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# **GASCO**

The corporate quarterly journal of The National  
Gas Company of Trinidad and Tobago Limited

## **news**

## **The CNG revolution**

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**THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED**

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Buses of the Public Transport Service Corporation will be amongst the first vehicle fleets converted to CNG. *Photo by StephenJayPhotography*

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to reflect on the beauty that surrounds us here in Trinidad & Tobago



# The CNG REVOLUTION

Why CNG is a necessity, and why NGC is taking the leading role

**N**GC has been charged with leading the compressed natural gas (CNG) revolution in Trinidad and Tobago, which will provide a cheaper, cleaner fuel for the nation's road users. At the same time, it will release large quantities of subsidised liquid fuel for sale on the open market.

*The Minister of Energy and Energy Affairs, Senator Kevin Ramnarine (left), inspects a pickup truck's CNG fuel cylinder. With him is former NGC President Frank Look Kin, now Technical Adviser to the Ministry and Chairman of the Natural Gas Vehicle Task Force*

In some parts of the world, CNG is rapidly becoming the transport fuel of choice. North and South America, Europe, India, Pakistan and even Iran are turning to it. Major vehicle manufacturers like Toyota and Volkswagen, Peugeot and Honda, Fiat and General Motors are churning out CNG and

bi-fuel (CNG/gasoline) vehicles. The number of CNG-fuelled units across the globe has been growing by an average of 30% a year, and by 2011 totalled 15 million.

This is an encouraging trend, given Trinidad and Tobago's urgent need to find alternatives to gasoline and diesel. CNG's carbon emissions are much smaller than those of conventional liquid fuels. It is cheaper: a litre of gasoline equivalent of CNG costs TT\$1.07 at the pump, compared with \$1.50 for diesel, \$2.70 for super unleaded gasoline and \$5.75 for premium unleaded gasoline. Maintenance costs are lower for natural gas vehicles (NGVs): a properly tuned NGV burns fuel more cleanly than diesel and gasoline vehicles, leaving no contaminants in engine oils. Trinidad and Tobago has implemented tax incentives for vehicle conversions and CNG installation facilities.

Notwithstanding these advantages, Trinidad and Tobago has not yet accepted CNG as a major transportation fuel alternative. Although a gradual switch to CNG has occurred over the years, the government-appointed CNG Task Force is still working to change the largely apathetic stance of the public.

Of the more than 500,000 vehicles registered in Trinidad and Tobago (a number increasing by 20-30,000 a year), only about 4,000 have been outfitted to use CNG so far. CNG's share of the liquid transportation fuel market is a dismal 0.3%.



There are several challenges for the CNG campaign to overcome. First, the cost of converting a gasoline-fuelled car to CNG is at least TT\$10,000. The cost is substantially higher for larger vehicles such as maxi-taxis and buses, which primarily use heavily subsidised diesel. Although there were four licensed converters in the country at one point during the evolution of the CNG market, only one installer has survived and the rate of conversion is about 24 units a year. Additional installers across the country will be required to increase that conversion rate significantly.

A range of other improvements should encourage the average driver to consider CNG as the fuel of choice. Conversion technology is constantly improving, making NGV systems lighter and more compact, while advanced refuelling equipment provides faster filling and therefore less waiting. Safety concerns regarding retrofitted NGV systems have been addressed with the introduction of stronger cylinders and NGC's natural gas safety programme, with its emphasis on CNG and odourised natural gas.

So there are increasingly compelling reasons to switch to CNG, and the expectation is that vehicle owners with high fuel bills will be the first to convert.

The Caricom Energy Policy, being adopted in 2013, argues the need for alternative fuels and a cleaner, more energy-efficient transport sector, whether through CNG, bio-fuels, bio-diesel, electric cars or hybrids. Caricom coun-

tries are being pushed to make a choice and act. Jamaica has experimented with ethanol; in Trinidad and Tobago there has been talk of a methanol-gasoline mix.

market prices once it was replaced by CNG. This haemorrhage of money is not sustainable. There is also a powerful environmental argument in favour of CNG. Many of Trinidad and Tobago's roads are heavily congested, close to (and in some cases beyond) their maximum capacity, and highway construction is severely challenged to keep up with the relentless growth in traffic. The transport sector makes a large contribu-

## The National Gas Company (NGC) has taken on the leading role in making CNG the fuel of choice in Trinidad and Tobago

The most pressing issue for Trinidad and Tobago is probably the size of the annual fuel subsidy, which reached a colossal TT\$4.4 billion for 2012. Subsidised liquid fuel is being poured into road transport which could be sold at

tion to carbon emissions, which are already excessive, with all the predictable effects on health and well-being.

On a per capita basis, which is the measure of energy efficiency and human responsibility, Trinidad and Tobago is the second highest carbon polluter in the world, after Qatar. It surpassed the United States in this respect in 2001 and has been sprinting ahead ever since. Between 2000 and 2009, its carbon emissions rose from 19 to 36 metric tons per person, while those of the US fell from 20 to 17. While its carbon emissions, at 53 million metric tons, are small by global standards, representing less than 1% of the world total, they are large for a country of our size. Although most of the emissions are derived from the combustion of petrochemicals, the transport sector by itself produces about 3.7 million metric tons of greenhouse gases every year. This figure grew by a shocking 278% between 1990 and 2006.

In light of these facts, it is clear that Trinidad and Tobago has a severe problem that urgently needs a solution.

*Special Adviser to the Ministry of Energy and Energy Affairs, Frank Look Kin, addresses a CNG media briefing at Point Lisas*



The prudent response for the transport sector is a considerable shift away from gasoline and diesel to CNG. To achieve this objective, a comprehensive five-year CNG programme was developed. The first overall aim is to construct a robust network of 72 reliable CNG filling stations with faster filling times (both new and upgraded stations). The second is to convert 100,000 vehicles to CNG, specifically

and Tobago. A subsidiary company with a dedicated implementation team will receive a phased investment of \$2.07 billion over the five years of the programme. NGC, at the centre of the nation's energy economy, is the most strategic choice to drive this project. It has already been leading by example, developing its own NGV fleet and establishing dedicated CNG stations at Point Lisas and Galeota. Preparations

and 9,950 cars converted. New stations will be strategically located along the existing pipeline routes in order to reduce infrastructure costs. Some existing NP liquid fuel stations will be retrofitted for CNG, and mobile filling facilities will be placed in more remote areas until there is a build-up of demand.

NGC is well aware that a powerful publicity and promotional programme will be essential if enough vehicles are to be converted to make the transformation viable and its targets reachable. Of key importance will be the assurance of economic advantage to the end user, minimising costs and optimising payback times, convenience and safety.

## Over the full five years, the payoff for the nation will be a substantial reduction in the fuel subsidy

targeting commercial, public transport and high mileage vehicles. This includes 25,000 route taxis, 4,000 maxis, over 400 PTSC buses, and government and corporate vehicle fleets. Privately-owned high-mileage light vehicles (covering over 20,000 km per year) will also be considered. CNG will be marketed as the best-value fuel choice with the introduction of "dollar gas".

In June 2013, Cabinet approved a proposal by NGC to invest \$500 million in the first two years of the programme. This covers the construction of 22 CNG station modules and the conversion of about 17,500 vehicles. The second phase will expand the station network to 72 stations and complete the vehicle conversions at a further cost of \$1.57 billion. As the transport system converts to CNG, there will be widespread access to CNG refilling stations, allowing the current fuel subsidy to be gradually removed.

