

## Stranded Gas Hearings (0508311042 Minutes)

### Natural Gas Prices and Tariffs

*Barry Pulliam, Senior Economist, Econ One Research, Inc.*

*Rick Harper, Consultant, Econ One Research, Inc.*

*Anthony Finizza, Ph.D., Consultant, Econ One Research, Inc., August 31, 2005*

ANTHONY FINIZZA, Ph.D., Consultant, Econ One Research, Inc., said that the view is that LNG could be, cost-wise, delivered at something like \$3.50/mmBtu, though it will be selling at the market price – or higher – of the location where it arrives. He pointed out that LNG would not be setting that price. In response to another question, he relayed that the view is that a cost of \$3.50[/mmBtu] would allow a competitive return to the producer, and so any price above that would be even better.

SENATOR DYSON asked whether it would be the case that [foreign] LNG landed at "Long Beach" could not be transported via pipeline to the Midwest market and "beat our gas for price" if the best long-term market for natural gas does indeed prove to be the Midwest market.

MR. HARPER concurred; adding that the basis differential would be affected, but pointed out that such would not result in competition for the product because "those are two different regional markets." In response to another question, he said that a product which lands on the West Coast would not naturally seek to move to the Midwest, so prices would only be affected through the basis interaction. He pointed out that "there's just no highway that exists in that fashion," and therefore he doubted that even a substantial basis differential would stimulate pipeline production between the West Coast and the Midwest.

REPRESENTATIVE LES GARA, Alaska State Legislature, said:

I just want to follow up on a question that Senator Therriault asked you in the address ... and this addresses the question of whether or not a gas leaseholder would have to fear the return of \$2.00 gas. So, one of the things we've always been told is the gas pipeline is potentially not feasible because what if gas prices went down to \$2.00 again and then you addressed well you can enter into possibly long-term price contracts mitigating that risk. ... Should we be certain that if ... a leaseholder wanted to sell us gas at a 10-year-locked-in price, they could or ... is that a maybe. Is it a definite that ... we could sell the amount of North Slope gas at a locked in price over the next 10 years something similar to the futures price that you had listed on one of your charts, or is that a big maybe.

MR. HARPER replied:

I think ... it's worthy of consideration, it's certainly not a part of what we've done here as this point. But, yeah, I think ... you would want to look at your options.

REPRESENTATIVE GARA asked:

But ... would there actually be a market if the leaseholders said, "We do want to lock-in a price for 10 years." Would there be a market for 10 years worth of Alaska gas at a locked-in price?

MR. HARPER answered:

Yes, yes you can hedge forward. Let's say that we fast-forward now, it's 2012, and you want to lock in your price to 2022. Yes, you could do that through the physical and/or the financial markets. You can absolutely do that at that point.

SENATOR WAGONER asked at what price would gas become vulnerable to other energy sources.

MR. HARPER said at between \$4 and \$5.

MR. PULLIAM relayed that Dr. Finizza, the next speaker, will address current and future natural gas prices and what the tariffs for moving gas from Alaska will likely be.

DR. FINIZZA said that the background information he will be presenting is derived entirely from studies that are now available to the public, and that he would also be illustrating some of the key uncertainties

that should be considered by long-term players in the gas market. Referring to a portion of his PowerPoint presentation, he said that it is expected that the demand for natural gas in North America will grow to roughly 30 trillion cubic feet (Tcf) by the year 2025. A common feature [of forecasts] is that existing supplies are not going to increase, that one must reach out for other sources of natural gas. Directing members' attention to what he called "the wedge to the right," he said, "The studies envision them to come from Canadian sources – Mackenzie Delta, LNG, and Alaska gas." By way of comparison, most forecasts envision Alaska gas as representing approximately 5 percent of the supply source in 2025. Regardless of the study one considers, he remarked, all paint a similar picture.

