April 2015

Gas Pricing Reform in India:

Implications for the Indian gas landscape

Executive Summary

Anupama Sen

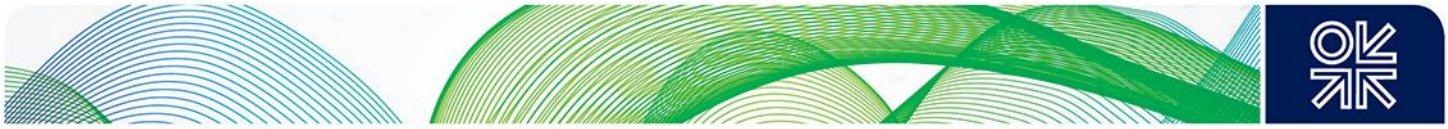
Most discussion on the future of the market for internationally traded gas focuses on the 'swing towards Asia'. Specifically, China and India, the world's two most populous nations, are frequently highlighted as major drivers of future demand. Yet, there is considerable ambiguity over the assumptions underpinning this observation, particularly with regards to India. The reason for this lack of clarity is that the Indian gas sector is broadly characterised by two moving parts: one which has prices and quantities set by the Indian government, and another which utilises gas at market (LNG import) prices. Additionally, there is some overlap between the two, further complicating attempts to assess these as separate markets. The lack of a clear pricing signal therefore makes it difficult to determine future levels of demand.

This paper analyses whether or not recent reforms to the pricing of domestic gas could potentially change the Indian gas landscape by making price signals clearer. In October 2014, India's government announced reforms breaking the (capped) link with Brent Crude in the existing pricing formula for the majority of domestically produced gas, and linking it instead to a weighted average price of a set of international prices, including US Henry Hub, UK National Balancing Point, Alberta 'Hub', and Russian domestic gas. This paper analyses the new formula in terms of its relevance to the Indian gas market, and investigates three main research questions: first, could the gas pricing reform reverse the recent decline in domestic production? Second, could it lead to new upstream investments in gas? And finally, what is the impact of the reform on downstream consuming sectors, which will arguably test its sustainability? Against this context, the paper also assesses India's potential as a major future LNG importer.

The paper argues that the nature of the gas price reform thus far implies the continuation of *price level* (as opposed to a *price formation mechanism*) as the main focus, unless there is

: a reorientation of policy towards a longer-term goal for the role of gas in the Indian economy relative to coal and oil, and
: a roadmap for gas price reform which reflects the dynamics of the Indian gas market, rather than focusing exclusively on regional dynamics in other gas markets.

A review of existing reserves shows that the decline in domestic production is unlikely to be fully reversed, although it is plausible that production could be increased through prices of approximately $6-7.15/MMBtu. However, at present this would have to come from NOC rather than private sector production in the absence of a significant new 'giant' discovery, as NOCs appear to hold the largest proportion of gas reserves as well as Petroleum Exploration Licenses. A review of data on production costs and breakeven prices (based on existing studies) shows that gas prices of $8/MMBtu could potentially incentivise 30 Tcf of additional reserves to be brought into production, contingent upon reforms to the fiscal regime for exploration.



In its investigation of the impact on the main downstream consuming sectors - fertilisers, power and city gas, the paper analyses the extent to which higher revenues from royalties and corporate taxes on the back of a potentially higher gas price could be used to finance higher subsidies on fertilisers in the medium term, and the viability of a re-orientation of fertiliser policy towards long-term contracted fertiliser imports beyond this. The analysis shows that this strategy would only work if gas prices rose to $9-11/MMBtu, and only if both NOC and private sector production targets are met. This shows the existence of a circular problem to which the current pricing and fiscal regime does not appear to provide any solution. However, any increase in the domestic gas price would reduce the net cost of the subsidy on urea through increases in tax and royalty receipts on producing gas fields, as royalty and tax take rises faster with the gas price than the subsidy. The analysis highlights the universally negative impact on the power sector of higher gas prices due to the absence of carbon pricing or equivalent incentive mechanisms encouraging the use of gas (to displace coal). The paper shows that gas is uncompetitive with domestic or imported coal at prices between $5.20-$6.20/MMBtu (on a variable cost basis for existing plant) under the current design of the power generation sector. Given the drive towards universal electrification in India by 2019, coal is unlikely to be discouraged, implying a rather limited role for gas in power.

