

ExpertSpeak

International benchmarking of natural gas prices needs to be reviewed

Dr. Pramod Paliwal, Dean, School of Petroleum Management, Pandit Deendayal Petroleum University, shares his views on evolution of natural gas pricing in India, its present status and challenges with respect to international benchmarking.

Consumption of natural gas has grown rapidly over the last few decades and currently accounts for nearly a quarter of the world's primary energy basket. Driven primarily by the industrialization of Asia, the Middle East, and Latin America, demand for natural gas has been growing faster than crude oil and the use of gas is set to witness an increase even further in the times to come.

Natural gas prices are mainly a function of market supply and demand. Because there are limited short-term alternatives to natural gas as a fuel, changes in supply or demand over a short period may result in large price changes. In turn, prices themselves often act to balance supply and demand. Factors on the supply-side that affect prices include natural gas production, trading, and reserves including storage. All other things being equal, a glut in supply is likely to have downwards pressure on prices, while decreases in supply may jack up prices. Increases in prices may be a motivation for producers to increase production, and engage in increased levels of trading. Plunging prices, ceteris paribus naturally tend to work in the reverse manner.

Factors on the demand-side include weather (temperatures), economic conditions, and prices. Demand is high during winter-as generally seen in Europe, USA and other cold regions where natural gas

is a major fuel. Economic conditions influence demand for natural gas, especially by manufacturers. Demand may temperate by petroleum fuel prices, which may be an economical substitute for natural gas for all kinds of consumers. Geopolitics also has its own role in the natural gas demand-supply matrix.

Distinctiveness of Natural Gas Pricing

Natural Gas pricing - like any other commodity- is not immune to the forces of demand-supply.

However it would be interesting to understand the uniqueness of natural gas and the subsequent context with its pricing. Unlike other internationally traded commodity markets, natural gas has distinct regional benchmark prices. The overriding mechanism for the international gas trade nevertheless remains oil -indexation, which originated in Europe in the 1960s and spread to Asia. A complementary yet distinctive mechanism based on hub pricing and traded markets developed in the United States and has spread to continental Europe via the UK. In underdeveloped gas markets like India, natural gas pricing is based on referencing the domesti-

Will traditional linkage of natural gas prices to crude oil continue and for how long?



Dr. Pramod Paliwal, Dean, School of Petroleum Management, Pandit Deendayal Petroleum University

cally produced commodity's prices with the prevailing prices in other important producing and consuming regions. However it would be interesting to see whether the traditional linkage of natural gas prices to crude oil will continue, and for how long.

The physical properties of crude oil and the fact that it is relatively uncomplicated to transport and to store facilitated the emergence of commodity pricing mechanisms in the oil sector. However, these considerations do not apply in the same way to natural gas. It remains to be seen whether gas will follow the same development as witnessed by the oil sector. In USA and in the UK the movement toward a commodity type market pricing mechanism is already well advanced in the natural gas sector. Natural gas spot and futures markets have evolved in the US and the UK. LNG is starting to be traded on a spot basis, even though simultaneously long-term contracts are

still the prominent feature of natural gas trading.

Natural Gas Pricing in India

Domestically produced natural gas pricing in India has seen many phases - from administered to price-discovery to being benchmarked with international prices in select regions. While the method of administered pricing has always been juxtaposed with the economic principle of demand-supply forces, price-discovery method has not been without its fair share of criticism. Incidentally till recently imported LNG into India could only be considered as an example of market-linked pricing. The prices for companies which purchase and market LNG (e.g. Petronet LNG and GAIL) are determined either by term-contracts or by the spot market. Mechanism of pooled pricing i.e. pooling spot and contracted LNG to achieve a lower 'average' price for rationing gas to priority sectors to make up the shortfall of domestic gas- is also practiced as per need.

The critique of both administered and price-discovery methods stemmed from the fact that there was an inherent opaqueness to these methods (of course more so in the later rather than the former, where at least there was some socio-economic argument to 'administer' natural gas prices). Cost elements, rate of return, capital expenditure, how do you define socio-economic parameters, opportunity costs etc. all made these methods highly debatable and controversial at times. At the same time we should not lose sight of the fact that private producers also look for 'fair' prices from the perspective of 'rate of return' as they bid for E&P blocks. E&P activity in itself in a highly capital intensive and risky proposition, thus the expectation of a fair 'price' is obvious. But then how fair was fair. And thus the role of government and its agencies was always to remain in either of these mechanisms.