DR. FINIZZA offered his belief that [prospective] long-term players [in the gas industry] should consider three main issues: the strength of the natural gas market over time, the extent of LNG penetration one could logically expect in a given time period, and the role of competition between gas and alternative energy. He relayed that [the common view for the future is that] the natural gas supply would be "flat," that there would be increases in Canadian supply, that LNG would be somewhat limited from foreign sources, and that Alaska natural gas [could be expected]. Natural gas is going to play a major role in forecasts, particularly with regard to the generation of electricity, he remarked. However, he warned that "this gas doesn't have a free ride here" because there are other competitive sources for base load electricity, notably coal and nuclear sources. With regard to the industrial sector and the household and commercial sector, he suggested that growth will be in line with "income" growth.

DR. FINIZZA, with regard to the transportation sector, said that [most forecasters think that] there won't be much "penetration," though there are those who are envisioning a hydrogen-fueled automobile sector in the future, but that hydrogen would initially be created by reforming natural gas. He relayed that most people think that natural gas prices are currently at a cyclical high, and therefore he reminded members that they should not expect such prices to continue. He then referred to a table on page 3-5 of his PowerPoint presentation, and indicated that it was compiled from the last forecast made by the U.S. Department of Energy's (DOE's) Energy Information Administration (EIA). This chart indicates that natural gas consumption in the U.S. will grow from 22.3 Tcf this year to 30.6 Tcf in the year 2025 – an increase of 8.3 Tcf – and half of that increase will be due to an increase in consumption by electric utilities.

DR. FINIZZA mentioned that studies indicate that 75 percent of all new electric generation capacity will be from natural gas. With regard to the strength of the natural gas position, he remarked, one would have to question whether it could actually penetrate the electric utilities [sector] as depicted in this chart. Dr. Finizza went on to say that studies envision that LNG will be coming into the supply mix at approximately 3 to 4 Tcf per year by the time Alaska is at 1.5 Tcf per year. He reiterated that the view is that LNG, from a cost-basis, could be delivered into the U.S. market for between [\$3.00] and \$3.50/mmBtu, but, again, will be sold at prevailing gas prices. There are limited "regasification" facilities now, and a lot of people are arguing against establishing any such facilities in their area.

DR. FINIZZA offered his belief that LNG is not going to be of concern since it is not going to be "the marginal supply" and thus it will not be setting prices. Rather, gas prices will be set by the "higher-cost, Lower 48 supplies." The big threat to natural gas, he explained, comes from alternative energy sources, particularly with regard to electricity generation. For example, combined-cycle gas turbine technology is in place now and has a break-even point of around \$4.00/mmBtu.

REPRESENTATIVE HAWKER asked for clarification regarding the recent comment that LNG is not a marginal supply and so will not set future gas prices, and an earlier comment that LNG will be a marginal source of supply.

DR. FINIZZA said he was simply using the term "marginal" to emphasize that LNG will not be setting the "marginal price."

MR. HARPER said he was simply using the term "marginal" from a physical standpoint with regard to seasonal changes and base loading.

DR. FINIZZA, returning to his presentation, said that "the coal people" have also noticed the high price of natural gas and so are working on a "clean coal technology" that "gasifies" coal and utilizes a combined-cycle process. The thinking, he remarked, is that such technology might be competitive in the \$4.00-\$5.00/mmBtu range. He opined that any sustained natural gas price above \$5 could accelerate the development of the aforementioned alternative technologies. He indicated that his PowerPoint presentation contains natural gas price forecasts from the EIA, the National Committee on Energy Policy (NCEP), the NYMEX futures market, and a number of Canadian gas consultants.

