

45TH
ANNIVERSARY
AT THE FOREFRONT OF *Energy*

THE NGC GROUP OF COMPANIES
CORPORATE QUARTERLY JOURNAL

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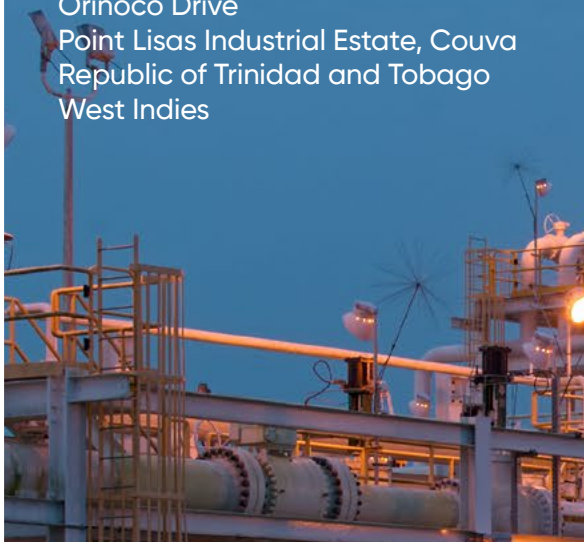
AT THE
FOREFRONT
OF ENERGY



45TH ANNIVERSARY COMMEMORATIVE ISSUE

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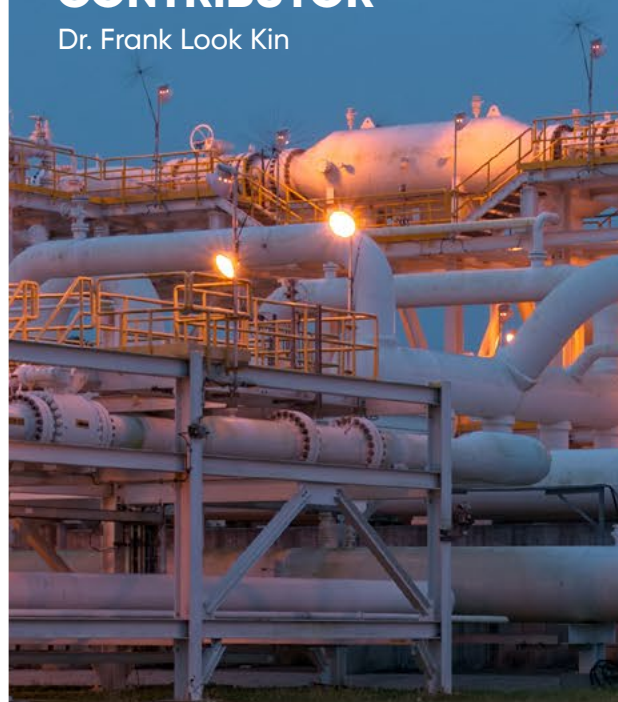
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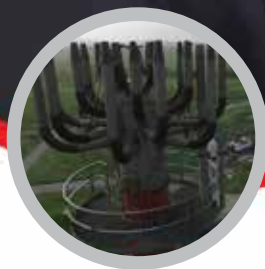
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**PRESIDENT'S MESSAGE****Mark Loquan****2020 marks the 45th anniversary of The National Gas Company of Trinidad and Tobago Limited (NGC).**

At this juncture in NGC's story, it is humbling to reflect on our growth over the past four and a half decades. What we have achieved, the values we have espoused, the wealth we have generated, cannot be overstated nor underestimated. When we consider the resources of the entire NGC Group relative to larger companies in other countries, it is extraordinary that we have managed to build a model for gas-based development that is globally acclaimed, and that our collective expertise is today a commodity of great value.



FORGING A **FUTURE** WORTHY OF OUR **FIRST** **45**

Our existence has helped shape the destiny of our country in ways we cannot compute. We have been central to the narrative of national development, and we will continue to play a leading role as we surge ahead into the future.

Pioneering years

The incorporation of NGC by the Government of Prime Minister Dr. Eric Williams on 22 August 1975, was undeniably the single most important decision in the development of the country's natural gas-based energy sector.

A historic public consultation was convened and a multifaceted taskforce assembled to evaluate investment proposals from companies interested in establishing gas-based industries in the country.

A major issue for the government was guaranteeing gas supplies to prospective investors and the need for an entity to administer contracts and transport and sell the gas to proposed gas-based plants.

This led to the birth of NGC.

Upon NGC's incorporation, the government formulated a new industrialisation policy, at the heart of which was the establishment of gas-based projects. Fuelled by natural gas, our oil-based economy was transformed within short years, as world-class, gas-based downstream industries germinated and prospered.

Four and a half decades later, NGC has evolved from being a midstream player to leading a group of companies, operating profitably along the entire energy value chain. The NGC Group now has the vision to become a formidable global energy brand of indisputable value to Trinidad and Tobago.

Our contribution to Trinidad and Tobago has been enormous – even immeasurable – as our natural gas resources have been purposefully used for economic development and social transformation, bringing the vision of 45 years ago to full fruition.

Evolution

Today, NGC's business model is changing in response to factors such as evolving markets and maturing gas reservoirs in the upstream.

Our disciplined and consistent approach to these challenges has been to develop NGC and the Group of Companies into an integrated global energy business with diverse paths to profit and sustainable growth, international competitiveness and global brand recognition.



To execute our strategies and treat with our immediate challenges, we have relied on vision and planning, operational excellence, a highly competent leadership and management team and of course, capable and dedicated employees.

And these resources have served us well.

We have deepened our participation in the local energy value chain, making investments and acquisitions in the upstream sector, expanding our portfolio into commodity trading and making inroads in the clean energy space.

Today, we are no longer relying solely on the product in the pipeline to generate revenue – we are monetising our 45 years of expertise.

As a state entity, we can proudly celebrate our expansion outside Trinidad and Tobago, where we are taking our knowledge to market. We have signed partnership agreements with state entities in Venezuela, Grenada, Jamaica, Ghana and Mozambique, Tanzania, Chile and the USA. We have signed an MoU with China to explore several avenues for cooperation relative to the oil, gas and energy industry. We intend to participate directly in Guyana's energy-based developments through subsidiary National Energy.