An alternative way of pricing of domestically produced natural gas in India was thought of i.e. by way of linking India's natural gas prices to the international market, more specifically to the (rather evolved) benchmarks of the U.S., UK, Japan, and those of producing countries such as Qatar and Australia. It is a well known fact that the US and UK benchmarks – the Henry Hub (HH) and National Balancing Point (NBP) respectively

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– are determined by their local gas exchanges, whose prices include not just the cost of commodity, production, distribution and marketing, but also the relevant inputs from the financial markets such as futures, hedging, cur-

rency risks and impact of geopolitics. These benchmarks thus could be considered representative ones. Japan Custom Cleared or JCC -the Japan benchmark based on international crude prices is also one of the robust (and tested) pricing benchmarks. India's natural gas imports from Qatar and Australia are based on JCC.

However linking domestically produced natural gas prices in India with international prices are fraught with price volatility and foreign exchange currency risks). It is a known fact that India has historically attempted to balance both pricing mechanisms with mixed results. The RIL KG-D6 gas pricing demonstrates this. The KGD6 pricing was linked to the international price of crude oil vide a complex formula that contained crude oil floor and cap prices, a constant and an exponential. This resulted in the revised price of \$4.2 per mmbtu for RIL, and was eventually accepted by Empowered Group of Ministers, Government of India in 2007. However even that was not without its own share of controversies. As it turned out to be, the formula that was fixed for 5 years eventually made everyone-government, RIL, critics, R-ADAG, NTPC etc. - unhappy. So much so that when it was up for revision, it witnessed intense politicking-most of it without much basis, of course.



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Since then India has moved to an international market-linked pricing model for gas which is linked to average gas prices in the markets of the U.S., UK etc, for our private and public sector players. This was first done based on the recommendations of a 2012 committee headed by C. Rangarajan, the Chairman of the then Prime Minister's Economic Advisory Council.

The aim was to encourage domestic exploration and pricing with even better transparency. This new pricing was to go into effect for all new contracts, starting April 2014. It did indeed take effect. However the government that took office in May 2015, though continued with the international linking, expanded the benchmarks though-i.e. in addition to Henry Hub and NBP, it also considered markets like Russia and Canada to arrive at the price-though of course the weights to these benchmarks also underwent revision. According to the new formula, prices are to be revised every six months based on a weighted average of domestic prices in these trading locations.

Current Challenges

Incidentally starting October 2015, the domestically produced natural gas prices, as per the new pricing formula has fallen below the erstwhile RIL KGD6 formula based natural gas price levels. Which is of course a welcome development as it is a pointer towards the dawn of an internationally linked pricing with relative transparency. However while the Indian consumers have a reason to celebrate the fall in domestically produced natural gas, the oil & gas E&P players have a cause to worry.

It seems to be an ironical situation on the Indian natural gas pricing scene. One of the key reasons for linking domestic natural gas prices to global prices last year was to incentivize investment in domestic exploration and




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production in India and reduce dependence on imported LNG. However, for the natural gas E&P companies - current and prospective - the timing of such a linkage could not have been worse. Globally, over the past year or so, natural gas prices have plummeted. For instance, prices at Henry Hub in the US, one of the benchmarks in India's new pricing formula, have plunged from \$6 per mmbtu in February 2014 to \$2.8 per mmbtu in August 2015.

Both the slowdown in China and Europe as well as the Shale related developments are responsible for this. But natural gas prices could witness a

further downtrend if oil prices continue to sink, because despite everything the oil indexing based pricing in practice never ceases. According to a September 2015 report by Goldman Sachs, crude oil prices may hit the \$20 per barrel level in the near future. However there are reports contrary to that opinion also and it is believed that if not increase sharply, at least the fall in oil prices may be arrested. But the mixed signals continue to be emitted as seen in the December 2015 US Federal Reserve rate hike decision.

However all these should not be deterrents to well evolved international benchmarks linked natural gas pricing policy for domestically produced natural gas in India. At the same time it needs to be seen that while the international benchmarks are fine, these are from markets/regions where natural gas based economy is fairly developed and India on the contrary is an emerging market as far as natural gas's role in our energy basket is concerned. Thus this aspect also has to factor in the pricing policy. But India's complex political -socio-economic system and a hyperactive media makes that task a gargantuan one. 

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