# Government Strategies in the Golden Age of Gas

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It is clear we live in a global community – one major catastrophic event on one side of the world has now re-written the projected path for oil and gas globally. Are we then entering the 'Golden Age of Gas'? Can increasing gas supply and demand for the fuel set off this phenomenon? Many reputable energy agencies claim that demand for gas could outstrip coal by 2030. This, coupled with the uncertain future of nuclear energy, is one of the main reasons for gas playing a prominent role in the global energy mix.

The global recession of 2008-09 resulted in a decline of nearly 4 per cent in natural gas demand. As the recession came to an end and economic growth resumed, natural gas demand reached an estimated 113.1 trillion cubic feet (tcf) in 2010, exceeding annual consumption levels before the economic downturn. Natural gas continues to be the world's fastest-growing fossil fuel and growth is mostly concentrated in developing countries, where demand is increasing nearly three times as fast as in developed countries.

Natural gas is an attractive source of fuel in many regions of the world, in the electric power and industrial sectors, because of its lower carbon intensity, lower price when compared with coal and oil, and favourable thermal efficiencies. In the Western Hemisphere, the relatively lower natural gas prices reflect increases in supply from both new liquefied natural gas (LNG) capacity and unconventional shale.

Natural gas from shale gas reserves has been growing rapidly due to new extraction techniques, which have pushed down US natural gas prices, and reduced prospective global demand for LNG. Over time, it is anticipated that these large gaps between oil and natural gas prices can be expected to induce shifts in consumption from oil to natural gas, reducing demand for oil and, as a result, reducing price pressures.

World natural gas consumption has been forecast to increase by 1.6 per cent per year, from 111 tcf in 2008 to 169 tcf in 2035. LNG continues to account for a growing share of world natural gas trade and it is projected that the world natural gas liquefaction capacity will nearly double, from about 8 tcf in 2009 to 15 tcf in 2035.

## China's Global Impact

One of the main drivers of the predominance of natural gas as the global fuel of choice is China. China, the 'new economic superpower', is endeavouring to use cleaner forms of fuel in the coming years, and that is likely to increase the demand for gas substantially. Worldwide, 16 of the 20 most polluted cities are in China, largely due to coal-fired power generation. For this reason, China is pushing for gas to replace much of its coal power production.

China currently uses nearly as much gas as Germany, but given the growth potential, its consumption may exceed that of the entire European Union by 2035.

## A Model for the 'Golden Age'

Trinidad and Tobago is a small-island developing state with modest natural gas reserves. This country has been and continues to be the leading producer of oil and gas in the Caribbean. It is widely accepted in the global energy fraternity that developing new gas markets is a long-term undertaking. It's this thinking which has driven the actions of the government to deliberately pursue a strategy of sustainable gas market development. The success story of the country's ability to monetise hydrocarbon resources is unique and Trinidad and Tobago is one of only a few countries that has developed a successful formula and continues to monetise gas in a comprehensive manner.

The present policy thrust is to further diversify the energy sector by promoting the establishment of further downstream industries that maximise the multiplier effects and value added through the creation of linkages between the energy sector and the rest of the economy. In this regard, projects must include an element whereby their outputs

are utilised to produce a value-added product that can be either exported for a higher value or used in local processes. This strategy allows for the protection of this sector from too much reliance on a particular industry, thus ensuring the sustainability of the natural gas-based industrial sector in the country. productive and cleaner operating industries in Trinidad and Tobago.

### Natural Gas Based Industries

Based on present contractual obligations, it is estimated that a total of 20.6 tcf of gas reserves made up of 10.2 tcf and 10.4 tcf would be required for domestic industries and LNG manufacture respectively.

Natural gas utilisation has averaged 3.8 bcf per day for the period January to December 2013. Natural gas production for the same period averaged 4.1 bcf per day.

### Liquefied Natural Gas (LNG)

The Henry Hub price has traditionally been the main marker for pricing Trinidad and Tobago's LNG as the USA has been the destination of choice since the start of LNG production in this country in 1999. In 2005, approximately 89 per cent of our LNG exports went to the USA and the Henry Hub price at that time averaged US$8.81 per MMBtu.

However, in 2011 the Henry Hub price averaged US$3.99 per MMBtu and approximately 65 per cent of our LNG exports were diverted to premium priced markets in Asia, Europe and South America. The remainder went to base markets mainly in the USA and Spain.

In 2013, only 19 per cent of our LNG exports went to the USA. The proliferation of shale gas in the United States in 2012 has caused an excess supply of gas and prices plummeted to as low as US$ 1.95 per MMBtu in April 2012. This, however, has minimal impact on Trinidad and Tobago's revenue from natural gas as the LNG exports now go to markets in South America, Europe and Asia.