The National Gas Company (NGC) has accepted the leading role in making CNG the fuel of choice in Trinidad

and Tobago. A subsidiary company with a dedicated implementation team will receive a phased investment of \$2.07 billion over the five years of the programme. NGC, at the centre of the nation's energy economy, is the most strategic choice to drive this project. It has already been leading by example, developing its own NGV fleet and establishing dedicated CNG stations at Point Lisas and Galeota. Preparations

are well under way towards making CNG refuelling available at VMCOTT and PTSC in Port of Spain. NGC will thus be deeply involved in developing the CNG supply network and building demand. In the first two years, the CNG subsidiary company expects to have 300 buses, 1,300 maxis, 4,200 taxis, 1,750 commercial vehicles,

CNG is clearly the fuel of the future in Trinidad and Tobago. Over the next five years, if the conversion to CNG takes off, the payoff for the nation will be a substantial saving in the fuel subsidy, increased revenue from the sale of surplus liquid fuel, and a smaller carbon footprint thanks to the greener properties of CNG. It's a deal we cannot refuse.



*Minister Ramnarine (centre) is briefed on CNG conversion*





THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED



## Congratulations to our Scholarship Awardees!

From left to right: Melissa Diaz, Commercial Analyst, NGC; Victoria Persad, Accounting Technician, NGC; Francis Martinez, Surveyor II, NGC; and Tamara Gildharry, Graduate Trainee, Office of the President, National Energy.

The National Gas Company of Trinidad and Tobago Limited (NGC) wishes to congratulate the awardees of its Employee Post Graduate Scholarship Programme for 2013-2014. These full scholarships – inclusive of tuition, books, laptops, airfare, accommodation and living expenses – are for study at leading universities in Scotland, the heart of the UK's oil and gas industry. May this enriching academic experience spur the personal and professional development of our awardees and give them opportunities to make meaningful contributions to the further growth of NGC and our nation's energy sector.

### ★ **Melissa Diaz**

Commercial Analyst, Commercial Group – NGC

*Full Post Graduate Scholarship towards Master of Science Degree in Energy Studies University of Dundee, Scotland*

### ★ **Francis Martinez**

Surveyor II, Geospatial Information Services Department, Technical Services Group – NGC

*Full Post Graduate Scholarship towards Master of Science Degree in Oil and Gas Engineering Robert Gordon University, Aberdeen, Scotland*

### ★ **Victoria Persad**

Accounting Technician, Finance Division – NGC

*Full Post Graduate Scholarship in Law LLM Petroleum Taxation and Finance University of Dundee, Scotland*

### ★ **Tamara Gildharry**

Graduate Trainee, Office of the President – National Energy

*Full Post Graduate Scholarship towards Master of Science Degree in Energy Studies University of Dundee, Scotland*

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# NGC's global CHALLENGE

**As the National Gas Company moves into its global mission, the company's President, Mr Indar Maharaj, outlines the NGC's approach to the challenges ahead**

**T**he Minister of Energy and Energy Affairs, Senator the Hon. Kevin Ramnarine, has given NGC a new challenge: to continue its expansion, not only within the domestic economy, but on the global stage.

Addressing the Caribbean Gas Trading and Supply conference in Port of Spain in June 2013, the Minister said: "The idea that NGC should be confined to the borders of Trinidad and Tobago is one that has been totally

dismissed by this Minister of Energy. The time has come for us to flip the investment model and look at investment not only as people coming to Trinidad and Tobago to invest, but Trinidad and Tobago investing outwards. Forty years ago the world was a very different place. Trinidad and Tobago has now grown up significantly in the energy sector, regionally and globally. We have the capital and we have the expertise." The Minister challenged NGC to "become to Trinidad and Tobago what Petrobras is to



*NGC's President Indar Maharaj*

Brazil or Petronas to Malaysia."

NGC is already a strikingly diversified organisation. Gas itself provides less than half of its revenue, having been overtaken by investment. As an investor, NGC's upstream involvement includes a 15% interest in the Teak, Samaan and Poui offshore assets. It has an 11.11% interest in Atlantic Train 4 at Point Fortin, and has begun to market its LNG from that source on its own account instead of through an intermediary. NGC has a 10% shareholding in the South-east Coast Consortium and a 20% shareholding in TRINTOMAR. It has recently acquired Total's interests in Blocks 2c and 3a off Trinidad's northeast coast, which were being divested this year by the French "super-major". It is mak-



ing a large investment in the development of CNG as a fuel (see *The CNG Revolution*, page 2). Downstream, in August 2013 NGC acquired Conoco-Phillips's 39% shareholding in Phoenix Park Gas Processors, thereby increasing its overall shareholding from 51% to 90%.

This gives some idea of the pattern of existing NGC investment. NGC is already exploring a range of other possibilities, from Gasfin's proposed LNG train at La Brea and shipping CNG from Tobago to Puerto Rico, to pipeline construction in East Africa and the US and projects in West Africa and Central America. NGC is particularly interested in international partners in Africa where multiple investment and commercial opportunities are emerging from new gas economies.

NGC's foray into foreign markets is essentially through joint-venture partnerships. Its unique experience and expertise in gas-based development, coupled with its track record of technical excellence, safe and reliable operation and global standards of excellence, make it an asset to partners from the emerging resource-rich countries which are seeking to replicate the Trinidad Gas Model of development.

This global outlook is for NGC the natural continuation of an outstanding modern natural gas success story. Incorporated on August 22, 1975, NGC has a current asset base of TT\$33.8 bn (US\$5.28 bn), and credit ratings of A- from S&P, Baa1 from Moody's, and AAA from CariCris. As an investment grade company, its remarkable financial performance is a major source of strength. Its diversified portfolio allows the Group to self-fund a number of major capital projects and remain consistently profitable even in periods of weak commodity prices.

NGC's business is to purchase, compress, transport, sell and distribute natural gas to industrial and commercial users. It owns, maintains and operates a pipeline network of about 1,000 km, both offshore and onshore. It develops industrial sites, port and marine infrastructure and services, and is engaged in upstream gas and oil production, natural gas liquids and LNG production and marketing.

At the same time, NGC prioritises sustainable development, environmental preservation and community empowerment. Its staff numbers over 800: it provides large-scale community-level employment through its engineering and construction works, and addresses socio-economic needs through its Community Economic Development programme. Apart from using "green" technologies, NGC is conducting a 10-year reforestation programme and applying a "no net loss" principle by restoring areas of forest equivalent to those cleared during construction work.

NGC's national value has long been recognised. It contributes to the process of economic diversification in Trinidad and Tobago by facilitating domestic activity at all stages of the gas value chain. It is developing natural gas as a feedstock and fuel for manufacturing downstream of the traditional petrochemical plants, and increasing the availability of gas to industrial estates such as the Union Industrial Estate and the e-Teck Park.

## Vision Statement

- To be a valued partner in the global energy business.

## Mission Statement

- To create exceptional national value from natural gas and energy businesses.

## Core values & guiding principles

- Integrity
- Trust
- Profitability
- Customer-focused
- Employee success and well-being
- Highest standards of technical efficiency
- Highest global standards of health, safety and environment preservation
- Good corporate citizen
- National interest

NGC's basic approach to Trinidad and Tobago's natural gas monetisation is to add value to the raw material at all stages of the value chain. It sells natural gas as a fuel for industrial plants and power generation, as CNG, as feedstock for conversion into commodities, and for processing into LNG for export. All these operations generate revenue for NGC, taxes for the government, dividends for the government as the sole shareholder of NGC, and export earnings and foreign direct investment flows for the country. In social terms, the operations of the industry are not solely for the direct benefit of the operators but for the wider good of the society and its people.

This includes the development of indigenous expertise in the management and operation of gas-based industries at every level.

NGC's own development strategy is built around five goals: to grow external and new markets; to grow the local market; to strengthen asset integrity; to strengthen brand and corporate social responsibility; and to strengthen its culture and competencies. The global mission which it has been challenged to adopt is already a perfect fit with its strategic vision for 2011-2015.

**B**ack in July, once school was out, a group of youngsters from Beetham Gardens went to the opera.

It was a performance of *Dido and Aeneas*, written more than three centuries ago by the English composer Henry Purcell, when Trinidad was still an outpost of Spain somewhere behind God's back. Dido, the mythical queen of the North African city of Carthage, is wildly in love with Aeneas, prince of Troy; but he is tricked into leaving her, and she is plunged into despair and death. The opera had been staged earlier in the year by the Classical Music Development Foundation, and was specially revived under NGC sponsorship for the 35 young visitors from Beetham Gardens.

