



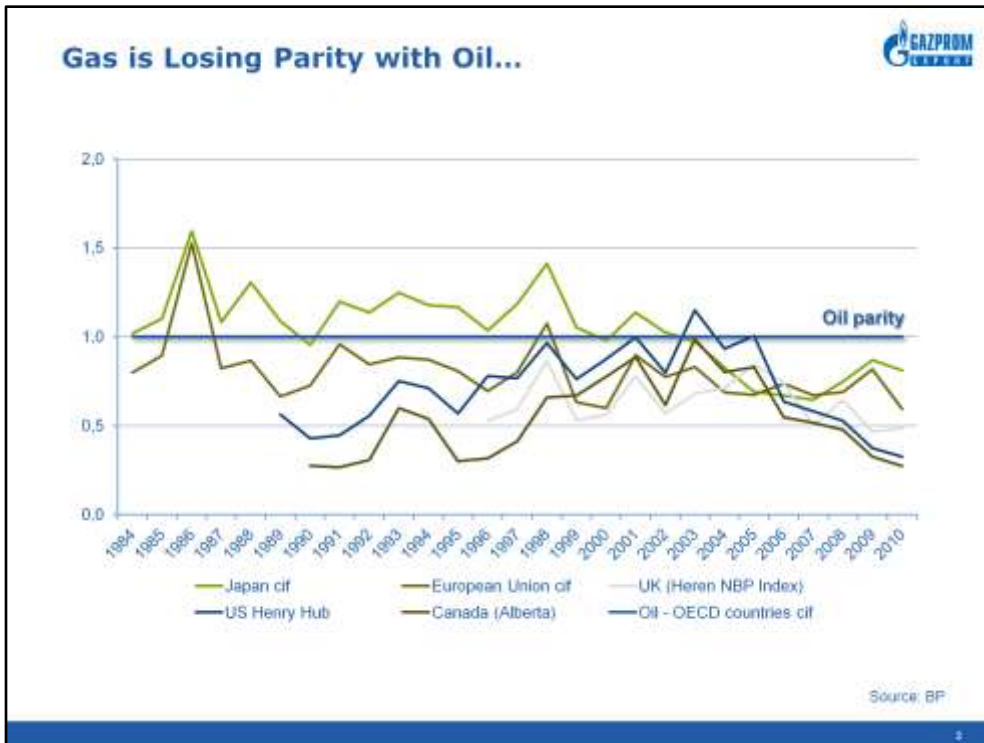
Natural Gas and Oil

Treatment of "Little Brother" Syndrome in Pricing

by Sergei Komlev

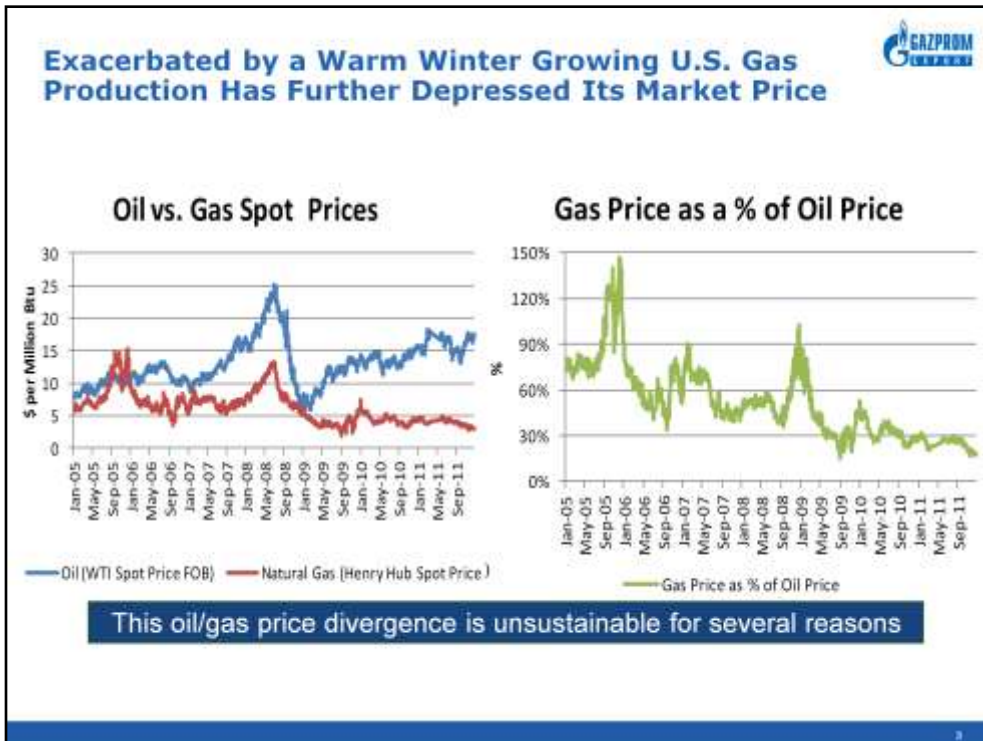
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Gazprom Export

