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Title: "Gas Sustainability: Perspective from PETRONAS"

First of all, I would like to thank the Organising Committee for giving me the honour and privilege to address this prestigious conference. Much has been said over the last one and a half days by various speakers. I am not sure that I can add any new insights into the discussion. Nevertheless, I will try to offer some perspectives on the subject, perspectives from an Asian producer and a national oil company.

Allow me to begin with a brief introduction on PETRONAS in the context of the gas industry. PETRONAS was formed 32 years ago as the National Oil Company of Malaysia. Unlike other NOCs, it was incorporated as a business entity and vested with the sole ownership and control of Malaysia's petroleum resources. Over its relatively short history, PETRONAS has evolved into a fully integrated oil and gas company with operations in 30 countries.

Malaysia is a country with a small gas reserves compared to Russia, less than 10%. As a company, PETRONAS began monetising its gas reserves some 28 years ago and today, it is one of the largest owners of LNG capacity in the world and is involved in the entire integrated LNG chain - from upstream right down to regassification and storage. The development of the natural gas industry in Malaysia through our Peninsular Gas Utilisation project became the catalyst for the country's industrialisation. PETRONAS has also been tasked by ASEAN to lead the Trans ASEAN Gas Pipeline initiative - an interconnection of national gas grids of member countries. Globally, we have interests in over 10,000 km of gas transmission pipelines.

The gas industry, as we all know, has come a long way, evolving from a regional business to become a global business. We have witnessed the significant and growing influence of gas in the global energy equation. It is therefore not surprising that concerns about energy security today is no longer limited to oil. Factors that affects supply security of oil are also relevant to the gas industry. In the last ten years, the world's natural gas consumption has increased by more than ten fold from 7.6 trillion cubic feet in 1995 to 95 trillion cubic feet in 2005. It is projected that the world's demand for natural gas will grow by up to 3 percent a year over the next quarter of century - meaning demand volumes could double in 25 years.

Where and how can this demand be satisfied?

Currently, proven world gas reserves is about 6,000 trillion cubic feet, which is equivalent to 1 trillion barrels of oil. However, like oil, the reserves are concentrated in a few countries, some of which are located in the volatile regions of the world. New exploration activities and improved technology will no doubt add to the world's reserve base in the future but these will probably be in harsh climatic and environmentally sensitive regions. Developing these reserves will be more costly and risky.

As mentioned earlier, demand is expected to grow and we will see competition from different markets in the form of pipeline gas and LNG. The United States, facing declining domestic gas production, will need to rely on imported LNG while Europe will continue to be dominated by pipeline gas with an increasing volume of imported LNG, particularly in the UK. In Asia, where LNG has played a dominant role particularly in Japan, Korea and Taiwan, the emerging economies of China and India will change the demand dynamics of the region. Like oil, Asia will be import dependent for gas. Competition for gas will intensify globally and could result in a change in the manner that the business is conducted, from primarily long term contracts to an increase in trading volumes.

There is no doubt that gas reserves are sufficient to meet global demand needs at least for the first half of this century. However, there are many challenges that need to be overcome to bring the reserves to the market.

Diversification - probably the most viable option for supply and demand security

As the gas trade becomes more global, producers will be looking at diversifying their markets to ensure security of demand.

For example, Qatar which will become the largest producer of LNG would I believe, want to divide its market between United States, Europe and the Far East in order not to be dependent on a particular market and perhaps taking advantage of the different pricing structure. For Russia, which has been a reliable supplier of gas to Europe for more than four decades, there is now an option to supply to the Far East, especially to the energy hungry China. Several plans for new pipelines are being discussed. As a resource owner, Russia is also planning to diversify into LNG to meet demand in the USA.

While NOCs are confined to developing their national reserves, the multinational companies are in an advantageous position as their reserves are located in various parts of the globe, thereby providing them access to different markets and an opportunity to mitigate risks. For example, Shell and Chevron are in various joint venture projects in the Far East, Africa and the Middle East. It is therefore not surprising that NOCs are requiring that they be given a stake in foreign joint ventures in return for access to reserves in the host countries.

NOCs are presently mainly involved in the wholesale gas trade. In an effort to mitigate security of demand and create value, NOCs are venturing further downstream of the value chain. In the case of PETRONAS, we have made strategic investments in re-gassification, gas storage, pipeline and distribution assets.

Consumers are also diversifying their supply sources between different locations and also between pipeline and LNG to ensure security and reliability of supply. In the case of China, gas will be supplied from Central Asia and Russia by pipeline to supplement domestic production and LNG imports. In the Far East, it is also now quite common for consumers to seek equity interests in the upstream and midstream sectors of LNG projects. In China for example, it has almost become a pre-condition to supply contracts.