In the popular imagination, "The Beetham" signifies crime, poverty, deprivation and anger. It was one of the crime "hotspots" identified during the 2011 State of Emergency. So the *Trinidad Express* headline "Opera, music lessons for Beetham kids" (July 9, 2013) would have raised some eyebrows.

But if a trip to the opera sounds surprising, consider some of the other things on the agenda at the annual two-week self-esteem vacation camp, organised by the local Police Youth Club and sponsored by NGC (which donated instru-

**No one is suggesting that opera, chess or social niceties constitute a solution for crime**

ments, books and tutors' fees, among other things).

A visitor might have found participants playing chess, for example, or learning to play the trumpet, discovering the basics of etiquette, or discussing how to avoid conflict and confrontation (one 11-year old told the *Express* that the camp helps

him to avoid fights: "if somebody bothering me, and I want to beat them, [I can] ignore them". Others might have been involved in cooking, CPR, computer skills, or even the gracious discipline of ballroom dancing.

No one is suggesting that opera, chess or social niceties constitute a solution for crime. The thinking is more nuanced than that. The mocking knee-jerk reaction might be that opera is impossibly alien to the realities of Beetham Gardens, impossibly colonial and irrelevant. But, just as chess is not about knocking off someone else's king but about strategy and patience, so *Dido and Aeneas* might ask about passionate love, loss, grief and betrayal, and find that they are not so alien to south Port of Spain after all.

The first Police Youth Clubs were established nearly 40 years ago, in St James and Cocorite. The network has waxed and waned over the years, but there are currently 36 active clubs across the country, with a combined membership of around 3,500. They are run by working and retired police officers, many of whom do a heroic job trying to head youngsters away from "negatives" into directed, meaningful activity.

# STARS of the future

**In 2012, NGC began sponsoring selected Police Youth Clubs. It looks as if the project is bearing fruit**

But the police receive no specific training for this formidable task, and could do with a lot more support of every kind. Most of the clubs don't even have their own premises, and have to beg for borrowed space to function in.

"If we want a different kind of future," said police commissioner Stephen Williams in March, announcing that police officers working with the clubs would now do so full-time, "we must engage our young people in productive activities so they wouldn't seek to earn their livelihoods through crime. As police officers, we must work with our young people to influence their behaviour in a positive manner." The national Chamber of Commerce noted with approval that the clubs show "a face of the police not often seen ... the police officer in the community, a mentor and nurturing leader."

NGC now sponsors and works with four Police Youth Clubs, in La Brea, Couva, Beetham Gardens and Laven-tille Road. An executive team decides club policy and direction, a parents' committee looks after operations and implementation, and volunteer chaperones are the "arms and legs" of the programme.

The long-term goal is to help the clubs build themselves into sustainable community organisations with a real social impact. They are helped to develop real



***Above** NGC Community Relations Officer Fofi George presents a plaque to an achieving youngster at the Beetham Gardens Police Youth Club*

***Above right** Ready for action: young members of the La Brea Police Youth Club*

***Right** Participants at the Beetham Police Youth Club learn to play chess*



management skills – administration, training techniques, finance, events management, record-keeping, communications, selecting and hiring the tutors and other resources they need. They must produce an annual work plan as the basis for financial support, plus quarterly progress reports. Their skills can then be absorbed into the surrounding community.

Most of the club members are of primary school age, with a scattering of older kids, and the majority (around 60%) are girls. NGC is most interested in this younger generation and in filling gaps in its experience and understanding of life before attitudes harden. Which is a huge challenge when some of the children turn up hungry and unfed, and their most urgent need is breakfast or lunch.

The range of activity across the clubs is striking. Some of it is academic – remedial teaching, help with homework, a place to study. Some is spiritual and psychological – training and counselling

in the management of anger and aggression, conflict resolution, self-esteem, communication. A lot is sporting and cultural activity, from football, cricket and judo to dance, painting and music.

Music literacy is a large component. Reading musical notation instead of learning by rote opens the door to a new world: any music that has been scored, anywhere and at any time, can be learned and played by the performer directly. Anything a pianist creates and scores can be played by other musicians, anywhere in the world.

Literacy training is being extended to the steel orchestras that NGC sponsors in La Brea (Nightingales) and Couva (Joy-

landers). Grade 2 is already being taught in both Couva and La Brea. Club members can learn to play various instruments too. The Laventille Road club has its own steel orchestra, while Beetham Gardens has an orchestra of brass and wind instruments.

Early feedback from the programme, which is only in its second year, suggests that this investment in people is going to be worth every cent it costs, and can really make a difference to individual and community life. The sort of difference the poet Frederick Langbridge was thinking of when he wrote:

*Two men look out through the same bars:  
One sees the mud, and one the stars..*



# EXECUTIVE MANAGEMENT

## 2012-13 APPOINTMENTS

**New executives bring a wealth of experience to NGC as it moves forward with its mission and vision**



### **Curtis Mohammed**

**Vice President, Gas Transmission & Distribution**

Curtis Mohammed became Vice President, Gas Transmission and Distribution, on January 3, 2012.

He gained his B.Sc. honours degree in chemical engineering at the University of the West Indies in 1988 and his M.Sc. in engineering management in 1999.

Mr Mohammed's broad range of professional experience and skills includes setting up manufacturing entities, rolling

out their complete operations, and managing all phases of major capital projects.

Mr Mohammed is also a director of the Primera Group of Companies, a member of the Association of Professional Engineers of Trinidad and Tobago (APETT) and of the American Institute of Chemical Engineers, and a Trustee of the Caribbean Central American Action (CCAA) Washington, DC.

Anand Ragbir has been Vice President, Commercial, since March 1, 2012. He was previously Head of Finance, Operations, at bpTT, where his major responsibilities included managing operational costs and capital expenditure, and developing and executing commercial opportunities.

His position spanned the different functions of bpTT's gas value chain: exploration and reserves development, and marketing, sales and contracting.

He had earlier been Hydrocarbon Value Advisor in the Markets Performance Unit; Senior Commercial Advisor to the Atlantic LNG Operations Team;

### **Anand Ragbir**

**Vice President, Commercial**

Finance Manager, Markets; and Head of Finance, Resource and Markets.

Mr Ragbir is a member of the Chartered Institute of Management Accountants UK, and has worked with Atlas Methanol, Coca-Cola, PCS Nitrogen, and Coopers and Lybrand.



### **Cassandra Patrovani Sylvester**

**Vice President, Human and Corporate Relations**

Cassandra Patrovani Sylvester joined NGC in 2013 from British American Tobacco Caribbean and Central America, where she was the Senior Human Resources Business Partner. Before that, she was Group Executive, Human Resources and Corporate Communications, at One Caribbean Media.

Her expertise in human resources and corporate relations has taken her to New

Zealand, Australia, Central America, Zimbabwe, the USA and the UK. She has worked in insurance, retail distribution, media, tobacco and management consulting, and with corporations such as First Citizens Bank, Coca Cola and BP Ford.

With diplomas in marketing and organisational behaviour, she has specialised in strategic human resource management, change management, behavioural and relational analysis, and group development and facilitation.



THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED

# 1,000 km Of Pipeline And Counting

NGC's mandate is to build and expand the local natural gas energy landscape by its provision of the necessary pipeline infrastructure to meet increases in demand for natural gas by the gas-based industry and manufacturing concerns.

With the successful completion of three significant transmission pipeline construction projects by The National Gas Company of Trinidad and Tobago during the period 2009-2012 and the ongoing expansion of the distribution pipeline system that connects customers to the natural gas grid, the country can boast of a 1,000 km (620 miles) natural gas network of pipelines. This network comprises both onshore and offshore pipeline segments, transmission and distribution pipelines that span not only the island of Trinidad, but connect the sister island of Tobago to the natural gas energy resource.