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Thank you, Mr. Moderator, for an opportunity to address this high-level congress. I work as Head of pricing and contract structuring for Gazprom Export. It is not surprising that a topic of my presentation today will be divergence or decoupling of oil and natural gas prices. Although I do not have much time available I will try to explain what in my view are the major reasons behind this diversion and what should be done to bring oil and gas prices closer to each other. Convergence of oil and gas prices is the only way to cure the so called “little brother” syndrome that prevents gas from becoming a true full-fledged independent commodity as many other commodities.

The chart derived from the BP annual report indicates that this diversion of oil and gas prices characterizes all types of global gas prices irrespective of how they are set by gas or by oil indexes.



Although in recent years, oil and gas prices have decoupled to an unprecedented degree all over the board, this trend has been most pronounced in the U.S., where the gas price currently makes as little as only 20% of the oil price.

And here we come to a major point of disagreement with mainstream analysts (we will hear their voices today) who treat this diversion as indication that oil-indexation in gas pricing has lost its relevance forever.

I completely disagree with this view. Quite the opposite, now gas producers need protection more than ever and this protection for the moment can only come from oil-indexation.

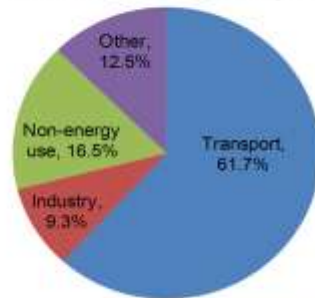
What is obvious to me is that gas-indexed gas is underpriced. I have said already that measured by calorific value, the Henry Hub gas price equals only 20 percent of the oil equivalent price, and the NBP price equals only 40 percent of the oil equivalent price. There is no rationale for such a huge discount. The natural-gas industry has come of age. It is not the younger brother of the petroleum industry anymore. But when it comes to pricing in liberalized markets, in the recent years it has become an even smaller brother of oil.

Market Commonalities Argue in Favor of Similar Pricing Structures for Oil & Gas

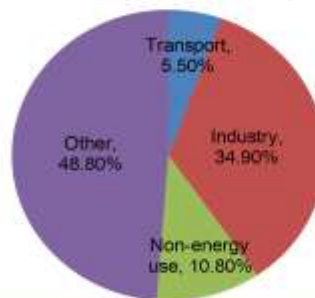


- Oil and gas continue to share many commonalities; price indexation is a natural extension of this
 - Similar exploration and drilling technologies
 - Similar cost structures
 - Increasing convergence in end-use markets

World Oil Consumption



World Gas Consumption



Other includes agriculture, residential, commercial and public services, and non-specified uses. Source: IEA.

Critics of oil indexation often claim that it is outdated because there is not much demand side substitution between oil and gas. However, and despite the recent divergence in oil and gas end-use markets, oil and gas continue to share so many commonalities that price indexation is a natural extension: they are largely produced by the same companies, they often come out of the same wells using similar finding and drilling technologies, and the overall cost structure of delivered LNG approaches that of delivered oil products in many supply regions. Further, oil and gas compete for many of the same markets (home heating, power generation, etc.). These end-use markets should continue to converge in the future as natural gas and LNG increasingly become a preferred fuel substitute for petroleum products in new markets such as transportation. Indeed the smaller brother can do most all the things that the elder can and sometimes even more.

Shale Revolution Has Made Gas an Even Smaller Brother of Oil



Story told in a letter from my American friend:

...So an oilman comes into a bar and sees his neighbor and long-time competitor sitting in his barstool, very disappointed and frustrated.

The first one says, "Hey, why so sad?"

The second one responds, "I'm broke."

His concerned friend asks, "Problems with the new well?"

"We hit target depth on Tuesday, three days ahead of schedule."

"Have you fracked it yet?"

"Yes, everything went just fine."

"So the well came in dry?"

"No, far worse: lots and lots of dry sweet natural gas."