Geopolitics

Similar to oil, gas and politics are always closely linked. Natural gas is and will be crucial not only for economic and social development, but also important for commercial and political relations between countries. Natural gas influences and is influenced by international politics. Since geopolitics will always factor into the energy equation, we need to ensure that there are enough mechanisms, forums and consultative bodies to preempt and resolve potential tensions and conflicts that may impact the development and supply of gas. Energy policy and diplomacy will continue to be a major element in foreign policies, securing long-term dialogue between producers and consumers and recognising their mutual dependency. This dialogue should continue at multiple levels - between nations at the political level, bilaterally, regionally, and globally, and also through dialogues and partnerships between governments and private companies. Together, consumers and producers can improve the mechanisms by which they seek to reconcile their interests and achieve mutually beneficial outcomes. Recognition of our interdependence is the key that will drive future collaborations between producers and consumers.

While the attention focusses on how the industry plans to find and produce the energy to meet the world's growing appetite, there exist the growing concern on how can accessibility to reserves be improved. Higher energy prices have intensified the tussle over economic rent between companies and host governments. Growing market demand, domestic financial pressures, and nationalist sentiments could influence government policy with regard to the development of their national resource. There are already instances where host governments are re-opening negotiations to revise the terms for projects being developed because of the present environment of high prices. Given the long term nature of the business amid the high investment outlay, such attempts will stall new developments and increase investor risks.

Another recent development is the requirement by host governments to divert gas originally allocated for export to the domestic market. Two immediate problems arise - first is the inability of the seller to meet contractual obligations causing supply disruptions and secondly, in most cases, the domestic price is usually lower depriving the investor a reasonable return. While we recognise the obligations of host governments, changing the rules in midstream will increase the risks.

The experience of Malaysia and PETRONAS with the IOCs are among proven examples of mutually beneficial collaborations that have worked with considerable degree of success. In its over thirty years of existence, PETRONAS has forged successful partnerships with IOCs to maximise value from our national resource for mutual benefit. We view the involvement of IOCs as an important element to ensure the sustainability of our oil and gas sector. The relationship between PETRONAS and the IOCs operating in Malaysia has gone through a lot of changes and has been geared towards building a long term partnership that is mutually beneficial. I believe that countries that are likely to emerge as major natural gas producers are not necessarily limited to those endowed with huge gas reserves but rather those who combine natural gas resources with an attractive investment environment.

Governments and industry players must adopt a pragmatic and flexible approach to the conduct of business. Resource owners will need to introduce attractive investment policies and fiscal terms that will encourage the development of their resources. There must be commitment to developing long lasting and sustainable partnerships with key stakeholders that are equitable as well as commercially viable. Above all, the sanctity of the law and contract terms must be preserved.

Capacity constrain

The increase in demand for oil and gas has resulted in the increase in development and construction activities throughout the value chain, resulting in higher capex and schedule delays. In some cases, project sponsors are reviewing the economic viability of these projects before making a final commitment. Due to the higher capex and the shortage of engineering, construction and equipment manufacturers, some of these projects will no doubt be deferred.

The shortage of human resource has become a global phenomena. The shortage is not only limited to oil and gas sector but extends to the engineering and construction firms and the shipping industry, as well as professionals and sub-professionals. I am concerned that in the rush to complete projects and to keep costs down, safety will be compromised. We operate sophisticated yet hazardous plants and yet up to now the industry's safety record has generally been good. It will be a challenge to maintain this record given the shortage in trained and experience human resource. The industry need to invest in human capital development. Poaching will not solve the problem - it will only drive costs higher. Imagine a poorly manned LNG tanker entering the busy Tokyo Bay. It could have disastrous consequences. An accident will no doubt impact the LNG trade as a whole.

Pricing

The gas trade evolved as a regional business into a global industry. As such, the pricing regime can be divided into three - the US, Europe and the Far East - with the US being the most flexible and transparent. As gas was an alternative to fuel oil for power generation and other uses, it is not surprising that the gas price is coupled to the oil price. As consumers compete for supplies and producers look to maximise value, and as investment costs increases and resource owners seek higher economic rent, there is perhaps a need to debate a new pricing mechanism - whether to decouple from oil or to introduce a new pricing benchmark based on Henry Hub or a combination of both. I have no answer - only to say that gas is a long term business where during the 20/25 year contract period we will experience a high and low cycle of the price environment. A balance need to be found to accommodate the needs of all stakeholders. In the case of PETRONAS, I believe that we have been able to accommodate the needs of our customers, joint venture partners and the government to become a reliable supplier of LNG without missing a delivery in 28 years.

Conclusion

In conclusion, these are exciting but challenging times for our industry. There is no shortage in reserves and demand in growing. But we are faced with capacity constrains, potential safety issues and the threat of alternative energy sources should the price of gas become too costly. Gas trade will continue to be based on long term contracts built on relationships that are mutually beneficial to all stakeholders, but geopolitics and political trade-offs will influence its future direction.

Thank you for your attention.