This is just the beginning of what we foresee will be an exciting new chapter in the NGC story – our next 45.¹

Recognition

There are many people who have been critical to the journey towards building the energy titan that is NGC. Some are no longer with us and we honour their memory. These include past leaders – of country and company; Boards of Directors; industry pioneers; energy sector leaders; and of course, our dedicated employees.

These people, many of whom will go unnamed and unsung in the annals of national history, will have nevertheless played an invaluable role in the journey we have made as a country. We salute their collective efforts, their individual sacrifices and the legacy they have created.

Today, even as we look ahead into an uncertain future, there are reasons to remain optimistic.

Our mandate – to utilise natural gas resources for the economic and social transformation of Trinidad and Tobago – remains as relevant as it did 45 years ago, and we remain as capable of delivering on it as we have proven to be over the last four and a half decades.

We commit to holding the NGC flag high, accepting the new challenges before us, and forging a future that is worthy of our first 45.

Mark Loquan

Mark Loquan, President

¹ Read more on page 52

Congratulatory Greetings

National Energy heartily congratulates its parent Company, The National Gas Company of Trinidad and Tobago Limited (NGC) on the celebration of its 45th anniversary.

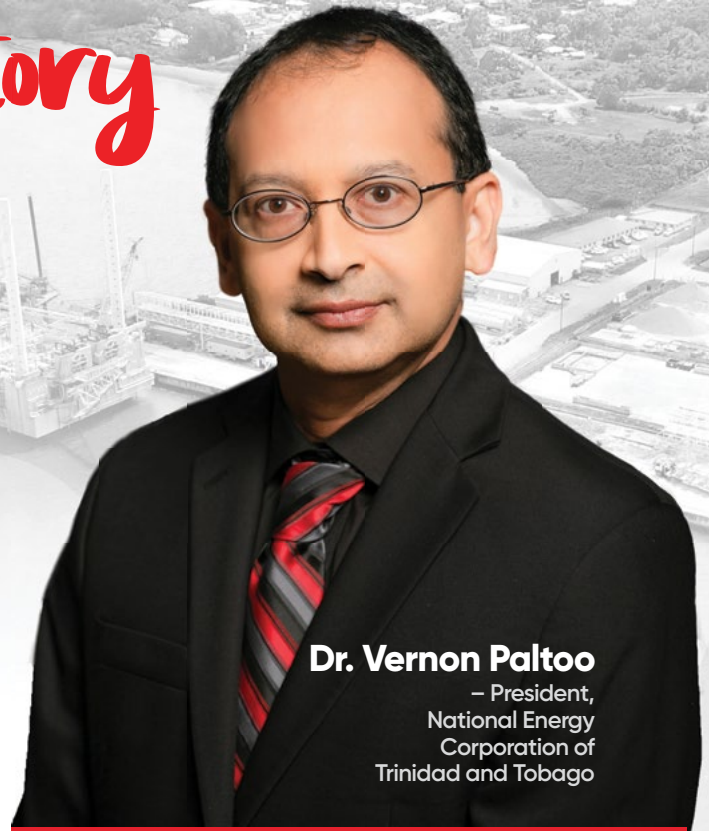
We applaud NGC's strong leadership and employees for their commendable work and commitment throughout this extraordinary journey.

NGC laid the foundation for the revolution of the country's industrial era, setting the platform for the establishment of a vibrant energy economy. From its early days of laying pipeline infrastructure and building a gas distribution network to incubate the globally acclaimed Point Lisas Industrial Estate, to its strides in diversifying revenue streams through strategic investments along the natural gas value chain, NGC continues to be a key contributor to the country's GDP. Through its success, NGC has touched the lives of many, embracing the tenets of good corporate citizenship, and making an invaluable contribution to the development of society.

National Energy is proud to be a strategic partner of NGC, as it grew from strength to strength, from a fledgling gas producer into an international energy player, and now becoming an integrated energy company along the entire value chain.

It is said: "Coming together is a beginning; keeping together is progress; working together is success."

National Energy is confident that its continued strategic collaboration with NGC will endure well into the future, building on the strong legacy of national pride, which we were fortunate to inherit from our predecessors. NGC has played a pivotal role in the facilitation of new energy-based and downstream industries in Trinidad and Tobago and National Energy assures of its continued efforts and dedication towards the realisation of our collective vision, to be a global leader in the development of sustainable energy-related business, through the embodiment of our core values.



Dr. Vernon Paltoo

– President,
National Energy
Corporation of
Trinidad and Tobago

In the face of an unprecedented pandemic and the resultant impact on the industry worldwide, we have leveraged our synergies to embrace and operate within the sphere of the new normal as part of a resilient and progressive NGC Group. Stronger together, we believe that we can overcome the challenges that lie ahead.

In furtherance of the NGC Group's mandate, National Energy will continue to work assiduously to ensure optimal marine and industrial asset availability, investment facilitation and project management delivery as we broaden the Group's service offerings in Guyana, Suriname and the wider Caribbean region. With steadfast faith, combined with our high-performing human capital and use of technological platforms, we will continue to deliver our primary mandate, the conceptualisation, promotion, development and facilitation of new energy-based and downstream industries in Trinidad and Tobago. With and in support of the NGC Group, we will continue focusing on a green economy, renewable energy, energy efficiency, and regional expansion of integrated energy services and investments.

National Energy

CORPORATION OF TRINIDAD AND TOBAGO

ON BEHALF OF THE MANAGEMENT AND STAFF OF NATIONAL ENERGY,
I CONGRATULATE NGC ON ACHIEVING THIS MILESTONE.

HAPPY 45TH ANNIVERSARY!

Congratulatory Greetings

Forty-five years have passed since The National Gas Company of Trinidad and Tobago Limited (NGC) was established to play a pivotal role in expanding Trinidad and Tobago's gas-based energy capabilities, particularly in gas transmission and distribution. As the Company celebrates its 45th anniversary, it is clear that NGC has grown to become a leader in the sector, standing proud and strong among international giants operating locally.

