

WHAT FUTURE GAS PRICE MECHANISM FOR VIETNAM?

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Summary

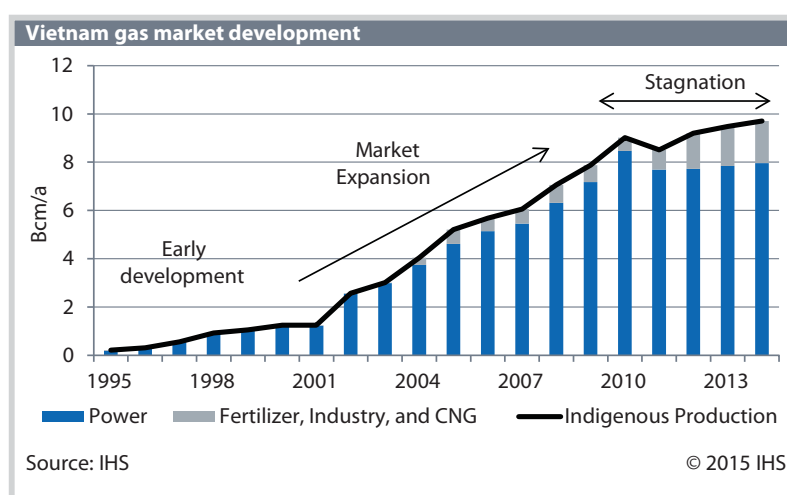
Gas market expansion proceeded in Vietnam through 2010 despite managed gas pricing, as most indigenous gas reserves could be produced at a relatively low cost. But, as new sources of supply are higher cost, Vietnam must transition to a new pricing mechanism or risk market stagnation and supply declines in the longer term. Vietnam is not alone in this situation, and can draw from lessons learned from other markets in Asia to determine the appropriate pricing mechanism for the market context and government policy objectives. Successful models include gradual introduction of market orientation and price increases.

Key words: Gas pricing, LNG.

1. Introduction

Vietnam enjoyed strong gas market expansion in the mid-2000s, through integrated gas-to-power and fertiliser projects which served as long-term offtakers for offshore fields. From 2000 to 2010, annual production grew by over 20% on average, with sales priced at relatively low levels set by the government. Prices were negotiated on a bilateral basis for each project and approved by the government and were initially in the range of USD 1 - 4/MMBtu. From a policy perspective, the government aims to keep prices at a level that is affordable for the price-sensitive power and fertiliser sectors, which account for over 90% of demand. In Vietnam, power generators face regulated pricing for electricity sales which constrains their ability to use higher-cost gas feedstock, while they also faced fuel competition with low-cost generation from coal and hydro power.

This pricing mechanism worked for market expansion initially because offshore gas projects were relatively low-cost fields to develop, especially for associated gas. Vietnam was not alone in this approach; many other developing countries in Asia also put in place low, regulated pricing to support initial development of their domestic gas markets. But, unlike Vietnam, many of these markets have moved towards more market-oriented pricing mechanisms to promote supply growth.



2. Assessing Vietnam's current gas pricing mechanism

Lack of indigenous gas resources or import potential is not to blame for market stagnation. The BP Statistical Review of World Energy reported the country has over 20Tcf (0.6Tcm) of gas reserves as of end-2014 [1]. Vietnam has several large offshore gas discoveries which could be developed to support greenfield power and petrochemicals projects. In addition to domestic supply, Vietnam could benefit from tapping into the global liquefied natural gas (LNG) market, which is entering a period of supply abundance and a softening of prices caused by lower oil prices and a number of new LNG export projects starting in Australia and North America.

Lack of gas demand potential is also not hindering market growth. Rising power demand from strong economic growth is creating a huge need for new power capacity, while there is also scope for gas to meet growing demand in the industrial and petrochemicals sectors. The government has long recognised natural gas' role as a valuable fuel in the supply mix. Vietnam's Gas Master Plan (GMP), last released in 2011, targeted gas demand of 1.6 to 2.0Bcf/d by 2015 and 2.1 to 2.6Bcf/d from 2016 - 2026 [2]. Several new gas-fired power plants were identified in Vietnam's Power Development Plan (PDP)

VII (2011 - 2030) to achieve a balanced power mix with coal, the targeted primary generation source [3].

Rather, the gas market has been flat because of delays in sanctioning proposed indigenous gas and LNG import projects, whose successful development hinges on an adoption of a new gas pricing framework. Other supportive government policy is also required, but the need to establish new pricing mechanisms is one of the primary sources of project delay.