## Recently completed projects:

- **Tobago Pipeline and Gas Receiving Facility at Cove Eco-Industrial and Business Park**
- **North-Eastern Offshore Pipeline (NEO)**
- **Union Pipeline and Metering Station**
- **Light Industrial and Commercial (LIC) Network Continued Expansion**

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## The three major Transmission Projects and LIC continued expansion

The Tobago Pipeline, the North-Eastern Offshore Pipeline (NEO) and the Union Pipeline are the most recent additions to NGC's transmission pipeline network. This as the company continues to meet the demand of its existing customers who utilize natural gas in their daily operations and to provide a supply of natural gas to new customers coming onto its customer base. The completion of these three pipelines added 153 km (95 miles) to NGC's transmission network.

### The Tobago Pipeline

The Tobago Pipeline was constructed northwards from the BHP Billiton's Gas Export Platform (GEP) for 54 km (33 miles) as a marine line before coming ashore at the Cove Eco-Industrial Business Park at Lowlands, Tobago and terminating at the NGC Cove Gas Receiving and Metering Facility which was constructed at the same time as the pipeline.

### The Tobago Natural Gas Receiving Facility

This facility is located next to the T&TEC Power Generating Plant and was commissioned in November 2012. It can fuel the 75 megawatt T&TEC power station and the manufacturing concerns projected to use the estate in the future.

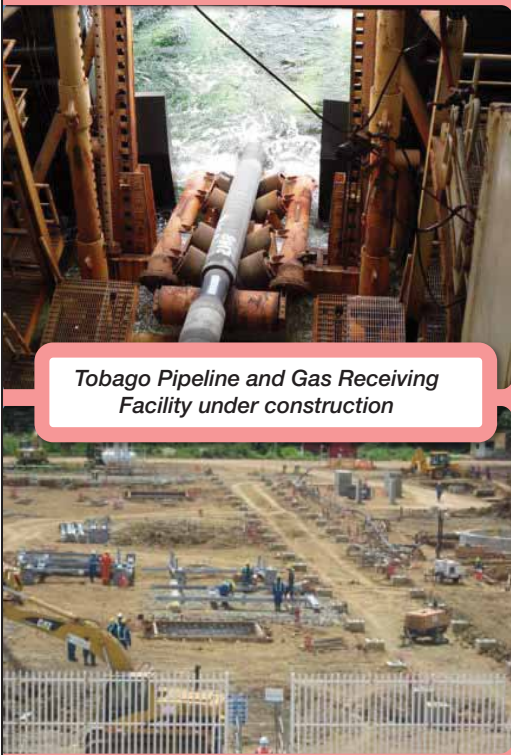
This connection of the pipeline to the facility can also be the staging point for any future natural gas pipeline connections to Barbados and to other islands in the Eastern Caribbean.



12" TOBAGO  
LENGTH:

36" NEO  
LENGTH:

*Tobago Pipeline and Gas Receiving Facility under construction*



*Tobago Pipeline Gas Receiving and Metering Facility completed*





TOBAGO



*North-Eastern Offshore Pipeline under construction*

GO PIPELINE  
H: 54,226m

## The North-Eastern Offshore Pipeline (NEO)

The NEO pipeline was constructed southwards from the Gas Export Platform as a marine line for 84km (52 miles) before coming ashore at the Mayaro Bay Regulator Station. From there, the NEO line was laid as a land line for 10.5km (six miles) to the Beachfield Upstream Development (BUD) gas receiving facility in Abyssinia, Guayaguayare where it was connected to NGC's existing network of pipelines.

## Light Industrial and Commercial (LIC) Distribution System Expansion

The ongoing expansion of the distribution system keeps up with demand for natural gas from small customers. Today, 70km (43miles) of distribution pipelines serve a Light Industrial and Commercial (LIC) customer base of 120 or 131 sites with natural gas for manufacturing, gas cooling and transportation. From Wallerfield to Westmoorings to La Brea, this supply has contributed to the growth and expansion of the LIC sector.



## Union Pipeline

Union Pipeline, the third transmission pipeline to be recently constructed, has a different origin and purpose. It originates from the 56-inch diameter Cross-Island Pipeline (CIP) at a tap off point located at Pablito Trace, off Grant Trace in Rousillac, South Trinidad. This 24-inch line is intended to supply natural gas to customers on Union Industrial Estate, its main customer being the power generation plant of Trinidad Generation Un-limited (TGU). Its other customers are Lake Asphalt and other business concerns located on the adjoining La Brea Industrial Estate.

## The Union Metering Facility

The metering and pressure regulating facility associated with Union Pipeline was constructed on the Union Industrial Estate, to service the customers on both the Union Industrial Estate and the La Brea Industrial Estate.

PIPELINE  
84,874m



*Union Pipeline and Metering Facility under construction*



*Union Pipeline Metering Facility completed*







## Why this recent infrastructure expansion

Over the past 39 years, NGC has maintained a reliable supply of natural gas to its customers in the heavy industrial and LIC sectors. With these recent expansions, NGC has the capacity to provide an even more reliable supply of natural gas. These initiatives have followed the pattern of expanding infrastructure to match increases in demand from either existing customers or new ones.

## What's next?

New design technologies utilized at the NGC Cove inlet facility allow for higher processing and transportation capability to support any additional gas supplies needed in the future whether at Cove or at network extensions earmarked for Barbados or the Eastern Caribbean.

NGC is at the same time aggressively increasing its supply of natural gas to the LIC sector via industrial parks and CNG refueling stations throughout Trinidad and Tobago.

**NGC is 1,000 km of pipeline and counting...**



**THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED**

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# LNG: Trinidad and Tobago's strategic transformation

*by Vinod Rajkumar, Kwailan Brathwaite, Rebanna Ramsabai and Dail Gopie, Commercial Division, NGC*

The global LNG industry has experienced many changes during the last decade: periods of strong growth in demand followed by periods of surplus in supply, coupled with a growing concern for the environment and the need to enhance energy security in importing countries. Trinidad and Tobago has experienced many of these changes first-hand since it entered the global LNG market as an exporter in 1999. LNG has become increasingly important, not just to Trinidad and Tobago as an exporter, but also to many other parts of the world as a

crucial fuel supply to satisfy growing energy needs. This article provides an inside look of Trinidad's LNG trade: the milestones, market developments and strategies involved in the country's LNG success.

## A strong framework

The recent celebration of a century of commercial oil production was a reminder of the length of Trinidad and Tobago's energy history. Our involvement in the energy sphere has brought many major energy companies to Trinidad. Following years of experi-

ence in oil production, the advent of natural gas – once seen as a nuisance to oil producers – was a welcome but unexpected change in the latter half of the 1970s. Since then, natural gas has become a vibrant industry, with profitable petrochemical and manufacturing sectors. In the *Review of the Economy* for 2011, the Ministry of Finance reported that Trinidad and Tobago's petroleum sector contributed approximately 43% of the country's GDP.

Recognised as having adroitly developed a gas-based economy, Trinidad



and Tobago carved a new path for itself when it sanctioned the construction of the Atlantic LNG liquefaction plant (Atlantic LNG) in 1995, marking our entry into the liquefied natural gas (LNG) business. The original partners of Atlantic LNG were Tractebel, BP, BG, Repsol YPF, and the Government of Trinidad & Tobago via the National Gas Company of Trinidad and Tobago (NGC). This partnership has been commonly referred to as “The Trinidad Model”, unique because of its dedicated primary markets, the US

was a significant milestone for Trinidad and Tobago. It increased Atlantic’s overall output capacity by almost 50%, and at that time was the largest LNG train in the world at 5.2 mtpa. This single train catapulted T&T into the forefront of LNG production, triggered the largest single sustained phase of our economic growth, and captured the attention of competitors.

It should be noted however that this LNG success story was not solely due to multinational shareholders.

competitive, compared with other parts of the world (Chart 3). Further, T&T LNG buyers had long-term contracts with the US for the supply of LNG. It made sense for the country to capitalise on its proximity to this market and have the majority of its cargoes delivered there. During this period, 77% to 89% of total LNG exports (Chart 2) were sold in the US.