It is because of NGC that PPGPL was conceived to improve the quality of the natural gas supplied to the downstream sector. While PPGPL has brought value to NGC and the Group through its marketing, fractionating and gas processing capacity, and more recently the marketing, trading and transportation of natural gas liquids in Canada, USA and Mexico, its growth would not have been possible without the support of NGC as a major shareholder. When NGC purchased ConocoPhillips' 39% shareholding in PPGPL in 2013 and later offered a portion of the shares to the citizens through TTNGL, it underscored its commitment to national development.

NGC has forged a path of growth and development not just for itself, but for the people of Trinidad and Tobago. As NGC continues to expand and grow along the energy value chain locally, regionally and internationally, it promises to showcase what the Caribbean people have to offer the rest of the world as an energy sector global player.

Another part of being a global leader is going beyond in times of a global crisis such as the one we are all facing in 2020. NGC has shown that despite the challenges, its Group of Companies will continue to work towards the greater good. The Company has provided financial support to Government initiatives for the national COVID-19 response, to the community and to its employees. Forty-five years of building a robust culture of service to Trinidad and Tobago means that NGC is a living manifestation of the words of its mission - **"To create exceptional value from natural gas and related energy businesses through our people and strategic partnerships."** NGC has consistently treated the people of Trinidad and Tobago as a key strategic partner.

The Company's contribution to the economy; its laudable investment in culture, sports, education, and communities and its purposeful value creation through its subsidiaries National Energy, NGC CNG and PPGPL; all show how invaluable NGC is to the country.



Dominic Rampersad
– President,
Phoenix Park
Gas Processors Limited

We are confident that with growing strategic partnerships and NGC's continued focus on national development, wherever it operates, the Company will move to the next level of its development. So, on behalf of the management and employees of Phoenix Park Gas Processors Limited, I congratulate NGC and the employees, past and present, who have worked so diligently to achieve this milestone. You have spent the past 45 years fulfilling the dreams and vision of a nation, and we know that you will work tirelessly to ensure the company's continued growth, success and sustainability for the future.

**CONGRATULATIONS AND
HAPPY 45TH ANNIVERSARY!**



PHOENIX PARK
GAS PROCESSORS LIMITED

Congratulatory Greetings



45 and counting! The NGC CNG Company proudly congratulates our parent, The National Gas Company of Trinidad and Tobago Limited on its 45th anniversary of operations.

What started as a dream 45 years ago among Government officials and a small group of energy professionals has blossomed into the crown jewel of state companies. NGC has demonstrated phenomenal growth in the energy business over the years and has contributed substantially to the revenues of Trinidad and Tobago by maximising the precious resource of natural gas.

The management and staff, past and present, of NGC over the years should be very proud of the growth and achievements of the Company and the milestone of 45 years of contributing to Trinidad and Tobago. You have built the company through vision, hard work and service, navigating and adapting to the changing economic fortunes of our country and the industry.

NGC can hold its own with many of the massive multinationals globally and it is an amazing achievement that this success has been crafted right here in Trinidad and Tobago – by Trinbagonians.

For young energy professionals, NGC is high on the list of companies to be employed with and build a career.

NGC has also embedded itself into various aspects of national life in areas such as sport, culture and the arts, and can serve as a model for other national companies.

As NGC CNG with its strong environmental focus strives to build a CNG industry, we are heartened to know we can rely on the experience and expertise of NGC for significant aspects of our operation.

Several years ago, NGC accepted the responsibility of pumping new energy, expertise and funding into a floundering CNG programme, when liquid fuel prices were highly subsidised. This saw the establishment of NGC CNG Company Limited, which with the solid support of our parent and its staff, has made significant strides in the last seven years.

With NGC's support, NGC CNG has been able to more than triple the number of CNG vehicles on the road as well as sales of CNG at the pump. Our precious resource of natural gas is proving to be a lifeline for vast sections of the driving public, in a COVID-19 world where economic activity is depressed, and liquid fuel prices have been significantly liberalised.

Some say the toughest years in building a company are always the first, formative few. At NGC CNG, now in our seventh year of operations, we are encouraged by the achievements of NGC in maximising the use of natural gas and the benefits it brings to all strata of society from industry to manufacturing to the taxi driver.

The management and staff of NGC CNG extend our best wishes to NGC on the 45th anniversary milestone and we look forward to your pivotal role in Trinidad and Tobago's future development.



Curtis Mohammed

– President,
NGC CNG
Company Limited





45TH
ANNIVERSARY

AT THE FOREFRONT OF *Energy*

45

IN FORTY-FIVE

MAJOR CORPORATE MILESTONES

1975-2020



First commercial use of natural gas

The colonial authorities made natural gas available from land reservoirs as a low cost and environmentally-friendly fuel for the Trinidad and Tobago Electricity Commission's (T&TEC's) Penal Station.

Major AMOCO gas find

Gas demand grew, so Government turned to offshore sources for supply. In 1968, a natural gas province of significant potential was discovered off the south-east coast by AMOCO Trinidad Oil Company. This discovery gave impetus to the transition toward gas-based development.



Early pipelines

In 1977-78, a major 97 km/24-inch-diameter marine pipeline with a capacity of 400 million standard cubic feet per day (MMscf/d), was installed from AMOCO's offshore Teak field to Point Galeota.

Two landlines, one from Beachfield to Picton and a second from Picton to Phoenix Park were also installed.



Construction of 30-inch diameter marine pipeline

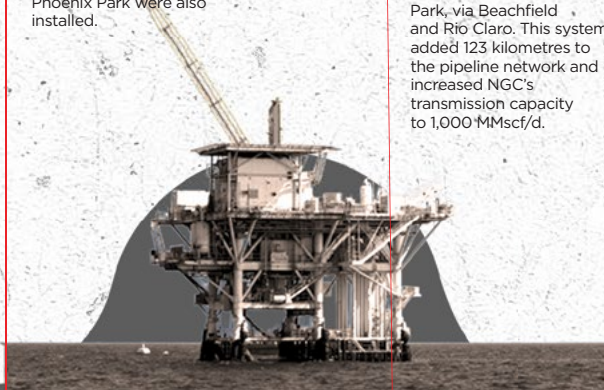
In 1982-83, a 30-inch-diameter marine pipeline with a capacity of 600 MMscf/d, was built from the Cassia offshore field to Phoenix Park, via Beachfield and Rio Claro. This system added 123 kilometres to the pipeline network and increased NGC's transmission capacity to 1,000 MMscf/d.