DR. FINIZZA, referring to page 3-9, said it illustrates the EIA's Annual Energy Outlook (AEO), and that it forecasts prices out to the year 2025 but doesn't reference inflation. This forecast uses "a number of sensitivities" such as low oil price, high oil price, and low economic growth. He relayed that the EIA will go to a probabilistic model for the year 2006 because it has realized that the spread of forecast in the 2005 AEO was not very great and so has "not stated the full sensitivity of future gas prices." He referred to a bar chart on page 3-10 and said it reflects various forecast averages for the years between 2012 and 2025. These forecasts are based on the Henry Hub price, are all in "real" terms, and all pertain to dollars per mmBtu. The left-most bar and the right-most bar, he remarked, represent probabilistic forecasts, while the other six represent average forecasts of various studies done for this 14-year period. The average of those six forecasts amounts to approximately \$4.71/mmBtu.

DR. FINIZZA said that the aforementioned left-most bar indicates that there is only a 10 percent chance that prices would fall below the listed amount of \$2.76. The aforementioned right-most bar indicates that there is only a 10 percent chance that prices will be above the listed amount of \$6.39. Dr. Finizza said that the NYMEX futures prices do reflect the market's expectation of future gas prices, although it isn't that accurate. However, the NYMEX does outperform many forecasters, including the DOE, and therefore should be considered a forecast element.

DR. FINIZZA turned attention to page 3-12 of the presentation, which is a graph of the average view of the NYMEX futures market over the 12-month period of July 2005-June 2005. In viewing this over that one-year period, the market view in 2010 would be about \$5.25 in real terms, declining from today's level. Dr. Finizza turned to what this means when gleaning the possible prices when evaluating this major project. He informed the committee that it's considered best practices to review a range of prices. Therefore, one should review a low/stress price case as well as an expected price. With regard to determining possible expected prices, NYMEX offers a market forecast that's about \$5.00 [/mmBtu] and the average of publicly available forecasts is about \$4.75 [/mmBtu].

DR. FINIZZA said that in order to determine the stress price, one could review what rating agencies use. The rating agencies view a stress price as one that would allow the project to have a fair return [at the stress price] and thus [the project] would remain operative. [Moody's and the S&P] seem to be using a stress price of \$3.75 [/mmBtu]. One could also use the mean less two standard deviations from NYMEX, which is about \$4.00 [/mmBtu]. Although some have used \$3.50 [/mmBtu] as a stress price case, that seems a bit low, he opined. He then reviewed a high price case in which [the price is] the mean plus two standard deviations from the NYMEX market, which is about \$6.00 [/mmBtu]. Dr. Finizza noted that this range of prices from the publicly available studies are consistent with competitive prices from the alternative energy and electric utility sectors. Therefore, he opined that it would be an adequate set of prices to view projects of this type.

CHAIR THERRIault highlighted that the long-term price is integral and critical to evaluating the project and its cost and return to the various parties involved.

DR. FINIZZA moved on to the matter of pipeline costs, as provided in the public domain. The pipeline costs can be used to derive an implied tariff, which can be placed against the earlier outlined prices in order to derive likely netbacks under [various] scenarios. He then reviewed page 3-15 of the presentation, which is a spreadsheet showing projected public pipeline costs. He related that the producers have reported that the pipeline costs would be plus or minus 20 percent, and the Tristone Capital estimate is within that estimate. He then highlighted that the producers project the total pipeline cost from the North

Slope to Chicago to be \$21 billion, in 2005 dollars.

SENATOR DYSON assumed that the cost projections on page 3-15 are referring to a simple "bullet line" rather than tying into the existing excess Canadian capacity.

DR. FINIZZA agreed, and added that the estimate of pipeline costs from Gordondale to Vereville was made by Econ One on the basis of mileage and differential cost of pipe. He specified that if the \$7.8 million was broken down into two pieces, it would be roughly a two-third:one-third split. He mentioned that there could be a proposal to only bring the pipeline to Gordondale.

SENATOR DYSON asked if Econ One assumed that present permits in place for the route will prevail.