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The oiler's problem does not sound odd, and the joke rings painfully true. As I shall explain in a moment, the U.S. pricing model is badly dysfunctional. While the downstream industry, customers and politicians speak of endless supplies of cheap shale gas, the independent gas producers that brought us the so-called shale revolution all teeter on the edge of bankruptcy. They are literally going broke trying to get rich.

Yet this industry and market system is being publicized by European and Asian regulators and gas importers as a shining model to which we all should aspire. If the liberalized natural gas market of North America is killing the goose that laid the golden egg, how is this a viable model for the rest of us? How has oil indexation stunted the vibrant and growing gas markets of Europe and Asia?

All of this suggests to me that, rather than seeing a fundamental shift in the global gas market, we instead are witnessing a brief and unsustainable situation in North America. It is this dysfunctional system that the short-sighted bureaucrats and politicians of importing nations seek to foist upon regional gas markets, believing it to be the shortest path to cheap gas supplies, despite the obvious problems of the North American market.

I will argue today that we must resist this unrelenting pressure to accept this change for our own long-term economic health as well as for the long-term health and growth potential of the global gas market.

What Makes Gas Lose its Value When it is not Linked to Oil?



- Although the volumes of natural gas global exports are only 4 times lower in US\$ value than the sales of oil, the financial markets have disregarded natural gas as an attractive hedging instrument. As a result gas price is not supported by the financial markets like many other commodities.
- There is another depressing factors that affect hub-priced gas prices. In the USA and UK, associated gas deliveries play a secondary or auxiliary role compared to oil deliveries.
- USA financial markets – principally futures markets – enable producers to lock in profits for years ahead. Low cash prices now do not discourage producers that sold today's production up to three years ago at much higher and profitable prices. As a result supply to price adjustment mechanisms do not function properly.
- Almost all gas markets outside of North America lack the level of competition and liquidity to create the market mechanisms to fairly price gas as an independent commodity.
- For all the above reasons, oil indexing remains a valid pricing mechanism for long-term commercial gas supply arrangements

Let me remind you that a necessity to price your commodity via a third commodity stems from the fact that the market for your commodity is not perfect enough to function properly and produce a quality price signal. This was truly the case in the early years of the gas industry when production required enormous investments and the market mechanisms were in their infancy and not in a position to guarantee a security of supply and demand. As the gas industry has matured it seems to be conventional wisdom today that the rationale for third party indexation no longer holds and that therefore the move to hub prices is irreversible.

We at Gazprom argue that that rationale for oil-indexation still holds. This time it is a problem not of immaturity rather a problem of "overmaturity" of the commodity markets that cannot be ignored anymore.

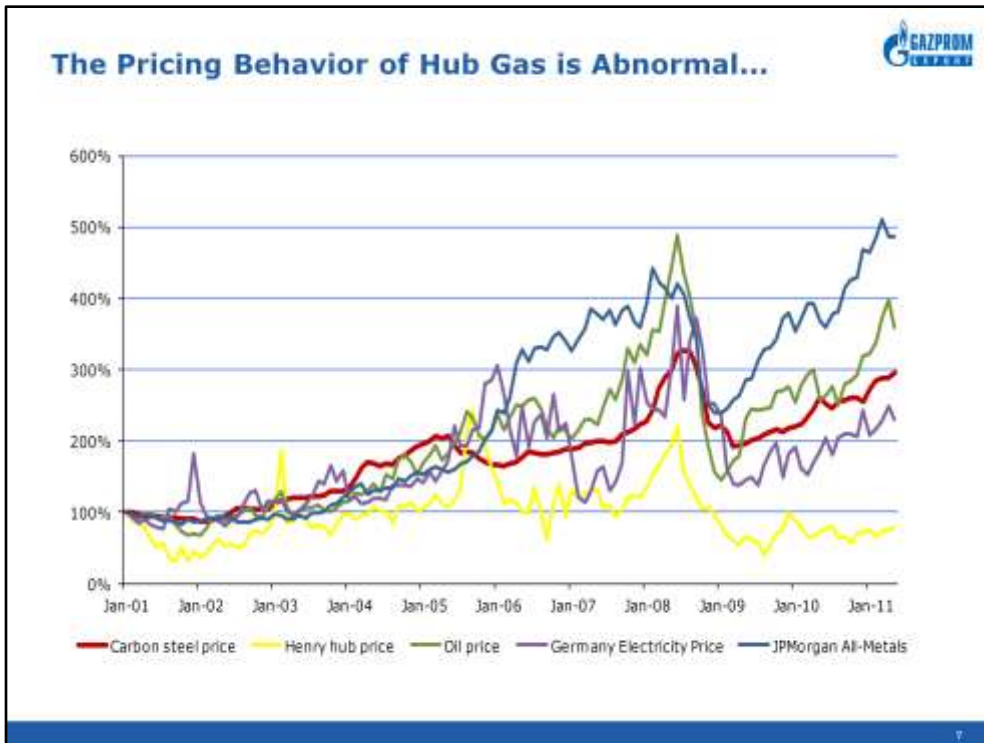
It is true that there are no perfectly functioning markets. Perfect markets exist only in textbooks. But in many commodity markets, these real life imperfections could be neglected because they are within acceptable limits. This is not the case for natural gas. In the fully liberalized gas markets these distortions have acquired a systemic nature and are only getting worse. The outcome of these distortions is the lasting inability of price mechanisms based on supply and demand to provide sustainable price signals that support investment in the gas industry.