NGC/NEC merger

NGC was given an expanded mandate by the Government to be the 'prime mover in gas-based development' to facilitate and promote energy projects that would deepen and broaden gas utilisation. This new mandate required a strategic merger between NGC and NEC (now National Energy).

Major community relations programmes

NGC embarked on a programme under which the Company built or refurbished over 40 basketball courts and hosted a nationwide community basketball tournament. It also launched the Marine Environmental Awareness Programme (MEAP), offering training programmes in coastal villages.



1953

1963

1968

1975

1977-78

1979

1982-83

1989

1992



Construction of 16-inch diameter Penal to Port-of-Spain line

The T&TEC Power Plant in Port of Spain was converted to natural gas, which led to construction of a 16-inch-diameter line from Penal to Port of Spain. A distribution network began to grow off this line as demand for gas grew among small and medium enterprises along the pipeline route.



Birth of NGC

Government announced that The National Gas Company of Trinidad and Tobago Limited - a wholly owned State company with an authorised share capital of TT\$45 million - would be the sole seller of gas in Trinidad and Tobago. The Company commenced operations on August 22nd, 1975.



Formation of National Energy

On September 7, 1979, National Energy Corporation of Trinidad and Tobago Limited (then NEC) was established to "guide the development and management of oil, gas and other mineral resources of Trinidad and Tobago and to assist the Government in the formulation of energy and industrial policy and strategy."

Initiation of Flare Gas Conservation Project

NGC was mandated to put in place the infrastructure to capture, compress and bring to shore the natural gas which was being wasted through flaring. Two compression platforms were commissioned by NGC in the Teak and Pouli fields.



Incorporation of PPGPL

In 1989, NGC received government's approval to build and operate a natural gas processing plant through a joint venture with ConocoPhillips and Pan West. NGC's initial shareholding was 49%. This was the genesis of Phoenix Park Gas Processors Limited (PPGPL), incorporated in May 1989 and made operational in June 1991.

LABIDCO formed

In 1994, NGC, in a joint venture with Petrotrin (the site's former landowner), formed the La Brea Industrial Development Company Limited (LABIDCO), to build and manage an industrial site at La Brea. The site was chosen mainly for the natural deep-water harbour at the Port of Brighton.



First gas cooling application

In 1997, a large commercial centre became the first business in Trinidad and Tobago to use natural gas-fired air-conditioning.



NEC reoperationalised

In January 1999 NEC was reoperationalised as a separate subsidiary with responsibilities for providing and managing port and marine facilities at Port Point Lisas; the management of the La Brea Estate and adjoining port on behalf of LABIDCO, as well as the continued development of new industrial sites.



ALNG Train 1 completed - first LNG shipment

ALNG Train 1 was heralded as the first Greenfield LNG project to be developed in a small country in the Western Hemisphere in 25 years. In 1999, the country shipped its first LNG cargo.

100 LICs

In 2003, NGC reached the milestone of 100 customers in the Light Industrial/ Commercial/ Transportation sector.

First billion dollar profit

The NGC Group achieved a record after-tax profit of TT\$ 1.2 billion in 2003, the first time the Company crossed the one billion-dollar mark.

Introduction of SCADA system

In 2003, NGC implemented a Supervisory Control and Data Acquisition (SCADA) system, a critical milestone in the use of technology within NGC. The SCADA system of instrumentation was installed throughout the pipeline network, allowing the network to be monitored remotely from NGC's control room. Prior to this, monitoring of the pipeline network was undertaken by employees out in the field, using communication devices to call in data.



1993

1994

1995

1997

1998
-99

1999

2001

2003

Introduction of commodity-linked pricing

Product-related or commodity-linked pricing was a gas sales contract innovation developed and approved in 1988, and first used in 1993.

This mechanism is credited with facilitating the rapid expansion of downstream industry and is considered a critical component of the Trinidad Gas Model of Development.



Formation of ALNG

Atlantic LNG Company of Trinidad and Tobago (ALNG) was formed in July 1995 as an initiative of NGC and the Cabot Corporation.



Expansion of network

In 1998, AMOCO built two lines: a 40-inch-diameter offshore line from its Mahogany field to Beachfield and a 36-inch-diameter landline from Beachfield to Point Fortin. NGC purchased the right to transport gas through the offshore line and acquired ownership of the landline. In 1999, NGC built a 36-inch diameter landline from Beachfield to Point Lisas. NGC's personnel carried out the design, and construction of the NGC line in-house, and were involved in the design and engineering of the AMOCO lines.



HSSE milestone

In 2001, NGC achieved one million man-hours worked without a single Lost Time Incident.

First domestic fabrication for offshore platforms

BHP Billiton became the first company to build an offshore structure locally at the La Brea Industrial Estate's marshalling yard. The 25-acre Fabrication Yard was officially opened in December 2004 in time to also accommodate the fabrication of the jacket and topsides of the BPTT Canonball platform.



2004

Construction of the Beachfield Upstream Development (BUD) pipeline

The 36-inch-diameter BUD marine line was constructed in 2004. It served as the catalyst for NGC to deepen and expand its operations at Beachfield. The capacity of NGC's pipeline system increased from 1.4Bcf to 2Bcf in anticipation of higher demands by new gas-based customers.

Completion of the Cross-Island Pipeline

The Cross Island Pipeline (CIP) - a 77 km, 56-inch diameter onshore line - was built to transport gas to Atlantic LNG Train 4. Not only was this the largest single infrastructure project carried out by the Company, but CIP was among the largest natural gas pipelines in the world.

International credit ratings

NGC was awarded investment credit ratings of BBB+ from Standard & Poor's, A3 from Moody's and AAA from Caricris in 2005. This achievement was an acknowledgment of the Company's credit worthiness and strong operational position.

Launch of reforestation programme

NGC's large-scale reforestation exercise, launched in 2005, aimed to replant an area of forest equivalent to that cleared for the development of the Cross-Island Pipeline, Beachfield Upstream Development and Union Industrial Estate. This project was aligned to the Company's policy of achieving 'no net loss' from business operations.



