

# The local high-flier of the gas economy: a profile of NGC

BY DAVID RENWICK

Unlike its incursions into oil production and refining, which, as we have seen in this publication, were largely fortuitous and unplanned, the Trinidad and Tobago Government's plunge into gas was the result of a clear decision and deliberate action on its part.

When natural gas was discovered in substantial quantities (about one trillion cubic feet (tcf)), along with oil in what was to become the Teak offshore field in 1968 and then, in even greater volumes (close to 2 tcf) in the South East Galeota (now Cassia) acreage in 1973, the bonanza was simply too great to remain commercially unutilised.

This was true not only of the gas well that had been identified but of the associated gas that was being flared in the then Amoco Trinidad Oil Company's (ATOC's) three oilfields, Teak, Samaan and Pou, a situation which disturbed Energy Ministry officials.

As the country's current Prime Minister, the Honourable Patrick Manning, remembers today: "Unlike the evolutionary-type development of the crude oil and refining sub-sectors, a deliberate policy approach was adopted by the state for the development of the natural gas sub-sector."

The government probably had no choice in the matter, since ATOC itself was in no hurry to make commercial use of the natural gas. Dr Kermit Walrond, who rose through the ranks to become Amoco's most senior manager from Trinidad and Tobago, recalls that "the company at the time had no market for gas. The only thing we used gas for in the early days was to help lift oil. As oilfields mature, the amount of gas they produce with each barrel of oil tends to rise exponentially, so within a matter of years we were producing a lot of gas and flaring it without utilisation from these offshore fields."

Under its Exploration and Production (E&P) Licence for its east coast offshore fields, associated gas can be claimed by the state if the producer did not have use as permitted in the Petroleum regulations (e.g. gas lifting, fuel in the offshore fields) however, it was the government's responsibility to put the facilities and other infrastructure in place to capture and use it.

In the beginning even gas well discoveries had little appeal for Amoco. Walrond says that he can

"clearly remember the times when we would drill an exploratory well for oil and find gas and I'd go into Port of Spain to view the discovery and virtually get chastised for finding gas when we were an oil company."

Curiously, it was not until 1979, five years after Amoco first started producing oil from the Teak platform, that the government finally reclaimed 'its' gas and established a gas compression system near to the Teak and Pou production facilities to boost up the 15 pounds per square inch (PSI) low pressure associated gas for use in the generation of electricity by the Trinidad and Tobago Electricity Commission (T&TEC).

The Teak/Pou compression platforms, and related systems, were built under the auspices of The National Gas Company of Trinidad and Tobago (NGC), a 100 per cent state-owned company that was established to transport natural gas from offshore fields in August 1975 to execute the official decision that natural gas be utilised for the benefit of the country and not just as a fuel for the generation of competitively-priced electricity, but also for the creation of a whole new heavy industrial sector based on gas.

Trinidad and Tobago's first Prime Minister, Dr Eric E. Williams, had articulated this well in a speech in early 1976, the year after NGC was born, when he declared that: "We have accepted the challenge of entering the world of steel, aluminium, methanol, fertilisers and petrochemicals by using our gas resources in a very definitive industrialisation process."

To achieve this, of course, meant having access to large tranches of gas, and Amoco had, by good fortune (though, as Dr Walrond says, the company didn't quite see it like that at the time) found what was named the Cassia field the year before.

So in 1976, as NGC's retiring President, Frank Look Kin recalls today: "The government negotiated a contract with Amoco for a large amount

of gas and at a price that would attract the investors we wanted. At the time, there were only two gas-based plants – Federation Chemicals (FedChem) and Trinidad Nitrogen 1 (Tringen 1), both ammonia producers. The strategy adopted by the government was to secure the gas supply first and then attract gas-based industries which would utilise this gas. However, the big unknown was projecting the type and rate of growth of gas demand. There were

a lot of unknowns and uncertainties we were playing with."

Of course, underwater pipelines were necessary for getting this gas to shore and, at first, Amoco was asked to bring the gas ashore using existing oil pipeline for the purpose. "One of the pipelines was converted to two-phase flow, whereby they sent oil and gas ashore," Mr Look Kin notes. "When it reached ashore, it was separated and high-pressure gas went across Trinidad to the T&TEC power stations. But this was not a very robust way of doing business and there were safety problems."

Prior to 1977, there were only two dedicated pipelines for natural gas: the first, built in 1953 to supply the Penal power station and the second, built in 1956 to supply feedstock to WR Grace's Federation Chemical (FedChem) plant at Point Lisas. "There were also lines that were used primarily for oil that were pressed into service to be used for transporting oil and gas," adds Mr Look Kin. A further dedicated gas line on land was commissioned in 1977 – a 24 inch line from Beachfield, Guayaguayare, on the south east coast of Trinidad, and the following year, 1978, NGC's first offshore line, also 24 inches in diameter, came into being.

The latter was actually project-managed by Amoco on behalf of the government – NGC itself had little money and not enough expertise at the time – and the line ran from the Teak field, via the Pou field, to shore. As Mr Look Kin points out: "Once we had those two lines, NGC then had a dedicated pipeline system for transporting natural gas from offshore to land."

Other pipelines followed, as needed, though Look Kin concedes that it was not until the late 1980s that NGC had acquired the necessary skilled staff and was financially strong enough, to take full responsibility for its own pipeline construction activity. Even the compression facility in 1981 had to be project-managed by the Energy Ministry itself, the main



man involved, as Look Kin recalls, being "the then Director of Energy Planning and later Permanent Secretary, Rupert Mends." Look Kin himself worked with the Ministry at the time, before joining NGC in 1990.