## The commissioning of Train 4 in 2005 was a significant milestone for Trinidad and Tobago

east coast and Spain. Trinidad and Tobago could capitalise on its geographic proximity to these markets and therefore its competitive delivery costs. The original concept was for a single LNG train; but the global LNG market soon began to expand, Atlantic LNG went into expansion mode, and eventually three more trains were constructed. Today, Trinidad has four liquefaction trains at Atlantic’s 15 million-tonnes-per-annum (mtpa) Point Fortin facility (see Table 1).

The country has benefited significantly from the Trinidad Model. Its multinational shareholders (BP, BG, Repsol) have brought with them expertise in trading, access to a widespread distribution system, capacity rights in regasification terminals, marketing ability with potentially high netback prices, strong technical support in LNG operations, and highly effective managerial support with the necessary LNG expertise. Atlantic can now boast of over fifteen years of LNG operational experience, resulting in strong, reliable performance.

The commissioning of Train 4 in 2005

The country entered the global LNG arena with other advantages: a stable political environment, proximity to the then premium US market, and access to both the European market and the later emerging South American markets.

### Shifting gears

In just over a decade, Trinidad and Tobago’s success in monetising natural gas, with special emphasis on LNG, ranked it among the top ten exporters of LNG, which accounted for approximately 7% of world LNG trade in 2010. As a world LNG player, Trinidad and Tobago has been exposed to the constantly changing landscape of the LNG market and its effects. Since 2005, factors such as the degree of market maturity, sources of supply, dependence on imports and other geographical and political factors have influenced the country’s trading and marketing strategies.

### 2005 to mid-2007

During this period, demand for LNG in the US was high and prices were

### Mid-2007 to 2008

Several scenarios and factors led to a change in focus in the trading and marketing strategy after 2005. In 2007, the demand for LNG in Europe increased substantially, and Asian demand followed suit soon after, in 2008, due to the creation of new regasification terminals. Production shortages in various parts of the world and the delayed commissioning of large-scale LNG plants (especially in Qatar) put a further squeeze on the LNG market. European and Asian LNG prices are linked to oil prices, so as oil prices increased, LNG prices followed. They reached a record high in all regions during this period, especially in Europe and Asia (Chart 3). Trinidad and Tobago saw an opportunity to reduce its reliance on the US market and diverted some of its LNG cargoes to higher-priced markets (Chart 3), despite the higher shipping costs involved. As a result, LNG exports to the US fell to 50% of the total, and exports to Asia-Pacific and Europe increased to a combined 40% (Chart 2).

### 2009 to 2010

The global financial recession that rocked the world from late 2008 was the next significant event affecting global LNG trade. Demand for LNG contracted considerably, and prices fell worldwide (Chart 3). At the same time, supply surged, with new production coming from Qatar. This caused a dramatic shift in the strategy of marketing LNG from Trinidad and

**Table 1: Atlantic liquefaction trains**

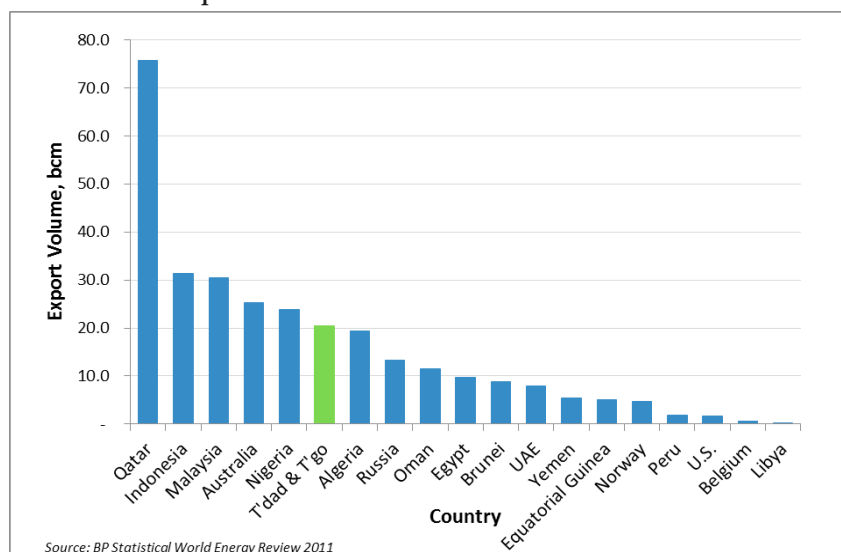
	Train 1		Train 2		Train 3		Train 4	
Capacity, LNG	3.0 mtpa		3.3 mtpa		3.3 mtpa		5.2 mtpa	
Capacity, NGL	6,000 bpd		6,000 bpd		6,000 bpd		12,000 bpd	
Shareholders	BG	26.0%	BG	32.5%	BG	32.5%	BG	28.89%
	BP	34.0%	BP	42.5%	Repsol	25.0%	BP	37.78%
	Repsol	20.0%	Repsol	25.0%	BP	42.5%	Repsol	22.22%
	NGC	10.0%					TTLNG	11.11%
	Summer Soca	10.0%						
Contracted destination	US, Spain		US, Spain		US, Spain		US, DR, Spain	
Gas supply rate	520 mmscfd		560 mmscfd		560 mmscfd		800 mmscfd	
Date commissioned	March 1999		August 2002		April 2003		December 2005	
Source: Atlantic LNG mtpa: million tons per annum; bpd: barrels per day; mmscfd: million standard cubic feet per day								

Tobago. For the first time, US sales accounted for less than 50%, and the bulk of exports went to Europe and Asia-Pacific (on average 34% and 10% respectively: Chart 2).

Another major factor in the LNG industry at this time was the opening of new LNG regasification terminals in Argentina, Brazil and Chile between 2008 and 2010, responding to an increase in demand for LNG in that region. New emerging markets in South and Central America acquired greater importance and were seen as a major opportunity for Trinidad and Tobago because of its close proximity. Exports to this region steadily increased, from 13% in 2009 to 23% in 2010.

## 2010 to the present

The factor that most dramatically affected global LNG trade in this period (and may well do so for the foreseeable future) is shale gas production. Since 2006, unconventional gas production in the US has grown by an average of 3.6% per annum. In 2010 shale gas accounted for almost 25% of total US gas production. The Energy Infor-

**Chart 1: LNG Exporters in 2010**

mation Administration estimates unproved, technically recoverable shale gas resources in the US at 482 trillion cubic feet (2012). The implications for imported LNG are clear: the US now requires less LNG because it can produce this unconventional natural gas of its own. Shale gas production does not affect Trinidad's long-term supply contract with the US, but it does affect LNG trade flows and results in lower US prices.

Another unforeseen change was the approval recently granted by the US Department of Energy to Cheniere Energy to export LNG from the US. An ensuing influx of applications for similar rights is still being processed, but by turning from LNG importer to potential exporter the US has inevitably changed the landscape of global trade once more. Trinidad and Tobago's LNG deliveries to the US decreased dramatically from the all-time

high of 89% of total exports in 2005 to about 25% today.

Japan's decision to close its nuclear plants after the Tohoku earthquake in 2011 was another factor that influenced global LNG trade and prices. It led to a significant rise in LNG demand and prices in Japan. With low prices in the US, Trinidad's LNG exports to Asia, especially Japan, rose to 18% for the 2011/12 period. Further, the South and Central American market now accounts for about 40% of total national exports (Chart 2).

## Outlook

In spite of the discovery of new shale gas deposits in the US and the drastic decline in Henry Hub prices, Trinidad and Tobago's LNG sales and exports have for the most part remained unaffected, and there has been minimal impact on our LNG revenues. This has been primarily due to the strategic divergence of our LNG exports away from the US market and towards premium markets in Asia, Europe and South America. In 2011, approximately 60% of our LNG exports were redirected from the US towards these higher-paying regions. Exports to Japan and South/Central America in particular have risen with a drastic increase in demand for LNG in these regions.