NEO and Tobago pipelines completed

In 2011, NGC completed a 36-inch-diameter North-Eastern Offshore Pipeline (NEO), which runs southwards from the Angostura field to connect to NGC's network in Guayaguayare, and a 12-inch-diameter Tobago line, which runs northwards, ending in Lowlands, Tobago.

First international TSA signed with Tanzania

In 2011, NGC and National Energy signed a Technical Services Agreement with the Tanzania Petroleum Development Corporation for the provision of technical, legal and commercial advisory services. This was the first agreement executed to market Group services internationally and an important milestone in the Group's campaign to become a global energy player.



2011

2012

First gas to Cove Eco-Industrial Business Park

Cove is the first natural gas-based industrial state in Tobago. It includes a ground flare, the first of its kind in the country. First gas was received on the estate via the Tobago pipeline in 2012.

First direct LNG cargo marketing

On August 17, 2012, TTLNG - a subsidiary of NGC - loaded its first direct-sale cargo of LNG. It has since been marketing its cargoes directly to the global LNG market.



Network milestone

In 2013, NGC's network crossed the 1,000 km mark, including both and and marine pipelines.

PPGPL and TOTAL acquisitions

NGC increased its ownership of PPGPL to 90% in 2013, by acquiring ConocoPhillips' 39% stake. This was followed by NGC's purchase of the Exploration and Production (E&P) assets in the Angostura field of the France-based energy operator TOTAL Trinidad B.V., and Elf Exploration Trinidad B.V.'s 30% interest in Block 2 (c) and 8.5% in Block 3 (a) respectively.

Incorporation of NGC CNG

NGC CNG Company Limited was incorporated to accelerate and expand the use of Compressed Natural Gas (CNG) as a major, alternative, transportation fuel in the country.



2013



TTNGL IPO

The historic Initial Public Offering of shares in TTNGL - a subsidiary of NGC with shareholding interest in PPGPL - allowed citizens for the first time to invest directly and own stakes in the energy sector. The IPO was oversubscribed 1.77 times.



Carbon sequestration study

In July 2018, NGC commissioned The University of the West Indies to conduct a Carbon Sequestration Study to determine the carbon impact of NGC's reforestation exercise. The results showed that at the end of 2018, total carbon sequestered by the reforestation initiative was valued at just over TT\$1.5 million.



First Sustainability Report

In October 2018, NGC launched its first-ever Sustainability Report, to give account of the economic, social and environmental impacts of its business. This publication signalled a shift in organisational focus toward greater sustainability in operations and commercial activities.

Completion of Liquid Fuels Pipeline Project and Phoenix Park Valve Station upgrade

The Liquid Fuels Pipeline Project (LFPP) achieved 100% mechanical completion, while the Phoenix Park Valve Station (PPVS) received permission to flow hydrocarbons through the facility in 2018.

2019 First e-auction

As an innovation in the Procurement function, online and real-time reverse auctioning via the SAP Ariba platform produced substantial savings for the NGC Group.



First international office for NGC Group

National Energy (Guyana) Incorporated was established to pursue business opportunities on the ground in Guyana.



2014

2015

2017

2018

2019

2020

Port of Galeota

Phase 1 of the new Port of Galeota, built by National Energy on behalf of the government, was opened. The Port is intended to be a logistics hub for exploration and production companies on the south-east coast and operators in regional energy provinces.



TTNGL APO

Following the success of the IPO, an Additional Public Offering allowed further citizen investment in TTNGL. The public now holds 75% equity interest in the company.

PPGPL acquisition of Twin Eagle assets in the USA

Effective February 01, 2020, PPGPL through its wholly owned US subsidiary, Phoenix Park Energy Marketing LLC, acquired the NGL marketing assets of Twin Eagle Liquids Marketing LLC. Twin Eagle Liquids Marketing LLC is a Company based in Houston, Texas, USA and is engaged in the business of marketing, trading and transportation of natural gas liquids in Canada, USA and Mexico via rail.

Launch of EnergySmarTT app

An in-house team developed and launched the first local energy app aimed at raising consumer awareness around energy consumption patterns and the economics of switching to energy-efficient appliances.



2015-2019

Extension of internationalisation efforts



Between 2015 and 2019, the NGC Group signed partnership agreements with state entities in Venezuela, Grenada, Jamaica, Ghana and Mozambique, while advancing discussions on opportunities in Guyana, Chile, the USA and Tanzania. In April 2019, NGC signed an MOU with Beijing Rheingau Investment Corporation of the People's Republic of China, to explore cooperation relative to the oil, gas and energy industry, beginning with LNG marketing and trading.

NGC's Commercial Evolution





ngl

Natural Gas Liquids Ltd. Limited

A subsidiary of



THE TRINIDAD AND TOBAGO
STOCK EXCHANGE
LIMITED

75,852,000
Class B Shares
October 19, 2015



THE TRINIDAD AND TOBAGO
STOCK EXCHANGE
LIMITED



From Island pipeline to Integrated transnational

The presence of significant quantities of natural gas off the east coast of Trinidad in the early seventies coupled with newfound oil wealth derived from unprecedented increases in prices and production of oil were the primary drivers that led Trinidad and Tobago to embark on its resource-based industrialisation (RBI) strategy in the mid-1970s. The rationale for this strategy is perhaps best explained by the country's first Prime Minister – Dr. Eric Eustace Williams.



For Dr. Williams, instead of accepting the easy choice of exporting hydrocarbons in the crude state, Trinidad and Tobago (T&T) had accepted the challenge of entering the world of steel, aluminium, methanol, fertiliser, and petrochemicals.

The establishment of NGC (1975) and NEC (1978) (now a subsidiary of NGC) were key components of the institutional infrastructure built to pursue this industrialisation strategy. Since that time, NGC has been pivotal in the successful implementation of the RBI strategy and the growth of the natural gas industry in Trinidad and Tobago. What began as simply a piece of essential infrastructure to transport natural gas from supplier to consumer, has now evolved into an integrated energy group with local and international assets spanning the entire value chain. It is an intriguing story of both planned and emergent strategies working in combination to produce outstanding results.



