



India's 'gas renaissance' – rhetoric versus reality

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Most general discussion on the future of the market for internationally traded gas focuses on the 'swing towards Asia' – specifically, China and India are highlighted as major drivers of demand. But in reality, there is considerable ambiguity over the assumptions underpinning this outlook for India.

In its New Policies Scenario, the International Energy Agency (IEA) predicts that non-OECD demand will continue to constitute the majority of world gas demand, growing from 53 per cent (1,806 billion cubic metres) in 2012 to 61 per cent (3,035 Bcm) in 2035. However, within this figure, while the share representing China and India combined will grow from 11 per cent in 2012 to 24 per cent in 2035, India's share will grow from 3 to 7 per cent (as opposed to China's, which will grow from 8 to 18 per cent) while as a percentage of world demand, it will grow from 2 to 4 per cent. The proportion of gas in India's primary energy consumption will rise from 7 to 9 per cent, but this will be nowhere near enough to displace either coal or oil (44 per cent and 25 per cent) by 2035. These projections suggest that India's contribution to world gas demand is lower than perceived.

Despite these conservative forecasts, Indian policymakers have tended to be very optimistic on gas's potential to displace coal and oil in electricity, cooking, and transportation. As the use of these fuels is supported by controlled pricing and subsidies, it is ambiguous at best as to how these potential markets for gas could materialize.

In fact, despite relatively high economic growth in the last decade, it is difficult to make a confident and accurate assessment of India's potential as a major gas market. Government forecasts carried out within a central planning framework tend to be overly optimistic, whereas projections by multilateral organizations tend to be cautious, but confused. The reason for this incongruity is because the Indian gas sector is characterized by two moving parts: one where prices and quantities are set by the government, and another which utilizes gas at market (import) prices. Additionally, there is some overlap between the two, complicating attempts to assess these as separate markets. The lack of a clear price signal has therefore made it difficult to determine future levels of demand.

Gas pricing reforms – a 'halfway' position

In recognition of this issue of fundamental importance, governments have attempted to reform gas prices, but with limited impact. Broadly, prices are set according to the fiscal regime governing a producing field. The current regime ('New Exploration Licensing Policy') has been operational since 1999 – the pricing formula for this had until recently pegged gas prices to Brent crude.

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A 2013 reform proposal suggested breaking the link with Brent and instead linking prices to a 12-month trailing, volume-weighted average price of international benchmarks including Henry Hub, National Balancing Point (NBP), netback of LNG prices to Japan, and netback of India's spot and contracted LNG imports. Under this proposal, prices would have risen from US\$4.20 per MMBtu to over US\$8 per MMBtu for most domestic gas. The government at the time did not push through the reform due to political

concerns over the impact on major consuming sectors such as power and fertilizers, to which gas has historically been supplied at lower prices.

The new government elected in May 2014 implemented a modified version of the formula from 1 November 2014. This removed the (higher) Japan LNG and Indian import netback price markers, and included the Alberta Hub and Russian gas prices instead, resulting in a lower increase to US\$5.61 per MMBtu (US\$5.05 based on Gross Calorific Value).

The nature of the formula – and the inclusion of non-market, negotiated prices (such as the Russian price to FSU countries) – suggests that reform continues to be predicated around managing the price level, rather than establishing a logical basis for price formation. It reflects the longstanding dilemma faced by policymakers around gas pricing reform: whether to reform prices to revive domestic exploration and production whilst risking price rises downstream and the potential loss of electoral support, or, to continue to control gas prices whilst importing LNG at nearly three times the domestic price, to make up the deficit between production and consumption.

The big question– will reforms revive the upstream sector?

The upstream gas sector has been stagnating, following a brief renaissance in the 2000s (see the figure ‘Gas Production by Sector’) after the discovery of offshore gas in the KG-D6 block operated by Reliance Industries Limited. The start of production from KG-D6 in 2009 signalled a potential game-changer – it overtook production from the National Oil Companies (NOCs) in 2010. However, this was short-lived and by 2013 KG-D6 production had declined to a third of the original targets. This sparked an intense debate over pricing

and the administration of India’s fiscal regime for exploration. Domestic production fell from a peak of 50 Bcm in 2010 to just over 30 Bcm in 2013, and has continued declining.

Annual upstream investments have also fallen, from a peak of roughly US\$6 billion in 2008, to US\$1.8 billion in 2011, according to a 2013 parliamentary committee report. Some international firms have attempted to exit their upstream oil and gas assets, citing procedural hurdles.