It is hard to say what the future holds for LNG, which has proved to be a dynamic industry that is always changing to suit the needs of the market. But certain factors will influence the future direction of the industry. For example, in 2014 the Panama Canal Authority expects to complete its expansion programme, and the Canal will be able to accommodate LNG ships twice as big as before. Soon, carriers with as much as 170,000 liquid cubic metres could be sailing from the Caribbean directly into the Pacific, or

Chart 2: Trinidad and Tobago's LNG export profile 2005-2011

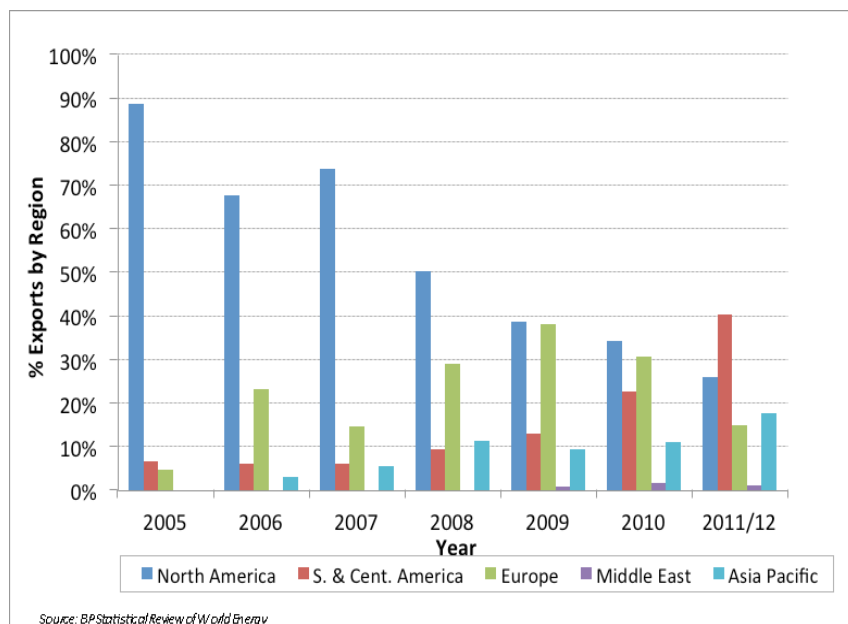
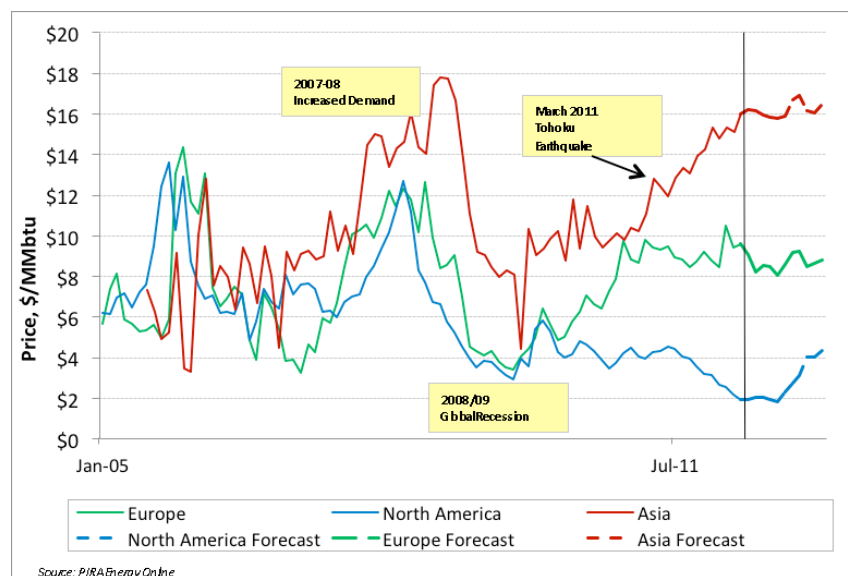


Chart 3: LNG prices 2005-2015



vice versa, resulting in a significant reduction in LNG shipping costs. LNG trade will improve considerably once the tolls stay in check.

LNG supply and demand are other important factors to pay close attention to. New suppliers in Angola, Papua New Guinea, Indonesia and

Australia, close to the higher-priced markets of the Far East, can produce greater competition and lower prices for Trinidad and Tobago's LNG. The US as a possible exporter also creates new competition for Trinidad and Tobago in these markets. On the other hand, small-scale LNG production and Floating LNG (FLNG) technol-



ogy create opportunities to monetise small gas discoveries that would otherwise be difficult or uneconomical for supplying niche markets, e.g. the Caribbean.

Projected LNG prices (Chart 3) show a continued disparity between the US, European and Asian markets. If this turns out to be the case, then Trinidad and Tobago is expected to continue diversifying its cargo portfolio by exporting to the higher-priced regions.

The energy sector (oil, gas and downstream industries) is the backbone of the Trinidad and Tobago economy, making the country one of the wealthiest and most developed nations in the Caribbean. It has earned a reputation as an excellent investment site for international businesses. Recent growth has been fuelled by investment in LNG, petrochemicals and steel. This diversification of the energy sector, out of oil production and refining into a wide range of gas-utilising industries, especially LNG, signals that the prospects for investment in the sector are greater than ever before.

LNG provides a relatively clean source of energy, and is price-competitive with other fuels for distant markets, making it a viable and sustainable energy supply for the foreseeable future. In recent years, LNG has turned out to be a critical element in meeting the world's energy needs. But LNG has a life of its own, and has morphed into a business unlike any other energy-related commodity. It is a business located in an ever-changing global market, characterised by natural disasters, recovering economies, increased shale gas production and LNG export competition. Nevertheless, Trinidad and Tobago remains poised, vigilant and ready to take action to ensure the maximum monetisation of our precious national resource, while reducing the risks associated with such a challenging business.

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NGC's mission is to "create exceptional national value from natural gas and energy businesses". In 2012, NGC, through its subsidiary Trinidad & Tobago LNG Limited (TTLNG), became directly involved in the marketing and sale of its LNG cargoes. Through its 11.11% shareholding in Atlantic Train 4, NGC is entitled to nine LNG cargoes per annum, all of which were previously marketed by BP Gas Marketing. However, in a bold move, TTLNG took control of three of the nine LNG cargoes and sold them directly to the market. It tendered and sold the first cargo on August 17, 2012: the entire transaction was managed by internal staff from the LNG & Investment Analysis, Legal and Accounting units.

The successful bidder was Gunvor International BV, a major international hydrocarbon trading company with offices in Singapore and Geneva. The LNG was sold on a spot FOB (free on board) basis, meaning that all risk and costs downstream of the loading point are borne by the buyer. The cargo of approximately 118,000 cubic metres was lifted by the LNG carrier *Gallina*. Given the current buoyant LNG market environment, TTLNG was able to obtain a more attractive price than for previously marketed cargoes.

Following that first successful spot sale in August 2012, TTLNG traded two more cargoes. The second, of approximately 134,000 cubic metres, went to Petrobras of Brazil for an equally lucrative price. It was loaded on December 11, 2012, on the LNG carrier *Excalibur*. The third cargo, of approximately 149,000 cubic metres, was sold to Trafigura on April 17, 2013, and was loaded on the *Cubal*. These sales have provided something of a windfall for TTLNG.

TTLNG views this project as being in direct accord with NGC's new strategic vision to be "a valued partner in the global energy business". It is one more step towards achieving a deeper role in global LNG, and positions NGC as a noteworthy player in the international energy business.



**THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED**

# SUMMARY OF CONSOLIDATED FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER, 2012

## CHAIRMAN'S REPORT

I am pleased to report that the financial performance of The National Gas Company of Trinidad and Tobago Limited (NGC) for 2012 shows Sales turnover of TT\$18.4 billion and after tax profits of TT\$3.9 billion.