In Vietnam, regulated pricing at recent levels (USD 2 - 5/MMBtu) is seen as inadequate by upstream operators to economically develop new gas projects. More difficult-to-develop resources require a premium compared to fields developed in the past. The proposed Block B gas project offshore Southwest Vietnam is one such example. Before Chevron divested its stakes to Petrovietnam in mid-2015, it proposed peak gas flows of 490MMcf/d to be delivered to onshore power plants. This would have expanded the market by ~50% and been a key source of power generation to meet rising electricity demand. But, project sanctioning faced years of delay over negotiations on gas price formation and the field development plan. Chevron was reportedly seeking gas prices in the range of USD 9 - 10/MMBtu, which would have been difficult for baseload power plants to accept based on the current regulated electricity pricing. Another large gas discovery, ExxonMobil's Ca Voi Xanh find, is also likely to be higher cost than current production, due to the need to process the field's high carbon dioxide content. Additional investment to develop associated gas pipeline and downstream infrastructure in the relatively undeveloped central region would lead to further price build-up for offtakers.

Similarly, LNG imports into Vietnam will be higher-priced than current production, even under relatively weak market conditions which started in late 2014. As of mid-2015, both long-term contracted LNG and spot cargoes are being delivered to Asian buyers at USD 7 - 9/MMBtu, the lowest levels seen in years. Delivered costs to end-users would reflect USD 1 - 3/MMBtu of additional charges, making this gas stream much more expensive than current supply.

To realise market expansion and develop known gas discoveries and proposed LNG imports, Vietnam will need to transition to a new price mechanism which addresses the higher cost of new supply. This issue has been acknowledged by the government and was referenced

in the GMP 2011, which proposed transitioning away from the current managed policy towards a "competitive wholesale market". Without new investment, Vietnam's gas supply is at risk from production declines within 4 - 5 years, which if unaddressed could lead to gas shortages and low utilisation factors at gas-based fertiliser and power plants. There is also the risk that Vietnam's power generation mix will become too heavily dependent on coal, with resulting environmental and health consequences.

3. Gas price transition: Lesson learned from Asian markets

When determining an appropriate pricing mechanism which works in the local market context, Vietnam can draw from experiences of other countries, which provide examples of different paths to price reform. Based on economic theory, price formation should be market-oriented, set by supply and demand conditions and reflective of costs in the long run. But in practice, gas pricing mechanisms are non-uniform globally, and competitive traded gas hubs exist only in mature markets. Common approaches for pricing are cost-plus schemes, fixed price levels with built-in cost escalation over time, or indexation to competing fuels such as oil or even coal.

For emerging markets, energy pricing evolves over time, as markets develop and consumers' ability to pay increases. Regulated pricing is typical at first, to meet objectives of energy affordability, and has been employed across Southeast Asia, India, and China. But once regulations are in place, it is difficult to enact reform, with resistance from end-users accustomed to lower pricing. The consequences of delaying reforms are high in the long run: risking stranded gas resources, under-utilisation gas-fired power plants, shortages in other sectors, and a higher reliance on fuels which are more costly (oil products) or have higher carbon emissions (coal). In addition, if direct subsidies are in place, this creates a high financial burden on the government and diverts state investment from infrastructure and social spending. Subsidies and regulated pricing create market distortions, altering consumer behaviour and risking unsustainable demand growth.

In Asia, price reform has typically occurred when countries face a need to develop more difficult and costly indigenous resources or imports to grow supply. In particular, many countries have found that introducing LNG imports requires a new pricing mechanism to

integrate costlier gas into the supply mix. Vietnam is experiencing similar conditions, and will need to follow the path of other markets on price reforms to realise similar supply growth.

In Southeast Asia, Indonesia is one of the leading examples of gas reform success, while Vietnam can also draw lessons from the experiences of China, India, and Thailand. In Indonesia and China, the move towards market orientation has been gradual but steady. Indonesian energy policy targets greater use of gas in a number of sectors, including power, industry, and transport, to reduce the use of oil products and provide a more balanced and sustainable energy mix. But to expand supply and develop domestic gas resources, the government realised it needed to raise pricing along the value chain. Upstream operators had long voiced concerns that wellhead prices were not enabling cost recovery for more difficult fields. Similarly, Indonesia priced domestic LNG at the Asian benchmark, or the regional market price, for sales to local power, industrial, and fertiliser consumers. While price hikes are resisted by some end-users, overall the gas market has grown since reforms began.