Today, NGC's pipeline network runs for 788 kilometres under water and across country and is capable of transmitting 4.4 billion cubic feet a day (cfd) of natural gas, one of the largest capacity systems in the world.

The company's graduation from being a 'paper company', in a sense, to today's gas industry giant, is well illustrated by the fact that it project-managed the Western Hemisphere's biggest gas line – the US\$268 million (mn), 56 inch, 76 km cross island pipeline (CIP) built in 2005 to take 800 mn cfd of gas to Atlantic LNG's Train 4, the largest single train in the world at that time. The line can deliver a total of up to 2.4 billion (bn) cfd without compression and 3.6 bn cfd with it.

NGC's ability now to undertake large gas pipeline projects is only one of the many accomplishments of this extraordinary company, probably the most successful state-owned enterprise in Caribbean history (from a position of near-penury in the mid-1970s, it graduated to TT\$3.567 bn



Frank Look Kin

(US\$566 mn) in after-tax profit in 2007, the latest year for which figures are available).

As noted at the beginning of this article, NGC was primarily created to facilitate a new industrial sector in Trinidad and Tobago using natural gas as a raw material and as a fuel. It has done so brilliantly, as testified by the fact that Trinidad and Tobago today has ten ammonia plants, six methanol plants, one urea plant, four iron and steel plants, one gas to liquids (GTL) plant, four liquefied natural gas (LNG) plants with one aluminium smelter to come. When the last-named is eventually commissioned, Dr Williams's dream of 1976 will finally have come fully true.

These plants (with the notable exception of LNG) are all supplied with gas by NGC, which was mandated by the government to be the sole trader of gas in the domestic market. It currently sells about 1.65 bn cfd to this market (LNG takes the rest, around 2.4 bn cfd in 2008), making Trinidad and Tobago's total gas market of 4 bn cfd at the moment. Put like that, it sounds straightforward, but NGC has had to employ innovative commercial initiatives to maintain investment levels for new gas based plants, after the government, which had itself funded the early steel, methanol and ammonia plants at Point Lisas, decided to turn that role over to the private sector in the early 1990s.

NGC developed what it called its commodity pricing mechanism (CPM) in 1993, which pegged the price at which it sold gas to its petrochemical customers to the international market price of methanol and ammonia. So, in lean times, the companies were able to stay in business with a lower gas price, while their North American counterparts were shutting up shop, and in good times, NGC could benefit from higher gas prices.

What's more, NGC was able to convince the gas providers, such as bpTT and EOG Resources, to participate in the scheme by also accepting a price linked to the commodities price for the gas NGC bought from them. NGC was said to be the first gas company in the world to employ a CPM and others elsewhere have since adopted similar systems.

Look Kin points out that this 'balancing act' between gas suppliers and gas consumers, with NGC in the middle as intermediary and aggregator, has not been easy. "The suppliers always want to make more money and the consumers always want to pay less. However, through the price-linked mechanism, we have managed to satisfy both sides and now they all regard us as the best thing since sliced bread."

Early on, NGC decided that to fulfil its gas-development function to the maximum extent, it had to be not only a pipeline owner and gas trader but an actual investor in certain industries the government wanted to encourage.

Its portfolio in that regard now includes 100 per cent in the National Energy Corporation (NEC), another state-owned company specialising in port and industrial estate activity that

complemented NGC's own work in attracting investors and selling them gas, a 20 per cent interest in SECC/Trintomar, a company set up by the government to develop the Pelican offshore gasfield to lessen Amoco's then dominance of gas supplies (US independent EOG Resources recently took over 80 per cent of this operation), an 18 per cent interest in National Helicopter Services Ltd (NHSL) to provide support for offshore gas and oil platforms, a 51 per cent share in Phoenix Park Gas Processors Ltd (PPGPL) to extract natural gas liquids from the gas stream, 100 per cent interest through NEC in the La Brea Industrial Development Company (Labidco) to develop a new industrial estate and fabrication yard at La Brea, further south from Point Lisas along the west coast, a 100 per cent interest in NGC E&P Ltd, which holds 15 per cent in the Teak/Samaan/Poui oilfields purchased primarily by Repsol YPF from bpTT which constitutes NGC's first actual gas and oil production venture and 10 per cent in the Eastern Caribbean Gas Pipeline Company (ECGPC) which is building a gas transmission line from Tobago to Barbados.

But the *pièce de resistance* has undoubtedly been NGC's foray into the LNG business, with its 10 per cent and 11.1 per cent shares in Atlantic's LNG Train 1 and 4, respectively. As guardian of the national gas interest, it's only natural that NGC would be in the liquefaction business given that 59 per cent of the country's gas production goes to LNG. The company is already thinking further – of investing downstream of liquefaction, in shipping and marketing, though that will probably have to await finalisation of the government's strategy for a Trinidad and Tobago international presence in energy, including the LNG value chain.

NGC is also understandably proud of its solid international investment grade debt rating, which enabled it to borrow US\$200 mn for the construction of the Cross Island Pipeline and US\$400 mn bond issues for corporate investments for example, without any government guarantee and based only on the cash flows from the project. "We are now able to go to the financial market for funds without even having to provide security in the form of our gas contracts," notes Look Kin, with obvious pride.

In the next petroleum century, under Mr Look Kin's successor, energy industry veteran S. Andrew McIntosh, NGC will undoubtedly retain its pivotal gas monetisation role, once the country continues to have gas reserves to commercialise. The outgoing NGC President sees the current world economic recession and any effect it may have on gas demand in Trinidad and Tobago, as essentially short-term. "We are in a long-term business," he observes. "Our gas contracts are for 15-20 years. The global recession will not last forever. We will get through this situation and continue to have a long-term perspective on the industry." □