China's pricing reform – how far and how fast?

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While China's consumption of natural gas grew dramatically in the 2000s, demand only began to outstrip domestic production by a significant amount in the second half of that decade, requiring pipeline and LNG import infrastructure to be put in place. High oil prices and emerging environmental problems, as a result of burning coal to fuel rapid economic growth, had increased the need for cleaner premium fuels such as gas.

'CHINA IS RAPIDLY BECOMING "CONNECTED" TO A PORTFOLIO OF INTERNATIONAL SUPPLIES.'

With pipeline imports secured from Myanmar and Central Asia, and more recently from East Siberia, as well as a range of LNG suppliers, China is rapidly becoming 'connected' to a portfolio of international supplies. As its demand growth increases, the scale of its import requirements will influence both regional and global trade flow dynamics.

However, a system of fragmented and uneven price regulation created tensions among producers and distributors, posing challenges to the encouragement of more investment in production and infrastructure to meet demand, and to the improvement of market access and connectivity between regions. Rapidly increasing import needs, widely dispersed domestic production, and the location of import pipelines and LNG terminals relative to consumption centres, called for the government to replace traditional cost-plus gas pricing with an alternative that would better reflect market fundamentals.

From wellhead cost-plus to citygate benchmark pricing

The netback pricing trial in 2011, and its eventual nationwide adoption for provincial citygate gas pricing for non-

residential sectors in 2013, partially ended more than 50 years of the general wellhead cost-plus ex-plant pricing model, and enabled gas prices to be indexed to the alternatives (LPG and fuel oil), allowing market forces to play a greater role than government decisions. It established a single citygate price ceiling for each province and applied this to all onshore piped gas supplies for non-residential gas use. In stark contrast to the cost-plus system, the new system moved the pricing point downstream from the wellhead to the city gate.

This reform has resulted in four types of ex-plant pricing:

1 The residential sector started to adopt end-use tiered pricing (the process should be completed by the end of 2015), but still uses the cost-plus ex-plant pricing model for onshore gas supplies.
2 Non-residential sectors apply netback citygate pricing for onshore supplies (both domestically produced piped gas and pipeline imports).
3 The imported LNG ex-plant price is determined by the LNG import and re-gasification costs of individual provinces. Due to differences in the timing of signing LNG contracts and lags in the contract pricing formulae, there are wide variations in the price of LNG imported through the same terminal.
4 For unconventional gas (shale, CBM, and Coal-to-Gas) and large industrial gas users, the gas price is determined directly between wholesalers and end users.

Challenges facing determination of price

However, in respect of the netback citygate pricing of non-residential gas, the lack of a transparent and frequent price review mechanism remains a key obstacle to market forces. The process also introduced both unpredictability and price risk for gas importers with oil-indexed contracts (subject to regular price adjustments) and failed to incentivize consumer demand by passing through lower prices. Due to a lack of proper implementation, the current netback system has not effectively reflected the price changes of alternative fuels. The citygate ceiling price is expected to be revised relative to oil price movements annually (but without a specific date for price revision) with a lag to accommodate similar lags in pipeline import contracts. In addition, the design of pricing by the NDRC is heavily dependent on consumer affordability rather than market fundamentals. For instance, calorific value and storage costs have yet to be factored into prices, which need to address heat content differences between various sources of gas and seasonal volatility. Diverse regional endowments also call for the inclusion of more alternative fuels (such as coal) to reflect competition in the power sector. Most importantly, netback pricing is holding back gas industry development and even, to some degree, price reform, as ex-plant prices and transmission tariffs are bundled, hindering third-party access and the independence of midstream operation. This prompted NDRC to announce a pilot programme in February 2015, allowing large industrial users to bypass the regulated city gates and negotiate directly with gas suppliers, allowing them access to cheaper gas. This mechanism has already been implemented – although only to a limited extent, as three NOCs still control most of the gas supply which gives them significant market power in negotiating prices.

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Falling oil prices – slow response of gas price

Given that the vast majority of China's gas import contract prices are linked to oil prices, the substantial decline in the Brent oil price since June 2014 implies that Chinese gas import bills in the coming year are likely to be much lower than previously expected. However, lower import prices may not be sufficient to stimulate Chinese consumer demand growth to a significant extent. In 2014, demand growth slowed to 8.6 per cent, the lowest figure seen in the past ten years. A range of underlying factors: weaker GDP, falling oil prices, mild winter weather, hydro outperformance, and high domestic gas prices all played a part in this slowdown.

With gas already a premium fuel, the economic slowdown constrained sectoral investment that would have expanded gas demand growth, which now faces challenges on multiple fronts. Lower crude prices narrowed the differential between oil products and gas used in transport. In addition, competition from rapidly developing nuclear power and the long-distance transmission of hydro and coal-fired power to coastal demand centres, have both significantly challenged gas-fired power use. The move towards oil-indexed citygate netback pricing for gas over the past three years, and the insufficiently rapid adjustment to reflect the oil price collapse (noted above), have also caused demand destruction.

Against this backdrop of economic slowdown, falling coal prices, rigid government pricing policies, limited consumer bargaining power, and reduced oil–gas price arbitrage opportunities, demand response to the lower import prices will be limited unless gas suppliers adopt voluntary measures to reduce wholesale prices before the netback citygate pricing adjustments are implemented.

Alternatively, government must revise citygate prices more frequently (to reflect oil price changes) and promote third-party access to pipelines and LNG terminals. Due to infrequent adjustment of netback pricing of pipeline imports (which have longer lag times compared with LNG contracts) and the high fixed cost of transmission from the interior to the coast, LNG imports became competitive with, or cheaper than, pipeline gas under regulated citygate prices in the coastal area. However, pipeline imports are harder to displace because of their scale, and any major rebound in oil prices could place LNG imports at a disadvantage to pipeline gas. Spot LNG cargos have become more competitive than small-scale land-based LNG serving the domestic market (which had been able to command a premium over citygate prices based mainly on pipeline gas).

Need for more widespread use of gas in China

In addition to an increase in market-based pricing, accessibility and speed of delivery will be crucial in promoting gas use in China. In addition to Shanghai, several gas trading platforms are being set up to create more liquidity. At this stage, their growth is constrained by lack of third-party access and the willingness of suppliers to provide gas to the platforms. The lower oil price environment is expected to reduce import bills and help China absorb the surge in contracted pipeline and LNG volumes. However, even with lower import prices, price pass-through and the development of new markets will take time. End users will have opportunities to negotiate better supply deals if third-party access to facilities is accelerated. One Chinese NOC has started to rent out part of its LNG facilities to non-NOC gas distributors and utilities. Nevertheless, relationships between NOCs that have an interest in protecting their traditional coastal markets, and non-NOCs that would like to import at a price which could undercut NOCs, remain delicate. Clear regulation to cater for third-party access to LNG terminals is needed to balance the interests of both parties with those of consumers.

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As the implementation of the current netback pricing model gathers momentum and gas pipeline connectivity accelerates, prices for each province could start being developed on a 'differential cost of supply' basis, provided that rules and tariffs for third-party access and storage are developed and regulated effectively. At that point, China might gradually move to hub-based pricing (at least for a portion of its supplies and facilitated by regional exchanges) in order to allow gas to flow to regions that have the highest demand and the greatest ability to pay. The development of competitive domestic gas pricing for regions that depend on diverse gas sources with different costs of supply will be critical to fostering a sustainable level of demand and to reinforcing the drive to improve environmental quality, economic rebalancing, and fuel mix policies.