Henry Hub prices have rebounded somewhat and averaged US$3.73 in 2013 and has averaged as high as US$4.97 in the first five months (January-May) of 2014 .

## Conception to Implementation – Strategies at Work

One of the key strategies to be implemented within the energy mix in Trinidad and Tobago is the thrust towards further downstream and value added within the parameters of people development, health, safety and the environment. As such, the newest gas-based project – the second Methanol Holdings Trinidad Limited (MHTL) Ammonia-UAN-Melamine Complex, referred to as MHTL AUM II – brings a vision into reality. The project entails the construction of world-scale facilities with 9 discrete plants with a projected investment of US$1.9 billion.

This project will have minimal environmental impact in terms of carbon as it is estimated that the 2,270 MT/d of $CO_2$ used in the production of Ammonia will be consumed by the Urea plant and the company's other Methanol plants. No net carbon dioxide will be released into the environment.

## Infrastructure development – Strategies at Work

In order to continue to attract investors in the energy sector, there needs to be adequate maintenance as ►

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*Trinidad and Tobago's total unrisked natural gas reserves (trillion cubc feet - tcf)*

| | 31/12/2012 | 31/12/2013 | Reserve Change |
|---|---|---|---|
| Proved | 13.11 | 12.24 | -0.87 (-0.07%) |
| Probable | 6.14 | 5.53 | -0.61 (-0.1%) |
| Possible | 5.99 | 6.12 | 0.13 (-.02%) |
| Exploration Resources | 31.62 | 39.87 | 8.25 (0.26%) |

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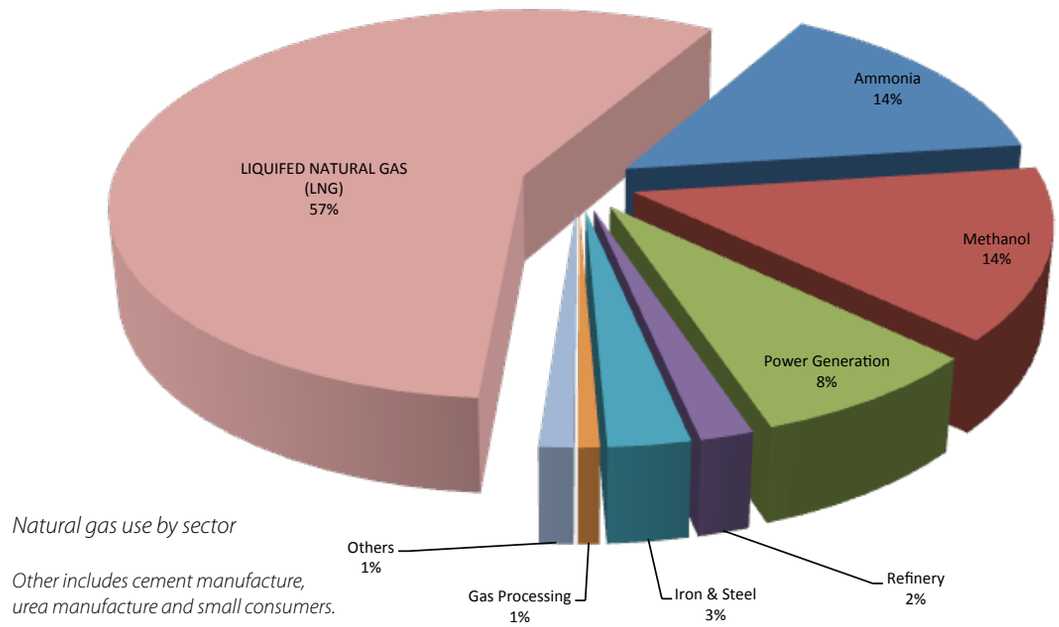


*Natural gas use by sector*

*Other includes cement manufacture, urea manufacture and small consumers.*

▸ well as upgrade and development of the existing energy infrastructure within Trinidad and Tobago. Listed below are some of the major infrastructure projects presently being undertaken:

### Transmission System

On-going work continues on increasing gas transmission infrastructure and includes:

