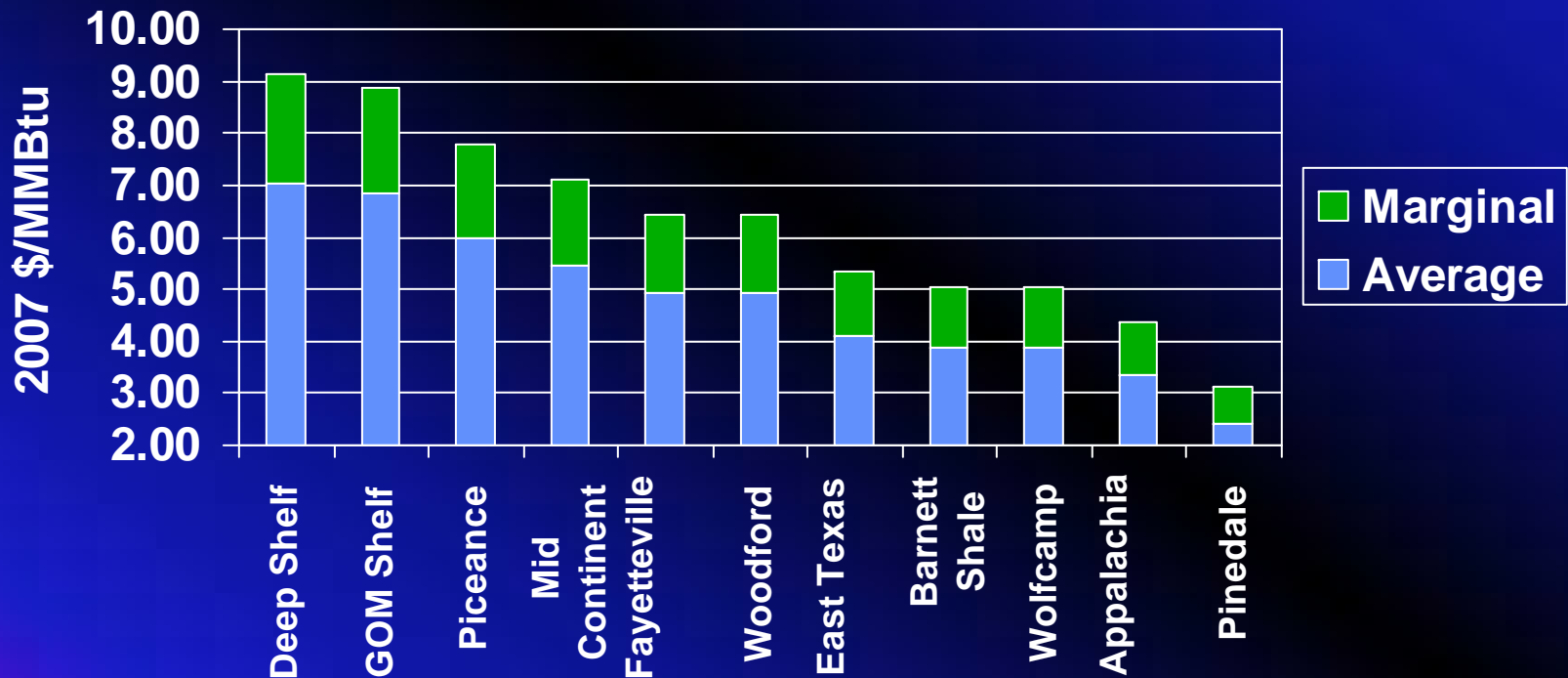
Henry Hub price required to support LNG development has increased 15% during the past year because of exchange rates but the price of LNG is likely to be linked to oil rather than cost of development.

LNG Cost



Substantial volumes of production could be lost at prices below \$7.00 - \$8.00 per MMBtu. 20% to 40% of wells are marginal but production is much less.