China has introduced some reforms, but its gas market remains heavily regulated so that the government can prioritise key sectors and regions for gas supply and preferential pricing. Under this scheme, sales prices have lagged supply costs, but this began to improve once reforms were introduced in 2013. Since then, China has taken several moves to introduce more market factors in price formation. For example, the government has liberalised LNG imports, enacted direct negotiation for industrial gas offtakers, and introduced some regional trading platforms, such as the Shanghai Petroleum Exchange which began trading LNG volumes in 2012.

Thailand provides an example of how another mechanism, gas price pooling can integrate higher-cost gas in the supply mix. The country's Energy Industry Act of 2008 stipulated that tariffs should reflect costs and provide a reasonable return on investment. As a result, prices follow a market-based formula based on oil products pricing which is meant to ensure consistent margins for suppliers. While the market historically enjoyed low-cost gas from indigenous production in the Gulf of

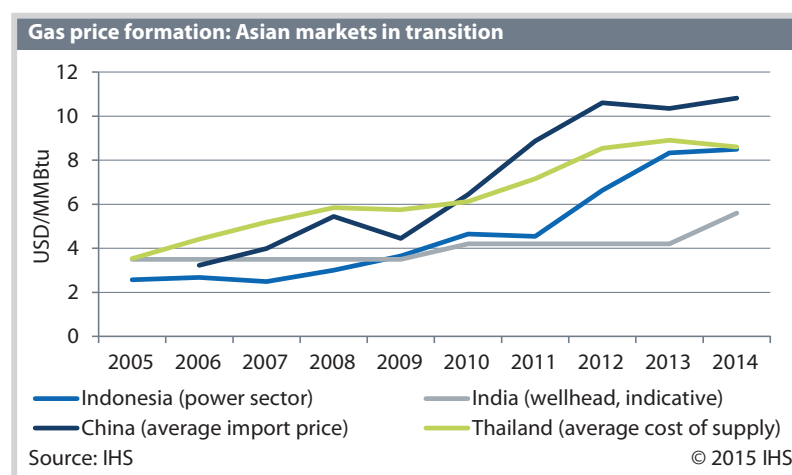
Thailand, supply costs have gradually risen for indigenous gas and oil-linked imports from LNG and Myanmar pipeline gas. Average wellhead prices have followed a steady upward trajectory, from about USD 3/MMBtu in 2005 to USD 6 - 8/MMBtu since 2012. While LNG was imported for USD 15 - 16/MMBtu in 2013 - 2014 and pipeline gas was in the USD 10 - 12/MMBtu range, the impact on consumers was mitigated by the weighted average cost of gas scheme. End-users have still experienced price increases, but in an incremental fashion which is easier to accommodate.

India, by contrast, has delayed adjustment of wellhead gas prices to reflect higher development costs of new source fields, and has seen stagnant/declining production as a result. The market turned quickly to LNG as a result, but importers have faced issues finding consumers who can afford higher-cost imports. To accommodate price-sensitive but priority sectors such as fertilisers and power plants, the government has provided support in the form of gas price pooling. It has also subsidised higher gas feedstock costs, a policy which is difficult to sustain in the long run because of the drain on government finances.

4. Conclusions

Examples of more successful reform paths, such as those taken by Indonesia, China, and Thailand, can provide lessons learned for Vietnam as it determines a new pricing mechanism to enable market growth. As these markets became exposed to international, market-based LNG pricing, they enacted mechanisms to integrate higher-cost LNG imports into the domestic gas supply mix. This was done gradually to avoid an abrupt impact on end-users accustomed to lower pricing.

Ultimately Vietnam can not avoid a move towards greater market orientation. When establishing a new pricing policy,



it is critical to adopt a scheme which enables adequate return on investment to encourage future projects. This would help attract private exploration and production (E&P) companies to Vietnam which can expedite project development for more costly or difficult projects through investment and technology transfer.

Energy affordability objectives, which have been paramount in Vietnam, should be balanced with those of energy security and sustainability. This does not necessarily mean that affordability targets must completely be sidelined. For example, many gas markets in Asia continue to apply price discrimination by end-use sector to address price sensitivity issues or encourage gas usage. Rather, the government must consider its targets of affordability against detrimental long-term consequences of delayed price reform: market stagnation or decline,

stranded gas resources, and higher reliance on costlier or higher-carbon fuels.

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