Firstly, the effects of financialization on pricing in energy should be specified and discussed. The financialisation of the energy market would not create any problems if the funds were distributed more or less evenly between the energy commodities. But this was and is not the case. There were "darlings" of the financial investors as well as "cinderellas". In contrast to oil, natural gas is treated as the 'Cinderella' of the financial markets. Although the volumes of natural gas exports are only 4 times lower in US\$ value than the sales of oil, the financial markets have disregarded natural gas as an attractive hedging instrument. As a result of this weak interest by financial investors, the gas price receives the support largely from the fundamentals of its own market. And this market is far from being perfect.

There is another price depressing factor in addition to the "Cinderella" effect. In the UK, associated gas deliveries by major natural gas supplier Norway play a secondary or auxiliary role compared to its oil deliveries. Portfolio optimization on the part of Norwegian suppliers to the UK in many instances jeopardizes the value of gas in favor of oil. Cases when prices of gas were negative on NBP are a good example of this depressive factor. This depressing factor now plays an important role in shale oil production. As prices for shale oil are 10 times higher than prices for shale gas, producers are flooding the market with the associated gas volumes ignoring the negative pressure on prices that these volumes create. Cases of gas flaring in the USA have become a common thing.

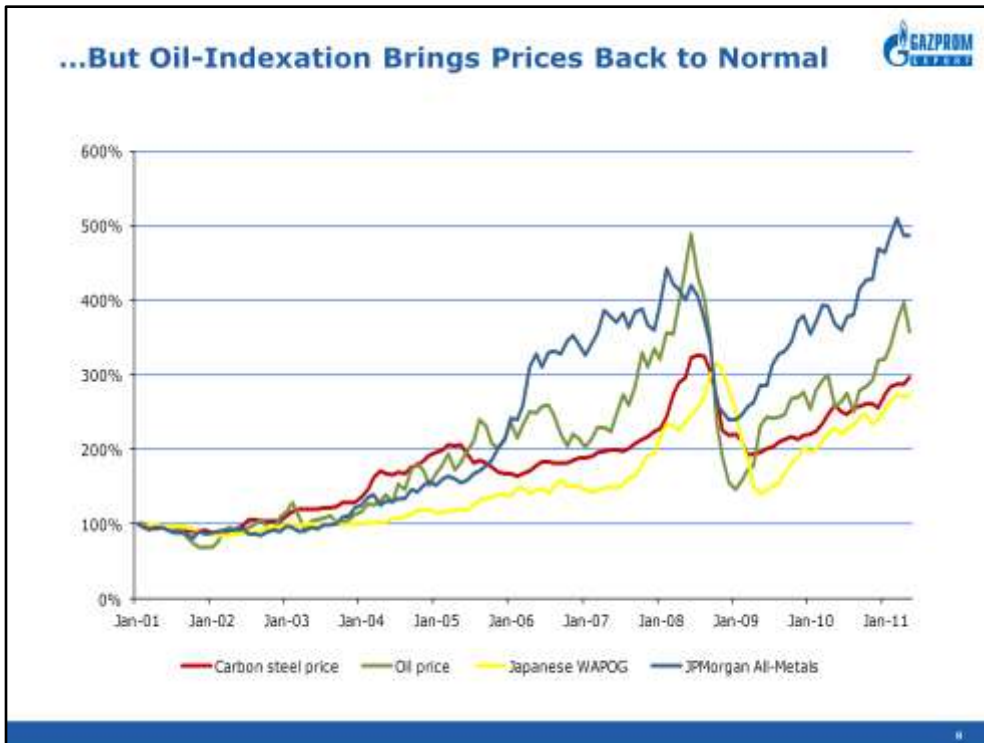
Thirdly, US financial markets – principally futures markets – enable producers to lock in profits for years ahead. Low cash prices now do not discourage producers that sold today's production up to three years ago at much higher and profitable prices. As a result supply to price adjustment mechanisms do not function properly but with a lasting delay.