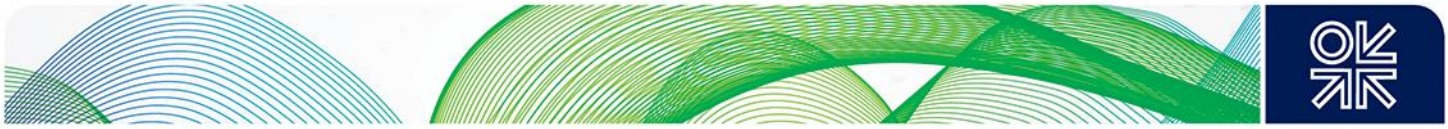
The outlook for the city gas sector is relatively more optimistic, especially after city gas for households and transportation was moved to the top of the 'two-tier' structure of gas demand described in this paper. The improved price competitiveness of city gas against diesel and LPG (on the back of recent petroleum product pricing reforms), along with the fact that city gas distribution entities are able to pass through upstream price increases, implies that investments in expanding city gas infrastructure should be forthcoming. However, the question remains as to how much gas this sector can realistically absorb in the next few years.

These observations, and a potential downward adjustment in demand forecasts indicate a theoretical potential for LNG imports by 2030, amounting to roughly 100 Bcm, implying that India could rival both Japan and China as a driver of global LNG trade within the next 15 years. However, this forecast needs to be strongly qualified, specifically in the power sector, by uncertainties relating to India's push on coal, and the possibility of a greater reliance on coal imports in a softening international coal market resulting from the backing out of coal in the US, Europe and China. India's current long-term contracts leave a portion of this import potential (30 Bcm based on a relatively conservative forecast) unmet. 'Actual' import potential is likely to be somewhere between the two 'poles' (conservative and optimistic), which is difficult to determine with confidence due to the lack of a clear pricing signal. Whether any of this future potential for LNG is fulfilled depends on two factors: first, whether Indian buyers are able to contract volumes at 'acceptable' (to end-users) prices, and second, whether India can develop the infrastructural capability to receive and distribute these volumes. However, it is very likely that India will face a soft LNG market around 2020.

The most likely outcome going forward is a continuation of the present system, potentially incorporating some elements of a market-based price formation mechanism. The recent 'pooling' of domestic gas with imported LNG to obtain a lower average price could end up compounding India's circular problem, as

: low gas prices are unlikely to incentivise new domestic production, which could potentially lead to higher-priced LNG imports becoming the main source of incremental gas, and
: gas price pooling could provide a further disincentive to reforms, as governments may prefer to retain control over the price of domestic gas in order to moderate the impact of higher-priced incremental LNG imports.

India continues to lack a clear roadmap for gas pricing reform, and for gas in the economy relative to other energy sources. For instance, to make gas competitive with coal for environmental reasons, to replace other fuels (such as oil) with gas for fiscal and budgetary reasons, or to retain a proportion of gas as backup generation in the pursuit of renewable energy. This is different from and more nuanced



than the approach towards ‘energy (supply) security’ that has been pursued by the successive governments – in other words, the race to obtain secure and adequate energy supplies to maintain economic growth rates whilst also continuing to connect poorer sections of the population to the system for modern commercial energy.

Comparable with the recent completion of petroleum product price reforms parallel with the low international oil price, gas price reform (in terms of introducing a price formation mechanism relevant to the Indian market) is arguably easier to carry out in a low ‘global’ gas price environment – the current situation could represent a missed opportunity, implying further difficulty in progressing with reforms in the event that LNG prices begin to rise.

Under present conditions, the reality indicates a much more muted role for gas in India’s economic story than the rhetoric would suggest. This is particularly so in the absence of a clear long-term (5 year) goal for its use in economic growth, and of a transition to a price formation mechanism which would promote an increase in both domestic production and imports.

About the Author

Anupama Sen is Senior Research Fellow, OIES