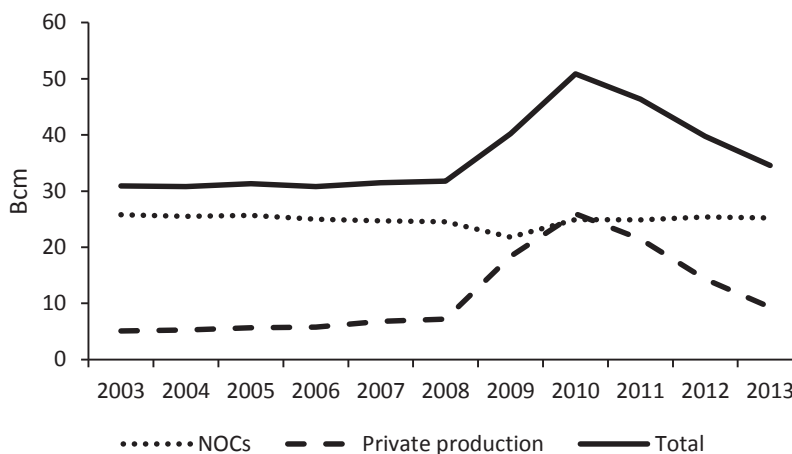
Despite this stagnation, India’s Twelfth Five Year Plan targets an increase in production to over 60 Bcm by 2016/17, with the majority of this (around 39 Bcm) coming from the NOCs – mainly ONGC – which in January announced that it was targeting production of 40 Bcm by 2019/20, an 80 per cent increase from current levels. While this is plausible, as ONGC holds the majority (over 50 per cent) of India’s total proven reserves of 1.4 trillion cubic metres, in practice it is dependent on price. Whilst a proportion of ONGC’s marginal and offshore fields can reportedly be brought into production at prices of US\$6 to US\$7.15 per MMBtu, higher prices of US\$10.72 to US\$12.63 per MMBtu are reportedly required to commercialize its larger deep water fields.

Although the lack of new private sector investment is partially due to uncertainty over India’s resource potential – 50 per cent of its sedimentary basin is classified as ‘poorly explored’ – it is also due to price. This is reflected in a 2013 study carried out by IHS-CERA, which estimated that prices of at least US\$8 per MMBtu were required to commercialize at least 30 trillion cubic feet of onshore, shallow water, and deep water reserves, while prices of US\$8 to US\$10 per MMBtu, and US\$10 to US\$12 per MMBtu were required to further commercialize most deep and ultra-deep water gas reserves, respectively.

The prospects for a revival in India’s upstream gas sector are limited in the absence of reform on price formation, and of a decision on the future of the upstream fiscal regime – a debate is on as to whether it should be profits-based or revenue-based.

Falling production is unlikely to be offset by LNG imports

The flipside to upstream stagnation is, however, an increased potential for LNG imports – which feeds into the ‘swing towards Asia’ story. India imported 13.3 million tonnes of LNG in 2013. An analysis of government and IEA forecasts suggests a theoretical



Gas production by sector

Source: Ministry of Petroleum and Natural Gas



opportunity for around 100 Bcm of LNG imports by 2030, which would require the equivalent of 147 million tonnes per annum (Mtpa) of regasification capacity. As of 2013, India was reported to have contracted, or to be in negotiations to contract, imports equivalent to 20 per cent of this.

In reality, however, falling production, the lack of price reform, and the lack of infrastructure (pipelines and terminals) will constrain this potential. Even by the most optimistic projections India may have only built 83 Mtpa of capacity by 2030 ('Vision 2030', Petroleum and Natural Gas Regulatory Board, 2013), although from past experience regasification infrastructure projects are subject to long delays in completion.

But a more immediate constraint is a drop in gas consumption within the economy; in 2013 this was roughly 12 per cent lower than in 2014 (BP Statistical Review, 2014). Whilst this is partially attributable to idle power capacity resulting from supply shortages, it also indicates a shrinking market for gas under present conditions.

The sustainability of reforms will be determined downstream

The future of India's gas story will, in fact, be determined by the ability of the fertilizers, power, and city gas sectors (which collectively account for over 70 per cent of domestic gas consumption) to absorb higher-priced gas. This is dependent on the structure and dynamics of the demand for gas.

India's 'Gas Utilisation Policy' has led to a two-tiered structure of demand. Domestic gas is first released in order of priority to: fertilizers, power, and city gas (for households and transportation), with the remainder then released to a second tier comprising: refineries, petrochemicals, merchant/captive power plants, and city gas for commerce and industry. Some

tier one consumers also use LNG at lower prices (obtained by pooling it with domestic gas), while tier two consumers are able to purchase LNG at import prices.