NGC's core business of purchase, transportation and sale of natural gas as well as dividend income received from its key strategic investments in the liquefied natural gas (LNG) and natural gas liquids (NGL) business remained stable. NGC continued its infrastructure development works to expand its offshore and onshore pipeline network.

During 2012, the Company continued to work on the completion of the Tobago Pipeline, which should be completed in Quarter 2 2013, as well as the pursuit of both upstream and downstream gas-related investment opportunities which will present NGC with an attractive opportunity to diversify its asset base.

I am further pleased to advise that NGC has maintained its international reputation by having its credit rating reconfirmed by international and regional rating agencies viz: Standard & Poor's – A-, Moody's – Baa1 and CariCRIS – AAA.

**R.C. Chadeesingh**  
Chairman

## SUMMARY CONSOLIDATED STATEMENT OF FINANCIAL POSITION (Expressed in Trinidad and Tobago dollars)

	2012 \$'000	2011 \$'000
<b>Assets</b>		
Non-Current Assets	17,271,173	17,918,017
Current Assets	20,817,328	17,179,545
<b>Total Assets</b>	<b>38,088,501</b>	<b>35,097,562</b>
<b>Equity and Liabilities</b>		
Stated Capital	1,855,266	1,855,266
Reserves	2,916,111	3,169,611
Retained Earnings	20,723,026	18,433,495
Equity attributable to:		
- Equity holders of the Parent	25,494,403	23,458,372
- Minority Interests	448,725	524,416
<b>Total Equity</b>	<b>25,943,128</b>	<b>23,982,788</b>
Non-Current Liabilities	6,452,738	6,324,218
Current Liabilities	5,692,635	4,790,556
<b>Total Equity and Liabilities</b>	<b>38,088,501</b>	<b>35,097,562</b>

## INDEPENDENT AUDITOR'S REPORT

The accompanying summary consolidated financial statements, which comprise the consolidated statement of financial position as at 31 December 2012 and the consolidated statement of comprehensive income, changes in equity and cash flows for the year then ended, and the related notes, are derived from the audited financial statements of The National Gas Company of Trinidad and Tobago Limited and its subsidiaries (the "Group") for the year ended 31 December, 2012. We expressed an unmodified audit opinion on those financial statements in our report dated 30 April, 2013. Those financial statements, and the summary consolidated financial statements, do not reflect the effects of events that occurred subsequent to the date of our report on those financial statements.

The summary consolidated financial statements do not contain all the disclosures required by International Financial Reporting Standards. Reading the summary consolidated financial statements, therefore, is not a substitute for reading the audited financial statements of The National Gas Company of Trinidad and Tobago Limited and its subsidiaries.

## Management's Responsibility for the Summary Financial Statements

Management is responsible for the preparation of a summary of the audited financial statements with the basis of criteria established by management as described in Note 1.

## Auditor's Responsibility

Our responsibility is to express an opinion on the summary financial statements based on our procedures, which were conducted in accordance with the International Standard on Auditing (ISA) 810, "Engagements to Report on Summary Financial Statements".

## Opinion

In our opinion, the summary consolidated financial statements derived from the audited consolidated financial statements of The National Gas Company of Trinidad and Tobago Limited and its subsidiaries for the year ended 31 December, 2012 are consistent, in all material respects, with those financial statements, on the basis of management's established criteria described in Note 1.

**Port of Spain**  
Trinidad  
30 April, 2013





**THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED**

# SUMMARY OF CONSOLIDATED FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER, 2012

## SUMMARY CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME (Expressed in Trinidad and Tobago dollars)

	2012 \$'000	2011 \$'000
Sales	<b>18,354,479</b>	18,994,360
Gross profit	<b>4,766,011</b>	5,420,357
Other operating income	<b>369,563</b>	372,211
Interest and other investment income	<b>861,468</b>	712,479
Share of income from joint venture	<b>696,329</b>	1,053,778
Administrative, maintenance & general expenses	<b>(918,884)</b>	(822,245)
Finance costs	<b>(249,433)</b>	(277,715)
Other	<b>(82,788)</b>	(41,880)
Profit before tax	<b>5,442,266</b>	6,416,985
Income tax expense	<b>(1,512,034)</b>	(1,812,114)
Profit for the year	<b>3,930,232</b>	4,604,871
<b>Other comprehensive income</b>		
Net (loss)/ gain on available-for-sale financial assets	<b>(98,993)</b>	473,040
Foreign currency translation	<b>(117,476)</b>	101,192
Other comprehensive (loss)/ income for the year, net of tax	<b>(216,469)</b>	574,232
<b>Total comprehensive income for the year</b>	<b>3,713,763</b>	5,179,103
Attributable to:		
- Equity holders of the Parent	<b>3,536,031</b>	4,913,682
- Minority interests	<b>177,732</b>	265,421
	<b>3,713,763</b>	5,179,103

## SUMMARY CONSOLIDATED STATEMENT OF CASH FLOWS (Expressed in Trinidad and Tobago Dollars)

	2012 \$'000	2011 \$'000
Cash flows from operating activities		
Profit before tax	<b>5,442,266</b>	6,416,985
Adjustment for non-cash items	<b>(701,286)</b>	(884,760)
Operating profit before working capital changes	<b>4,740,980</b>	5,532,225
Changes in working capital	<b>998,816</b>	(1,058,358)
Cash generated from operations	<b>5,739,796</b>	4,473,867
Net taxation, interest and pension contributions paid	<b>(1,460,466)</b>	(1,128,789)
Net cash generated from operating activities	<b>4,279,330</b>	3,345,078
Net cash generated from investing activities	<b>2,506,522</b>	1,628,814
Net cash used in financing activities	<b>(1,622,180)</b>	(1,228,384)
Net increase in cash and cash equivalents	<b>5,163,672</b>	3,745,508
Net foreign exchange differences	<b>(49,973)</b>	13,595
Cash and cash equivalents beginning of year	<b>7,229,754</b>	3,470,651
Cash and cash equivalents end of year	<b>12,343,453</b>	7,229,754

## NOTES TO THE SUMMARIZED FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2012 (Expressed in Trinidad and Tobago Dollars)

### 1. Basis of preparation

The summary consolidated financial statements are prepared in accordance with criteria developed by management. Under management's established criteria, management discloses the summary consolidated statement of financial position, summary consolidated statement of comprehensive income, summary consolidated statement of changes in equity and summary consolidated statement of cash flows. These summary consolidated financial statements are derived from the audited consolidated financial statements of The National Gas Company of Trinidad & Tobago Limited and its subsidiaries for the year ended 31 December 2012 prepared in accordance with International Financial Reporting Standards.

## SUMMARY CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (Expressed in Trinidad and Tobago dollars)

	Stated capital \$'000	Attributable to Equity Holders of the Parent Reserve fund \$'000	Other reserves \$'000	Retained earnings \$'000	Total Total \$'000	Minority interests \$'000	Total equity \$'000
<b>Year ended 31 December, 2011</b>							
Balance at 1 January, 2011	1,855,266	438,192	2,199,489	14,966,743	19,459,690	440,154	19,899,844
Total comprehensive income for the year	-	-	571,473	4,342,209	4,913,682	265,421	5,179,103
Transfer of depreciation for offshore plant and equipment and pipelines	-	-	(389,543)	39,543	-	-	-
Dividends	-	-	-	(915,000)	(915,000)	(181,159)	(1,096,159)
Balance as at 31 December, 2011	<b>1,855,266</b>	<b>438,192</b>	<b>2,731,419</b>	<b>18,433,495</b>	<b>23,458,372</b>	<b>524,416</b>	<b>23,982,788</b>
<b>Year ended 31 December, 2012</b>							
Balance at 1 January, 2012	1,855,266	438,192	2,731,419	18,433,495	23,458,372	524,416	23,982,788
Total comprehensive income for the year	-	-	(214,084)	3,750,115	3,536,031	177,732	3,713,763
Transfer of depreciation for offshore plant and equipment and pipelines	-	-	(39,416)	39,416	-	-	-
Dividends	-	-	-	(1,500,000)	(1,500,000)	(253,423)	(1,753,423)
Balance as at 31 December, 2012	<b>1,855,266</b>	<b>438,192</b>	<b>2,477,919</b>	<b>20,723,026</b>	<b>25,494,403</b>	<b>448,725</b>	<b>25,943,128</b>





THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED

# Making Our Music Sweeter

The National Gas Company of Trinidad and Tobago Limited (NGC) is proud to support a Music Literacy Programme in which three promising steelbands are enrolled – Gonzales Sheikers Steel Orchestra which started on the road to music literacy in June, NGC Couva Joylanders and NGC La Brea Nightingales which followed in August. Since the company also sponsors police youth clubs in Couva and La Brea, and supports community interaction and cohesiveness, members of the youth clubs were also invited to enrol.