- Tobago Pipeline Project: This brings gas from Trinidad's east coast to the Cove Eco-Industrial Estate in Tobago, with the expectation that this will eventually feed into the proposed Eastern Caribbean Gas Pipeline.
- NEO pipeline project: This brings gas from Trinidad's east coast to interconnect with the existing network at Beachfield. This project is completed and brings 246 mmscfd natural gas into the domestic pipeline system.
- Union Industrial Estate Pipeline: This project supplies gas to the power plant at the Union Industrial Estate, The project will supply an additional 750 Kwh to the national grid.
- Liquid Fuel Pipeline Project: This project will bring RON 92 and RON 95 Gasoline, AVJET fuel and Diesel from the refinery at Pointe-a-Pierre (south Trinidad) to Caroni (central Trinidad), with a pipeline from Caroni to the international airport (east Trinidad) for the transmission of AVJET Fuel. This project will reduce the use of Road Tank Wagons as the preferred choice for in-country transportation of fuel.
- Phoenix Park Valve Station (PPVS) Upgrade: This project increases the Station's current capacity of 2 bcfd to 3 bcfd of natural gas:

### Galeota Port Development

This project construction of includes construction of facilities to serve petroleum exploration companies as well as a fish landing facility in Mayaro. The port comprises 2 berths measuring 100 metres in length and 4 berths measuring 85 metres.

The facility is a fully functional port providing services such as rig repair, cement, pipe and platform maintenance. Key operational features include 24-hour operation with one stop service; the potential for six (6) berths with two (2) berths being used to cater for deeper charter and liner service and the provision of administrative facilities with improved surveillance, due to the presence of the Coast Guard, Immigration and Customs.

## Diversification: Renewable Energy – Strategies at Work

In recent times the Government of Trinidad and Tobago (GOTT) has embarked on renewable energy and energy efficiency programmes in the context of the country's thrust towards diversified development. Steps have been taken to establish the

required enabling environment through provision of incentives, training and education, legislative review and development of standards. The GOTT has also been engaged with various stakeholders in the development of pilot projects involving community centres and schools which will be used as baselines to inform future initiatives.

## The Future Natural Gas Price

The latest statistical review of world energy from BP indicate that consumption of natural gas grew by 1.4 per cent in 2013, this is 2.6 per cent below the historical average, with coal being the fastest-growing fossil fuel, coal consumption rose by 3 per cent in 2013. The report also indicated that overall demand for energy in 2013 grew at a rate of 2.3 per cent, slightly below the historical average but up from just 1.8 per cent in 2012.

The BP Review also revealed that in the US, gas production slowed to 1.3 per cent in 2013, down from 5 per cent in 2012 and 7.3 per cent in 2011. Although gas prices rebounded from a 13-year low in 2012, they did not rise high enough to see a commensurate rise in natural gas production. One factor which is still causing a downward pull in natural gas prices is the persistently high oil-gas price differential, making it more attractive to "pursue liquids".

With the rollercoaster ride natural gas prices have gone through over the past 5 years, there is a need to seriously contemplate what the future holds for the price of this commodity. Have the regional producers, in the Caribbean, Latin and South America developed a mature enough market to establish our own regional commodity price for natural gas? And if so, can we make the transition from a price taker to a price maker?

What about the concept of a global gas price? Does the Gas Exporting Countries Forum (GECF) have the political and economic will to conceive and implement such a mechanism? From the inception of the Organisation of Petroleum Exporting Countries (OPEC) there have been many criticisms levelled against the Organisation, from monopolistic behaviour to price fixing; however, in more recent turbulent times OPEC been able to regularise an acceptable level for global oil prices by implementing effective 'dampening' measures in order to minimise large price fluctuations.

The members of the GECF need to conceptualise a formula and mechanism for a global natural gas price which will be mutually beneficial to both producers and consumers. This is not a new idea; the GECF needs to take a page out of the OPEC operational handbook.

## Conclusion

The world in which we live in today has changed dramatically within the past 5 years and more so within recent times: the eurozone crisis; austerity measures and the floundering debt management in the PIGS (Portugal, Italy, Greece, Spain) economies; unrest sweeping through the Middle East; the United States debt crisis; the earthquake in Japan and the on-going repercusions of the disaster at Fukushima; the emergence of the BRIC (Brazil, Russia, India, China) countries as global economic powerhouses; and the global population crossing 7 billion.

All these events, either in isolation or cumulatively, have created a perfect storm which seems to set in motion the right mix to usher in the Golden Age of Gas. This Golden Age however bring with it many challenges and uncertainties. The contingency plans of the past could not have conceptualised today's reality. It appears that strategic plans, with their long-term outlook, now seem to be geared to the short to medium term.

This has left the hydrocarbon-based economies with tough decisions to make and many strategies to revisit. Trinidad and Tobago has been pro-active and has adapted and reconfigured its strategies to confront the dynamic nature of the global energy sector, as well as the present turbulent geopolitical reality. As such, Trinidad and Tobago has taken the necessary steps to meet the challenges of the new world order in energy. ▪

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