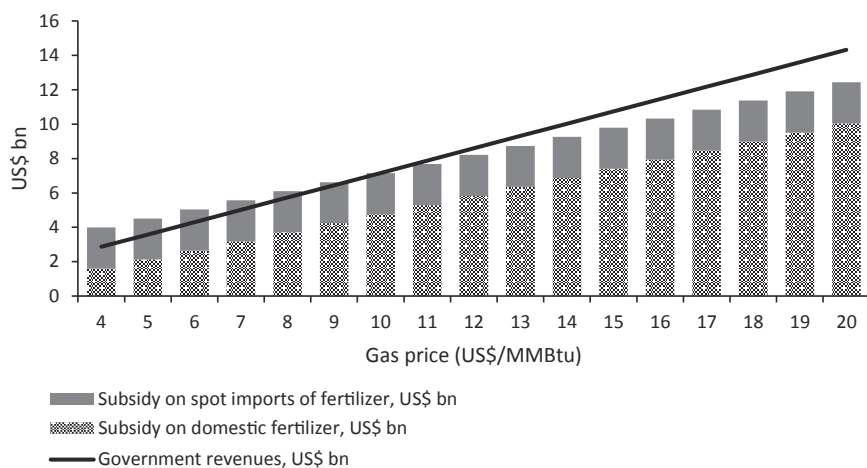
Demand is therefore set in the fertilizer sector, where low-priced gas is used to manufacture roughly 22 million tonnes (Mt) of urea each year. A further 8 Mt is imported on the international market (about 6 Mt through spot purchases and 2 Mt on long-term contracts). Urea retails at around half of its cost price, and in 2013 a total subsidy of around US\$6 billion was provided for fertilizers. A main impediment to gas price reform is therefore the impact of higher prices on fertilizers – the largest consuming sector – and by extension, on farmers, as they form an important part of the electorate. Fertilizer subsidies are therefore likely to continue, although the method of delivering these is being reformed.

One proposed solution has been to utilize the revenues that will accrue from royalty (10 per cent) and corporate income tax (around 34 per cent) on production valued at the higher gas price, to finance the fertilizer subsidy. An analysis of the cost of urea at different gas prices compared with government revenues (from royalty and taxes) based on 2014 gas production

targets shows (see the figure 'Fertilizer Subsidy versus Government Revenues') that the total subsidy bill could potentially be offset at prices of US\$8 to US\$10 per MMBtu. However, this is contingent upon private sector production targets being achieved, unless there is an equivalent increase in NOC production (although the latter has plateaued throughout the 2000s). An alternative to sustainably 'managing' the subsidy bill would be for India to replace its spot imports of urea with lower-priced long-term contracted imports, requiring a strategic reform of fertilizer policy.

Similarly, an analysis of the cost of power at different gas prices suggests that under India's merit-order dispatch system, gas becomes uncompetitive with coal at between US\$5 and US\$6 per MMBtu. At a higher gas price, the difference will either need to be passed on to consumers, or be subsidized. As states have relative autonomy over electricity policy, there is unlikely to be a consensus solution. The market for gas in power will, in this case, be limited to those segments (such as industry) which can pay higher power prices.

It is therefore the city gas sector which represents the most realistic market opportunity for gas. However,



Fertilizer subsidy versus Government revenues

Source: Author's analysis

it is much smaller relative to fertilizers and power. City gas entities operate at the level of Indian states and are technically able to pass through price rises, although state governments have occasionally stepped in to prevent this. As consumers of piped gas are predominantly urban households, the justification for price controls for this segment is economically weak. Subsidized LPG is the main competitor to piped gas for households, but its prices are also being reformed.

Diesel is the main competitor to

gas for transportation. However, the deregulation of diesel prices in October 2014, along with a growing awareness of the need to curb vehicular pollution in cities (reinforced by a recent agreement between the USA and India to monitor data on air quality) is likely to ensure the relevance of gas in transportation. Perhaps the most significant indication of the future potential for city gas is that in July 2014, city gas for households and transportation was moved to the top of tier one consumers under India's Gas Utilisation Policy. This is likely

to influence the structure of demand as it displaces the fertilizer sector, which, as argued above, has long set the demand for gas. The potential of city gas will, however, be limited by the amount of gas it can absorb at 'market' prices, unless supporting infrastructure is targeted at it to grow its consumption.

India's gas renaissance may not be over yet; however, under present conditions the reality indicates a much more muted role for gas in India's economic story than the rhetoric would suggest.