Factors that make gas a "little brother" of oil in pricing are of different nature and duration. Some of them have a systemic nature like neglect by the financial investors and bundle product sales. Others, like delayed responses to overproduction are of a transitory nature. The forward curve is flat and there is no chance to hedge your price with profit. We are now seeing reduced investment in gas production as the shale gas revolution proves to be more of a "bubble" than a "boom". These trends will show that North American natural gas prices are in fact a temporary and unsustainable aberration that has been incorrectly seized on by importers as an excuse to tear up existing contracts that have reliably served the market for over 35 years.

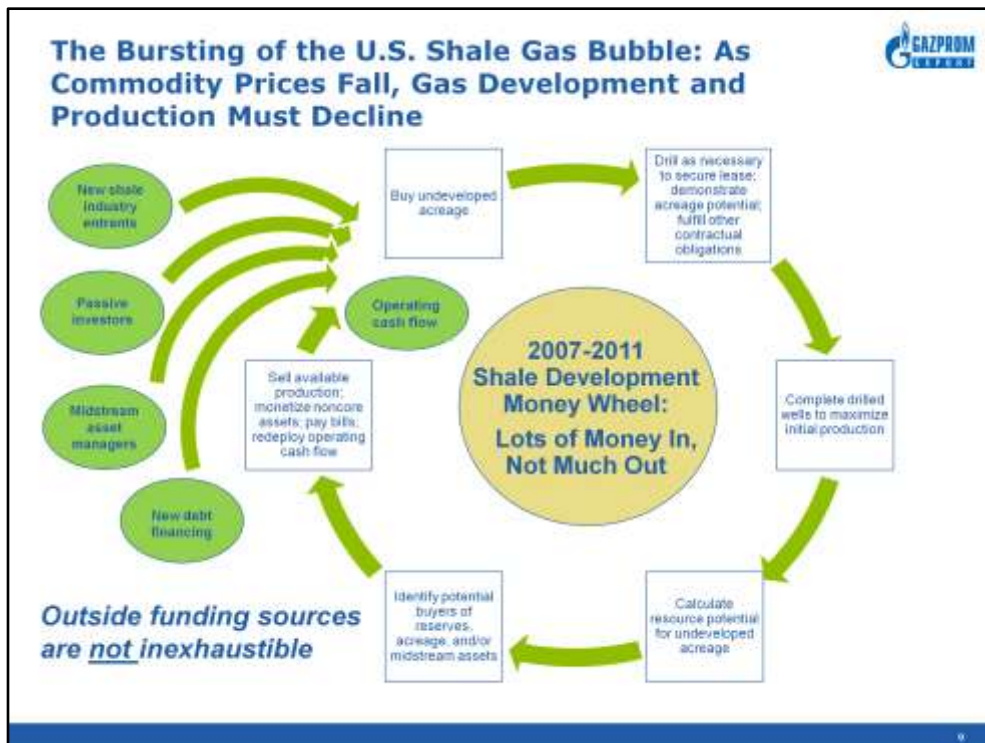


The result is that the pricing behavior of hub natural gas in recent years has been abnormal when compared to other commodities, which generally track with each other.

The chart here shows that the pricing history of hub-priced natural gas (as represented by the Henry Hub) shows a clear divergent behavior compared to the other commodities shown.



When indexed to oil, in contrast, gas tracks closely with other commodities.



In the U.S., the so-called shale revolution has run the course of past U.S. asset and resource booms [such as the California Gold Rush of the 1840s & 50s and the dot.com boom of the 1990s], and U.S. gas producers are now suffering the aftereffects of a characteristically American resource grab and investment rush. The implications of this resource grab are represented by the “shale development money wheel”: first there is a rush of new capital to secure ownership and control of reserves, followed by the drilling of wells to establish reserves and deliver value to the private land owners. Current low gas prices and high development costs are ignored in favor of attempts to maximize *perceived* long-term opportunity.