Start-up capital of just TT\$80,000 has now grown into an asset base of over TT\$40 billion, making The NGC Group the largest locally owned company. The evolution of the Company and its business model can best be broken into four periods.

Early Years **1975-85**

In its early years, NGC was no more than a company charged with managing the critical pipeline infrastructure for bringing natural gas from the east coast to consumers on the newly constructed Point Lisas Industrial Estate. In fact, the White Paper on Natural Gas recommended NEC as the sole purchaser/seller of natural gas and NGC as a transmission company. However, by 1981, all pipeline assets were transferred to NGC. Its main assets comprised the pipeline system – two major cross-island pipelines, 24 and 36 inches, from the east coast to the Point Lisas estate, plus the 16-inch T&TEC line to Port of Spain which was inherited from Shell. By 1984, when all contracts were turned over, NGC became both monopsonist and monopolist of the natural gas market, in addition to its ownership of the pipeline – a natural monopoly. The foundation had been set for the Company to grow into a full-scale quasi-utility providing a bundled package of product and transportation services. The Company's asset base and its profit potential were enhanced by the development of the Flare Gas Conservation Project in 1982.



This project involved the installation of two offshore compression platforms – NGC Teak and NGC Poui – to capture, compress and bring to shore the natural gas which was being flared and wasted. The production of compressed natural gas, obtained at a much lower unit cost than purchased natural gas, enabled Government, through NGC, to supply low-cost gas to T&TEC which then passed on the savings to citizens in the form of the lowest electricity rates in the region. In 1982, as well, NGC signed its first 20-year gas purchase/sales agreement with AMOCO, thereby marking its entry into the gas trading business.

Transition **1986-91**

This five-year period may be described as the years of transition. NGC moved from being a passive recipient of Government policy directives to become the driver of gas based development.

T&T, like the rest of the oil-exporting world, faced an economic crisis of unprecedented proportions, post-1986, as oil prices fell sharply, foreign exchange reserves evaporated and both the external and fiscal balance fell into deficit. It was accompanied by the growth of new liberal economics and trade liberalisation policies that advocated the withdrawal of the state from direct involvement in economic activity.

The fiscal and forex crunch forced T&T into a Structural Adjustment Programme with the International Monetary Fund (IMF). In keeping with the tenets of liberal economics, the state sold its equity in Trinidad and Tobago Urea Company as well as the Iron and Steel Company of Trinidad and Tobago (ISCOTT). NEC was scaled down significantly. The depressed conditions in the petrochemical markets not only placed the future of existing investments in



doubt but also dampened the appetite for new investment at Point Lisas. It was in an effort to keep T&T competitive as a location for gas-based industrial development that the Government, on the recommendation of a special task force, adopted the policy position to introduce the product-related pricing mechanism (PRPM). This gave birth to one of the most significant policy interventions in the history of the business.

But while the general economic philosophy was for less state involvement, there was still the view by a few that the energy sector – a commanding force in the economy – was to be treated differently. Therefore, a deliberate policy was engaged to increase the proportion of hydrocarbon assets under the control of the state. Two major investments at the time resulted in a distinct change in the assets and business portfolio of NGC. The first was Phoenix Park Gas Processors Limited (PPGPL), in which NGC held the state's 49% equity. The second was NGC's equity participation in Trintomar – a company formed to operate the South East Coast Consortium (SECC). This investment was meant to provide NGC with its own supply of gas and at the same time, break the single supplier monopoly of Amoco. These deliberate investments saw NGC evolve for the first time into both the midstream and upstream business as an equity partner.

The Golden Years 1992-2010

For nearly two decades, Trinidad and Tobago witnessed unprecedented growth in the natural gas sector, which itself drove overall economic growth. When the new Government took office in 1991, one of its early decisions was the merger of NEC with NGC to form a powerful, integrated entity mandated by Government to be the

prime mover in gas-based development. The merged company expanded its value creation matrix by assuming several roles: merchant transporter, infrastructure property developer, and business developer. In many respects, the expanded NGC now became a one-stop shop for gas-based investments.

Two other policy decisions provided stimuli for growth over the coming period.

1. The introduction of the product-related pricing model – the PRPM links the price of product to the price of the commodity, placing NGC the merchant in a position to directly share the market risks with its petrochemical customers.
2. To broaden the range of investment possibilities, the Government removed a long-standing ban on the export of natural gas as LNG.

The mandate given to the Company at the time of the merger was reflected in its first Strategic Plan 1994-98. Then, the Company crafted and embraced a vision:

“To position Trinidad and Tobago as a major player in the global natural gas business.”



In pursuit of this vision, NGC adopted an aggressive marketing thrust focused on the key value proposition attributes of competitive price, strategic location, and resource availability.

Market promotion included trade missions and conferences both at home and abroad. NGC partnered with the Gas Technology Institute to host six Natural Gas in the Americas Conferences between 1994 and 2002, each introducing new players to Trinidad and Tobago. NGC's proactive strategy extended to business and infrastructure developments. Three significant initiatives stand out.

NGC was highly instrumental in the coming to fruition of Atlantic LNG Train 1. NGC played a unique role in the negotiations for Train 1 as the only one among the equity partners to solely represent the interest of the state in negotiations with the supplier (Amoco) or the LNG buyer (Cabot). NGC also took a 10% equity position in the Train 1 investment. Secondly, when in 1993 a gas shortage loomed as a result of the loss of gas volumes from Trintomar, it was NGC's direct engagement of ENRON (now EOG Resources) that resulted in the

company being able to fill the gap. In the downstream sector, both Farmland and NUCOR were actively courted to invest in Trinidad and Tobago. This period also witnessed the expansion of the pipeline network and the establishment of new industrial space in Point Lisas North, La Brea and Union. In 2010, the Company was executing over TT\$7 billion in capital projects. The strategy pursued by NGC brought a wave of foreign investment into the sector thereby stimulating exploration in the upstream and increasing the proven resource base.

By 2010, the industry landscape had changed significantly. Trinidad and Tobago had seven methanol plants, 11 ammonia plants, one urea plant, one AUM plant and four LNG trains. Trinidad and Tobago was well-recognised in the global arena as the world's leading exporter of both ammonia and methanol and the fifth-biggest exporter of LNG, with the largest slice of the US market. The vision of Trinidad and Tobago becoming a major player in the global gas business had been achieved.