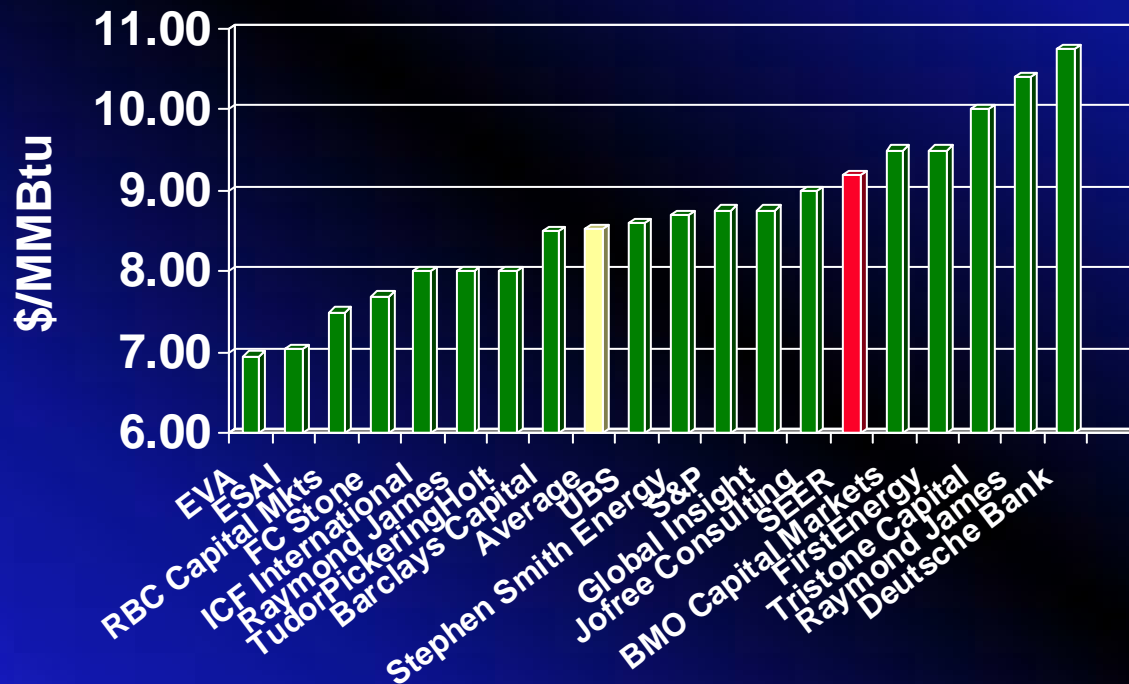
Production Cost



Source: Pickering Partners SEER

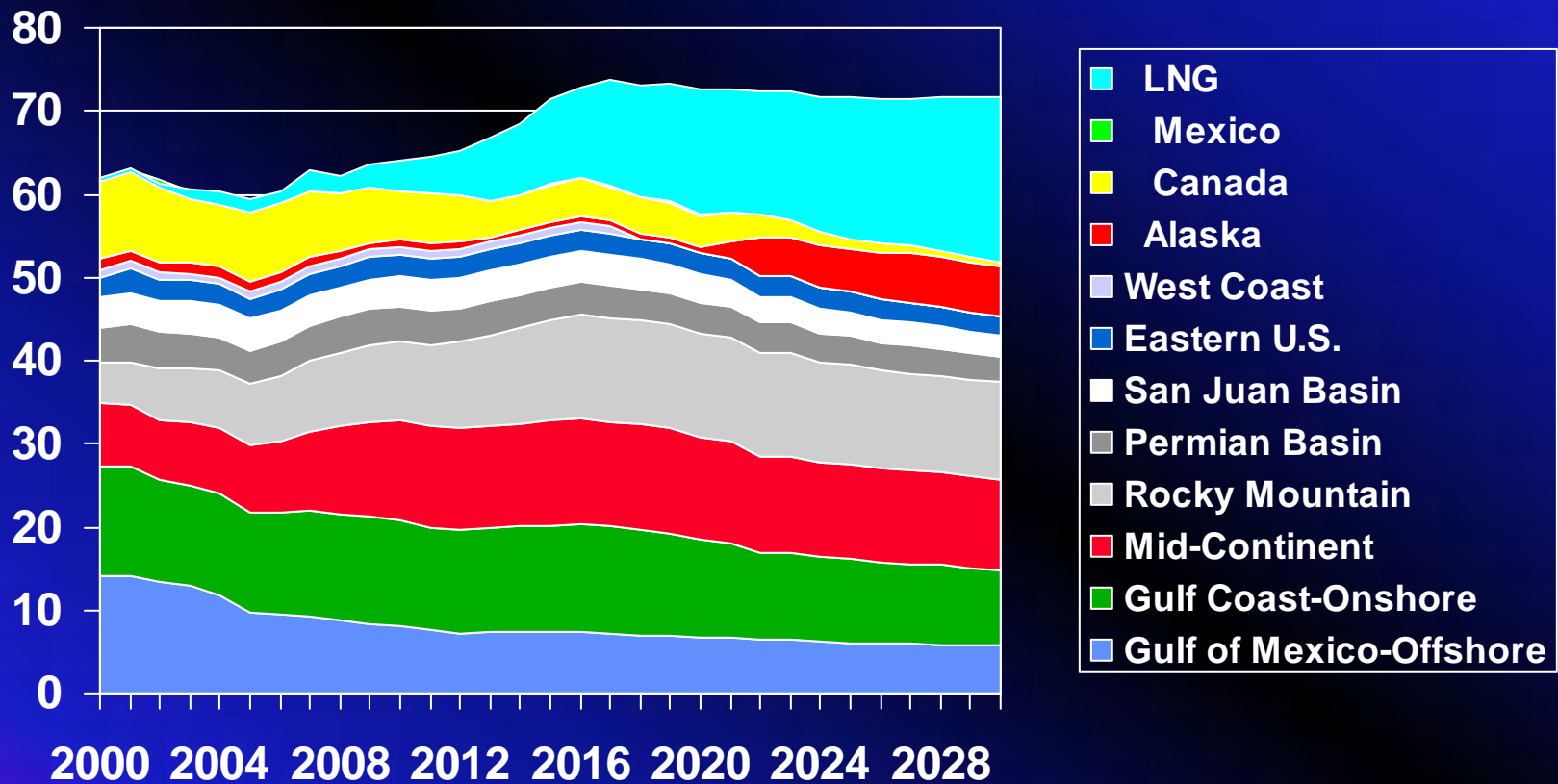
There are a wide range of projected prices for 2010. High oil prices and carbon pricing in Europe could support the high end of prices but there are downside risks as well.