As with past booms, there will be losers as well as winners as the excesses and bad bets come home to roost.

Shale Gas Development is Not Sustainable under Current Gas Prices



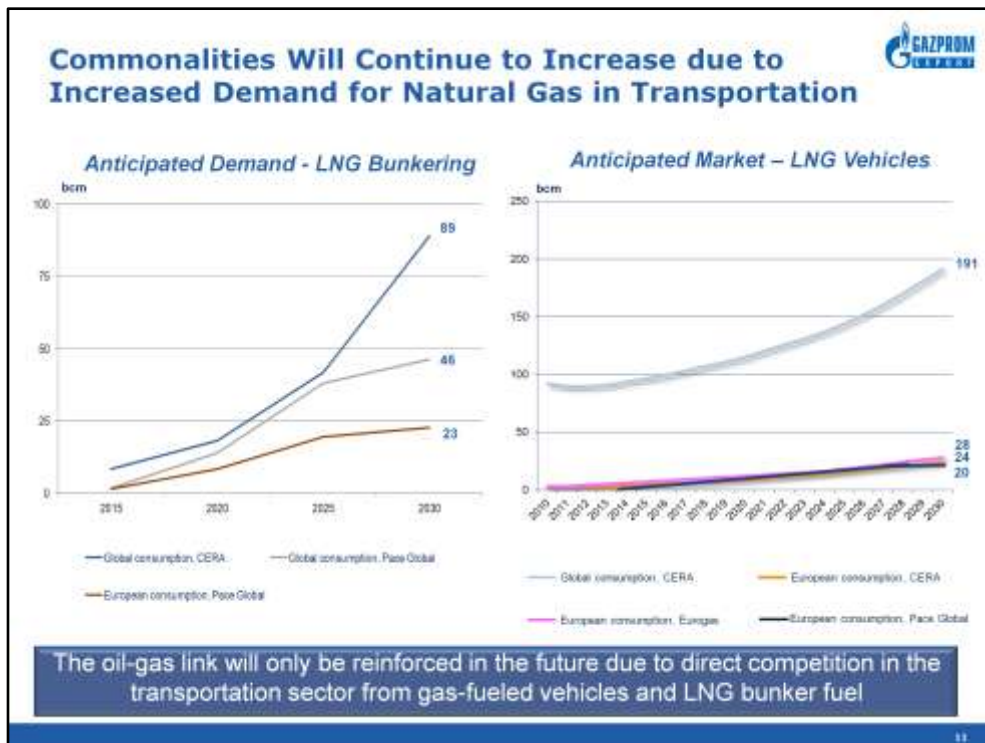
- An ongoing survey of gas-weighted shale developers in the U.S. indicates that finding & development costs are roughly double the amount of operating cash flow
- The unlimited supply of cheap natural gas is an illusion

Finding & Development Costs vs. Revenue (\$ MM)



Source: Pace Global

An ongoing study by energy consultant Pace Global shows that, on average, independent shale gas producers in the U.S. spent twice as much on resource acquisition and development as they received in free cash flow in 2011, covering the difference with asset sales, equity sales and new loans. This, perhaps more than anything, shows that current gas market prices are not sustainable over the long term. Those anticipating an unlimited supply of very cheap natural gas are engaging in a fantasy, and we must not let these current market distortions define the future course of global gas pricing.



You may ask me a question do I mean that taken the current market inefficiencies gas will never become an independent commodity and has to be oil-indexed forever in order to protect its value? The answer is no. There is a natural remedy to the “little brother” syndrome – enhancement of direct competition between oil and gas that will bring their prices closer. This competition on an unprecedented scale will occur in the transportation sector due to the increasing popularity of natural gas-powered heavy duty vehicles and the use of LNG as bunker fuel.

Let us take a look at the projected demand for natural gas in transportation. Natural gas has a distinct and important role to play in terms of reducing emissions from the marine and vehicle markets, while maintaining vehicle range and performance and without increasing life-cycle costs. Major international consulting agencies and industry associations have provided their forecasts of this “oil-to-gas” dash. The consensus among these varied organizations is that natural gas is expected to capture significant market share from traditional petroleum-based fuels in both marine and road transport – up to 89 bcma from global LNG bunkering and 191 bcma from LNG vehicles. In fact, this “oil-to-gas” dash, a major revolution in transportation, is silently taking place already.

Inter-fuel competition between oil products and natural gas is indeed growing and leaves us with hope that one day gas will get rid of the “little brother” syndrome in pricing.

THANK YOU