Value Chain Expansion 2011-Present

The global financial crisis of 2008 took its toll on the direction of the gas business. In the aftermath of the crisis, a combination of high capital costs, higher gas prices, and unfavourable market dynamics brought investment in new downstream plants to a virtual halt. Construction of the aluminium smelter – (Alutrint) had started, only to be cancelled by the new Government in 2010. Prior to that, a long list of planned projects, including steel, polypropylene, ethylene, and maleic acid, never came to fruition as investors pulled out. These were the early manifestations that the market dynamics were changing.

With the vision of placing T&T on the global energy map being achieved, NGC turned its strategy inwards, becoming more focused on the long-term sustainability of the organisation. It became evident that NGC had to diversify its sources of income as the margins earned from the merchant business were forecast to shrink over time. Expansion along the value chain was now an urgent imperative. In 2010, NGC embraced a new vision **“To be a valued partner in global natural gas business.”**

Local and international growth and asset integrity were among its strategic pillars. The growth priority targeted strengthening participation in other areas along the local value chain, and deepening integration into all facets of the gas business. Local and international growth and asset integrity were among its strategic pillars.

The growth priority targeted strengthening participation in other areas along the local value chain, and deepening integration into all facets of the gas business. Some significant strides were made in this priority area. Strong commodity prices over the period 2011 to 2014 provided the Company with the capital to make some strategic investments along the value chain.

These included

- Acquisition of the upstream assets of Total in the Angostura marine field (2013)
- Acquisition of Petrotrin’s 20% interest in Block 1.
- Acquisition of the shares of Conoco and Pan West to become 90% owner of PPGPL. Citizens were given the opportunity to invest and earn in this venture through the public offer of shares in TTNGL, a company incorporated to hold a 39% stake in PPGPL.

NGC began trading its own cargo thereby increasing the value from its processing capacity rights in Atlantic Train 4.

Since 2015, the natural gas business locally and internationally has been hit by some disruptive developments which have threatened the sustainability of NGC.

These include gas curtailments, supply shortages, relatively high upstream prices in contrast to falling international prices, low commodity prices and plant closures. In part, these developments provided a string of evidence of a maturing natural gas sector. In the circumstances, it was imperative that NGC recalibrate its business model to move beyond the merchant/transporter role both inside and outside T&T's borders to ensure its long-term stability.

By leveraging synergies across the Group, significant strides have been made in the growth imperative.

Some important achievements of the Group include:

- 20% equity participation in Caribbean Gas Chemicals Limited
- Expansion of the Commodity Trading desk to include crude oil and LPG in addition to its growing LNG trading activities
- Purchase of the LPG marketing business of Twin Eagles Liquids Marketing LLC – representing the Group's first ownership of an operating entity in the US market.
- A historic LNG agreement with China
- Establishment of a corporate office in Guyana

These advances are yet to impact the bottom line in a measurable way. However, they represent **important foundation blocks on which a strong and sustainable future can be built.**



**GROW LOCALLY
AND INTERNATIONALLY**

The Strategic Plan 2016-20 set the path forward. In response to the threats and opportunities in the business environment, the NGC Group strategy was predicated on four pillars:



**DEVELOP THE
ORGANISATION**



**SECURE THE
CURRENT BUSINESS**



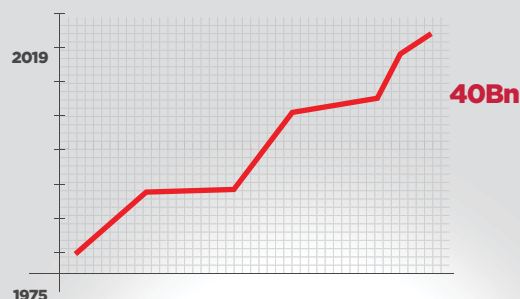
**STRENGTHEN
NATIONAL
CONTRIBUTION.**

THE

NUMBERS BEHIND THE NAME

Over its 45 years of existence, NGC has built up an impressive record of performance, growth and impact. These are some of the outstanding numbers behind its name.

- 1.** NGC's direct contribution to government via taxes and dividends (in nominal terms) amounts to approximately **TT\$40 billion** from 1975 to 2019.¹



- 2.** In its 45 years, NGC has been **consistently profitable**. The Company has recorded **billion dollar profits before tax in 16 out of the past 17 financial years**.

3.

**TT
\$40
BILLION**

NGC started with a capital injection of **TT\$80,000** in 1975, and has grown its asset base to just over **TT\$40 billion** in 2019 (inclusive of NGC Group subsidiaries and investments). This represents growth of almost **50,000,000%**.



- 4.** Over its 45 years, NGC has built and managed a pipeline network spanning **1,000km**. That represents **enough pipeline segments to line the coasts of Trinidad more than 2 times**.

- 5.** In the course of constructing its network, NGC invested billions in pipeline infrastructure development. Its **biggest capital investment for a pipeline project was US\$550 million**, spent on the North-Eastern Offshore Pipeline - **more than 1.2 times the total amount spent on pipeline projects in its first 25 years (approximately 450 million)**.²



6.

The Company has maintained a legacy of **99.9% reliability** in its supply of natural gas to its customers – a world-class reliability record. In March 2015, NGC's gas transmission and distribution operations were recognised as **World-Class and Best-in-Class** by Marsh Risk Consulting, one of the largest insurance brokerages in the world.



- 7.** In NGC's early years, gas sales to customers amounted to 370 mcf, which resulted in sales revenue of **TT\$180,000**. In 2019, NGC sold over **TT\$1 billion** worth of gas.³



8.

NGC has either full or partial ownership stake in **32 companies** - collectively referred to as the **NGC Group of Companies**.



THE NATIONAL GAS COMPANY
OF TRINIDAD AND TOBAGO LIMITED



PHOENIX PARK
GAS PROCESSING PLANT



NGC GAS
COMPANY LIMITED



National Energy
CORPORATION OF TRINIDAD AND TOBAGO

THE NGC GROUP OF COMPANIES

9.