2010 Henry Hub Prices (Current Dollars)

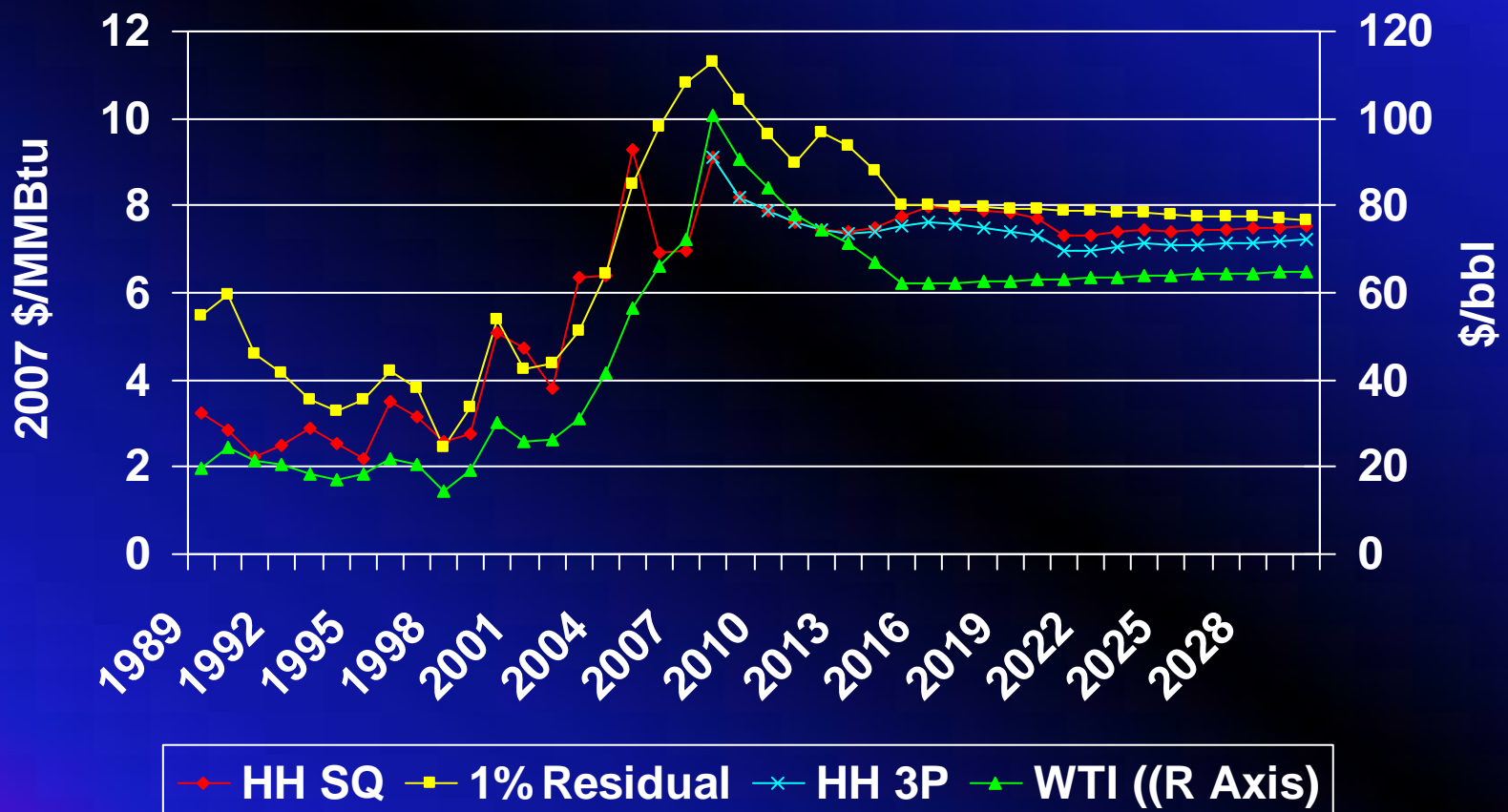


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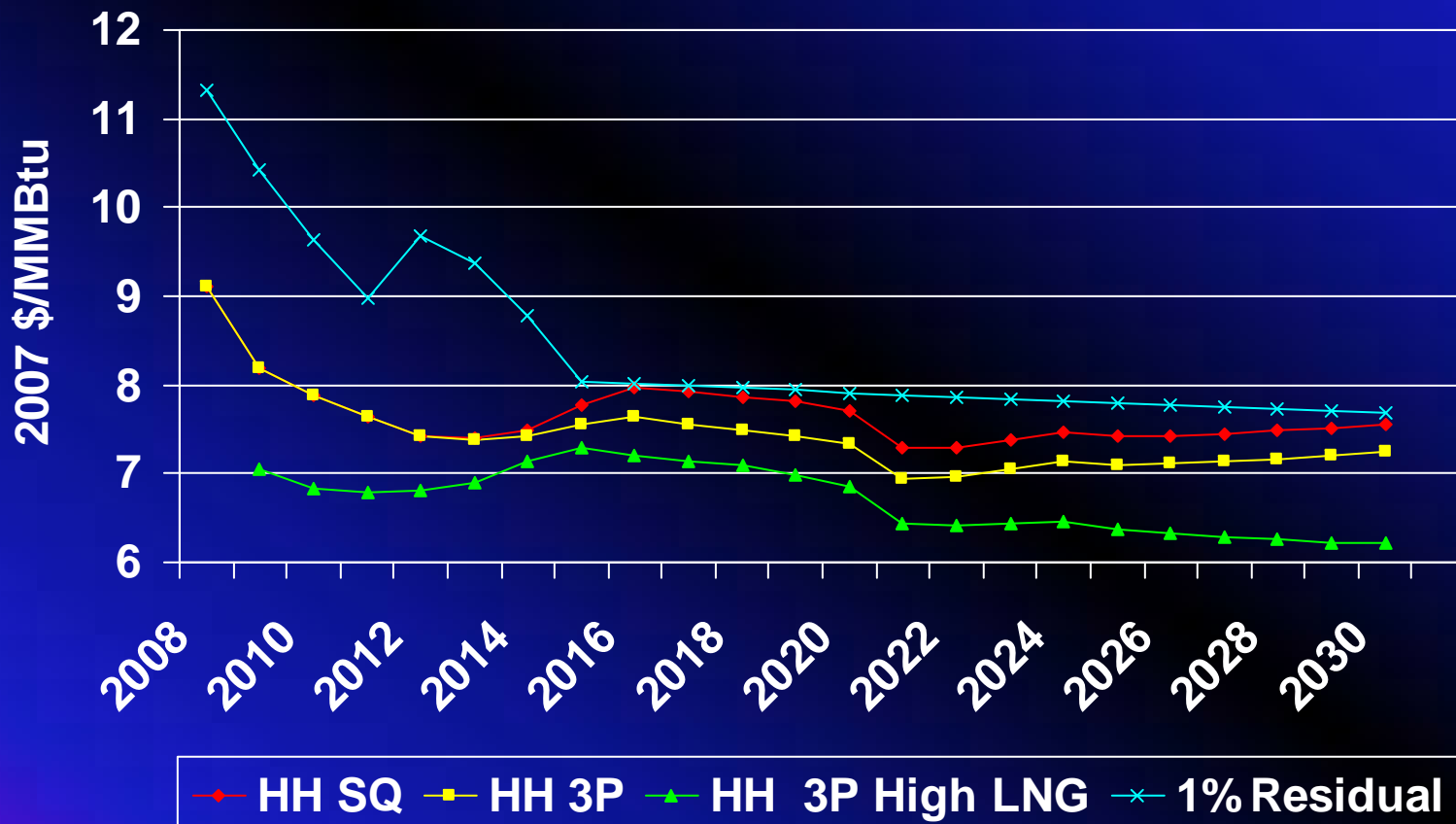
US will be increasingly dependent on LNG. Canadian imports will decline sharply and Alaskan gas is assumed to come on by late 2021.



Long term gas is likely to be priced close to oil. This relationship is much more important than the impact of environmental regulations. (GTL, feedstock, hydrogen, switching will keep fuel prices linked). Will coal to liquids put a ceiling on oil prices?



LNG import projections vary a great deal. High important assumptions could lower price projections by more than \$1.00 to \$1.50 per MMBtu.



Long term forecasts typically are not even close. Planning requires more creative approaches. The approaches typically used today are not as helpful as many are lead to believe.

- **After the Arab oil embargo oil prices projected to average \$100 real for decades, then in the 1990s there was so much oil that prices were expected be below \$20.**
- **An exhaustive study was done that predicted coal would be the major source of new generation but gas prices fell, environmental regulations tightened and the improved efficiency of gas CCs resulted in gas CCs taking over.**
- **Scenarios are often totally off the mark. In 1996 one of the world's largest energy consulting firm's high gas price scenario for Henry Hub prices in 2010 was \$3.00 nominal. Gas was going to be the basis of all future generation. This was a common view.**
- **Stochastic techniques don't work long term because the underlying model structure changes.**

There are no easy solutions but in many cases there were strong reasons to believe these predictions would be wrong. There could be substantial value in looking a maverick views and considering paradigm shifts.

- **Academic demand price elasticity estimates and studies of the cost of new supplies indicated that high oil prices were not sustainable.**
- **Natural gas reserves and productive capacity was artificially high because of perverse regulations.**
- **Technology and policy changeschanges**
- **Errors could be reduced by hard questions and being willing to put in the resources to find an answer.**
- **Diversification, shifting risks, being first...**