The music literacy programme seeks to help develop a formal understanding of musical structure and rhythms so that instead of just “beating pan”, members will be able to read sheet music and play a musical instrument. It will run for four months in Couva and Gonzales and five months in La Brea.

A combined 83 persons from Couva, La Brea and Gonzales will experience the exciting world of music literacy and the many possibilities it opens up.

Through our contribution, we are helping to fulfil the potential of talented musicians, bring communities together and further energize a country that marches to the beat of its own drum.

**NGC supports community and youth development through programmes in education, arts, sport and facilities development.**

[www.ngc.co.tt](http://www.ngc.co.tt)

# RESTORING the forest

**NGC's reforestation project in south Trinidad continues until 2015. How well has it worked?**

**N**GC's massive Cross Island Pipeline runs from Beachfield in southeast Trinidad for almost 77 kilometers across the south of the island to Point Fortin and La Brea on the southwest coast.

Fifty-six inches in diameter, it brings huge amounts of off-shore natural gas – up to 2.4 billion cubic feet a day – to Atlantic's LNG trains at Point Fortin for liquefaction, and to the Union and La Brea industrial estates.

On completion in 2005, it was one of the largest pipeline construction projects in the western hemisphere. Craig Weaver, vice president of Southeast Directional Drilling, one of the companies bidding on the project, was awestruck when he first saw the scale of it in 2003, and the terrain that had to be negotiated. He told the industry magazine *Trenchless Technology*, "No one had ever done this size before."

But industrial projects of this sort, wherever they are undertaken and however essential they are to national development, inevitably cause some degree of environmental damage. In 2003-5, 105 hectares of forest had to be cleared in order to lay the Cross Island Pipeline and the Beachfield Upstream Development Pipeline, which brings the gas ashore to Beachfield. Another 200 hectares were cleared to allow construction of the Union Industrial Estate at La Brea.

The challenge in such situations is to minimise the environmental impact, and to restore the natural balance as far as possible once the work is complete. The Environmental Management Authority's certificate of clearance for the pipeline project carried the stipulation that, whatever forest cover had to be cleared, an area of at least the same size must be reforested afterwards.

NGC, fully committed and active on the environmental front, already shared this "no net loss" principle. In fact, it went even further, and launched a ten-year community-based reforestation programme that would revitalise 315 hectares

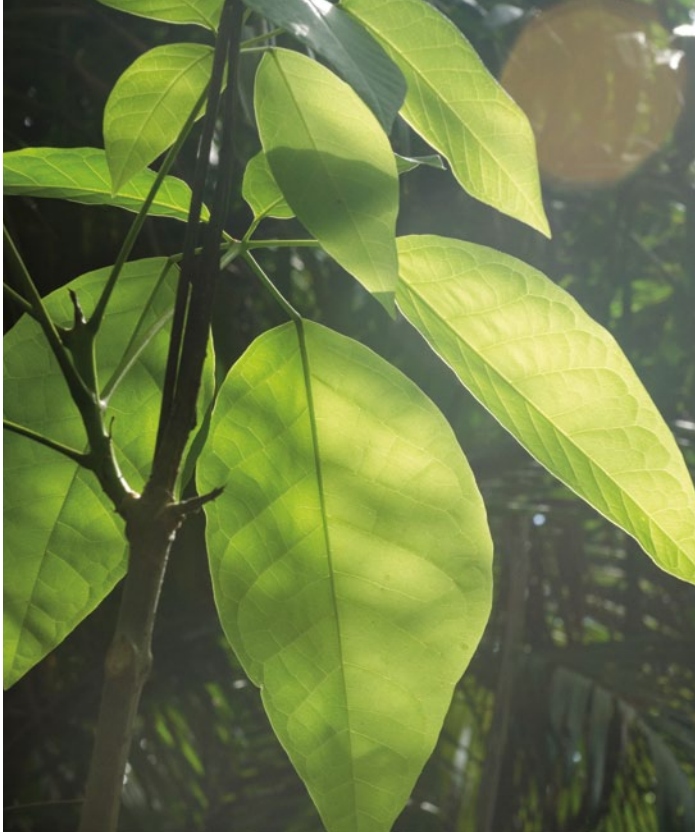
of critically degraded forest along the pipeline corridor, including 210 hectares in the Morne L'Enfer Forest Reserve near the Union estate.

Six separate locations for forest regeneration were selected, in consultation with the Forestry Division: Morne L'Enfer, Edward Trace, Grant's Trace, Mayaro, Guapo, and Rochard Douglas teak plantation. NGC worked closely with consultants to determine the right species for each area, and selected a range of trees for replanting, such as cedar, apamate, mahogany, crappo, and fruit trees like cashima and pommerac.

The programme began in 2006, soon after the Cross Island Pipeline was commissioned. By the end of 2012, over 143 hectares had been planted with nearly 32,000 closely monitored seedlings, and their mean survival rate of 91% was well ahead of the Forestry Division's target of 80%. In fact, survival rates had been high from the start: the very first audit, in 2007, found that 91% of the seedlings had survived in Guapo, 88% in Edward Trace, 86% in Mayaro and 90% in Grant's Trace. Seedlings which didn't make it into maturity were systematically replaced.







Part of the challenge, of course, was to protect the seedlings until they were strong enough to withstand natural and human disturbance on their own. They needed tending, monitoring and protecting from fire. This is where the nearby communities became closely involved.

Community consultation on issues related to the project – noise, dust, traffic, disturbance – were already a critical part of the programme. But communities along the route and close to the reforestation areas were drawn into the programme from the start, planting, tending and fire-tracing.

The plan is to establish 50-metre-square agro-forestry plots among the young trees, producing small crops and generating revenue and jobs for the local communities. This arrangement will help villagers buy in to the whole reforestation concept, actively safeguard the new forest, and develop and strengthen the conservation culture.

The reforestation programme – already in year eight of its ten-year span – has helped confirm what NGC has always maintained: that successful businesses must align their own interests and concerns with those of the nation as a whole, and especially with economic, social and environmental goals.

This is not only the right thing to do, but a choice that generates benefits for everyone involved: for the national economy through a well-managed industrial project, the communities close to the project through employment and regeneration, for the regenerated forest itself, and for NGC in fulfilment of its mandate.

NGC understands well that it has to be a “green” company, investing in environmental integrity and working within the spirit of the international environmental movement. Its competitors have made that choice. Any large corporation seeking to “go global” has to be concerned with its carbon footprint, with sustainability, with its ability to channel resources into local communities.

Its sense of corporate social responsibility is the critical platform that will take a company to respect and success in new markets, especially in areas where governments are struggling to deliver services to their populations. At home, the south Trinidad reforestation project has shown just how productive such an partnership can be.





## ONE MOMENT PLEASE

to reflect on the beauty that surrounds us in T&T

Pink poui trees bloom on the Savannah, Port of Spain, signalling the end of the dry season. *Photo by Chris Anderson*





**THE NATIONAL GAS COMPANY  
OF TRINIDAD AND TOBAGO LIMITED**