DR. FINIZZA clarified that his assumptions are those that the producers made. He explained that Econ One tried to take the presented pattern of capital costs and, using Econ One's model and some assumptions, tried to calculate the pipeline tariffs for each segment. The chart on page 3-16 assumes that the project ended at Gordondale and it also assumes publicly available capital, 4.2 Bcf/d sales, an 80:20 debt/equity ratio, 14 percent allowed rate of return for the U.S. and 12 percent for Canada, and debt of 5 percent. With those volumes, the total tariff from the North Slope to the Gordondale market is estimated to be \$1.14. If the gas treatment plant at the North Slope is included the estimated tariff is \$1.43.

DR. FINIZZA continued with page 3-17, which related the implied netbacks under alternative gas prices. The chart on page 3-17 uses initial values and start with the Chicago price in 2004 dollars, which will increase with inflation whereas tariffs won't. The differential between Chicago and the AECO Hub would be about \$.90 [/mmBtu]. Ultimately, the implied netback at the Inlet to pipeline will range from \$1.68 [/mmBtu] for the stress price to \$3.68 [/mmBtu] for the high price case. In order to determine the implied netback to producers, the operating costs and fuel loss ranging from \$.07 to \$.11 would have to be deducted as well as the royalty and tax value. Ultimately, the netback to the producers would range from \$1.27-\$2.83 [/mmBtu]. In response to Chair Therriault, Dr. Finizza clarified that the [projections] were done under the current fiscal structure.

CHAIR THERRIAULT informed the committee that should there be a proposal, the committee would have to run a 30-day public comment period, at a minimum. Although the price and costs are important for evaluation purposes, the committee doesn't assume the role of saying yes or no. The committee only runs the public comment period, after which the contract goes through the legislative committee process and comes before the legislature for review. Therefore, the committee's [responsibility] is to ask questions on behalf of the public regarding whether a good and fair proposal has been brought forth.

SENATOR WAGONER inquired as to why the operating costs and fuel use vary across the four cases. He related his understanding that those are fixed prices.

DR. FINIZZA indicated agreement that the operating costs [are fixed]. However, he pointed out that there is fuel loss and thus the applied value increases as the value of gas increases. In response to Chair Therriault, Dr. Finizza specified that the numbers in the operating costs and fuel use reflect the fuel lost in the line and the operating costs in the upstream.

SENATOR BEN STEVENS returned attention to page 3-2 of the presentation and recalled that Dr. Finizza mentioned that the Alaska portion would be 5 percent of the total. He asked if that would be 5 percent of the total gas consumption in 2025.

DR. FINIZZA replied yes. In further response to Senator Ben Stevens, Dr. Finizza clarified that the LNG is foreign LNG.

SENATOR BEN STEVENS inquired as to the volume Dr. Finizza is projecting from Alaska. He further inquired as to whether it was LNG volume or gas volume.

DR. FINIZZA said, "The Alaska number here that they have, although it's presumed to be pipeline, would be the same if they thought it was LNG." In further response, Dr. Finizza said that volume would be 1.5 Tcf a year and the foreign LNG is roughly double that.

SENATOR BEN STEVENS then turned the committee's attention to page 3-6, specifically the last bullet, which read: "LNG is not marginal supply and will NOT set future gas prices. Set by needed higher cost L-48 supplies". He asked if Alaska is being compared with the Gulf of Mexico production.

DR. FINIZZA answered that it's a combination of Lower 48 fields, including the Gulf of Mexico. He noted that almost all the analysis done for these studies review the supply curves for each region. The alternative sources of supply are studied by basin. Therefore, Alaska is compared to all the supply basins in North America. In further response to Senator Ben Stevens, Dr. Finizza confirmed that Alaska would be a gas price taker.

DR. FINIZZA, in response to Senator Dyson, clarified that [on page 3-2] the consumption to which he was referring was Tcf per year.

REPRESENTATIVE GARA directed attention to page 3-17 of the presentation and opined that one assessment that will be desired is the profit margin this forecast would leave the leaseholders. He then asked whether the netback is the profit.

DR. FINIZZA replied no, and added that the profit margin will be addressed in the afternoon. In further response to Representative Gara, Dr. Finizza confirmed that under the stress price case on page 3-17, there would be some profit.