The Flare Gas Conservation Project allowed government to keep the cost of electricity relatively low. Over the project's lifetime, just under **one trillion cubic feet of natural gas**, having an estimated value of **US\$3 billion**, was captured and utilised for the benefit of the nation.⁴



10.

NGC's list of customers has grown from **fewer than 20** heavy and light industrial/manufacturing concerns in 1976 to **116 active customers in 2020**.

11.

NGC contributes to the economy not just through payments to Treasury, but also through engagement of local suppliers for goods and services. Over **800** vendors are prequalified to work with NGC.



12.

Since inception, NGC has hired close to **3,700** employees, 100% of whom have been nationals of Trinidad and Tobago. This underscores the fact that NGC's tremendous success in building an international profile for local energy has been achieved using **local talent and expertise**.



13.

In 1980, **fewer than 1 in 4 leaders at NGC were female (22%)**. In 2020, with around 37% of staff female, **nearly half of all leadership roles are filled by women (46%)**. This shows strong female representation at the higher levels of the Company.



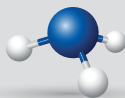
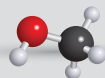
14.

NGC is committed to developing its human capital. **Over TT\$80 million** has been spent in technical and non-technical **training interventions** for staff in the past two decades alone.



15.

Trinidad and Tobago holds just about **0.002% of global gas reserves** (2017 est.) yet has been able to use its natural gas to grow **world-scale industries**, through the work of the NGC Group. The country has been the **leading methanol exporter since 2003**,⁵ and a **top 5 ammonia exporter since 1995**, ranking **#1** for 17 of those years.⁶



16.

The NGC Group collectively has facilitated the growth of downstream industries. Over the last 40 years, Trinidad and Tobago was able to attract roughly **US\$11 billion in foreign direct investment (FDI)** for metal processing, ammonia, methanol, urea, LNG and other niche downstream gas-based products for the export market.⁷

In the past two decades alone, the **LNG, petrochemical and metals sectors have contributed significantly to GDP, with over TT\$250 billion in output**.⁸

17.

Since the start of its reforestation exercise in 2005, NGC has **planted over 13,000 trees, which have sequestered over 8,000 tonnes of carbon dioxide from the atmosphere**. Approximately **6,000 hours**⁹ worth of work was created for site communities during this programme.⁹

18.

The NGC Group allowed citizens to hold ownership stakes in the energy sector for the first time in history through the TTNGL Initial Public Offering (IPO) in 2015 and subsequent Additional Public Offering (APO) in 2017. The public's shareholding represents an **almost 30% effective ownership interest in the underlying asset, PPGPL**.

TT\$1 billion has been paid as dividends to TTNGL shareholders since 2015.¹⁰

19.

The Compressed Natural Gas (CNG) business in Trinidad and Tobago, through wholly owned subsidiary NGC CNG Company Limited, has generated close to **TT\$870 million in economic activity from 2014 to the present**.¹¹

Since 2014, almost **20,000 tonnes of CO₂ emissions have been avoided** through displacement of petroleum fuels with CNG.



¹ https://ngc.co.tt/wp-content/uploads/2018/11/2015-08_gasco-news_40th-anniversary-commemorative-edition.pdf#page=32

² https://ngc.co.tt/wp-content/uploads/2018/11/2000-07_gasco-news_vol13-no3_ngc-celebrates-25-years.pdf#Page=5

³ https://ngc.co.tt/wp-content/uploads/2018/11/2005-08_gasco-news_30th-anniversary-commemorative-edition.pdf#page=4

⁴ <https://ngc.co.tt/wp-content/uploads/pdf/publications/NGC-40Key-Facts.pdf>

⁵ Argus Media

⁶ <https://oec.world/en/profile/hs92/62814>

⁷ <https://ngc.co.tt/wp-content/uploads/2019/11/gasco-news-oct-2019-vol29-no3.pdf#page=13>

⁸ <https://ngc.co.tt/wp-content/uploads/2019/11/gasco-news-oct-2019-vol29-no3.pdf#page=13>

⁹ <https://ngc.co.tt/wp-content/uploads/2020/01/NGC-Sustainability-Report-2018.pdf>

¹⁰ https://ngc.co.tt/wp-content/uploads/2020/07/ngl_annual_report_2019.pdf

¹¹ https://media.ngc.co.tt/wp-content/uploads/2020/09/2020-09-23_article_on-the-road-with-cng.pdf

Commemorating

15 years of NGC's Cross-Island Pipeline

CONTRIBUTOR: DR. FRANK LOOK KIN

In addition to commemorating its 45th anniversary in 2020, The National Gas Company of Trinidad and Tobago Limited (NGC) simultaneously marks the 15th anniversary of the completion of the Cross-Island Pipeline (CIP). This pipeline was constructed over the period 2002 to 2005 and it was the largest and most expensive infrastructure project undertaken by NGC at that time in its history. At 56" in diameter, it represented the largest diameter natural gas pipeline in the Western Hemisphere at the time.



In 1967, Pan American Trinidad Oil Company (then Amoco Trinidad Oil Company, and now known as BP Trinidad Oil Company) drilled its first exploration well OPR2, which discovered substantial oil and natural gas resources in Trinidad's East Coast Marine Area. This success was followed by other discoveries of non-associated natural gas and by 1972, over 10 trillion cubic feet (tcf) of natural gas was identified. The company sought to find markets for this gas. This led the Peoples Gas Company of Chicago to suggest an export project to convert natural gas to LNG for market in the Mid-Continental United States in 1972.

Dr. Eric Williams, the first Prime Minister of Trinidad and Tobago, scuttled that project in favour of an alternate programme to develop gas-based industries using natural gas as a fuel and raw material over the next two decades. With the country having abundant natural gas resources over and above that required by domestic industries, the Government approved the development of the first LNG train in Point Fortin in 1996. This was followed by two other LNG trains by 2002, with gas utilisation at 1,550 mmscfd. The other 45% of gas produced was utilised in power generation, ammonia and methanol production and other domestic industries.

In 2002, with proven gas reserves of 21.3 tcf and 8.2 tcf in the probable and possible category, Atlantic LNG shareholders contemplated a fourth LNG train and possibly, further trains. An 800 mmscfd train would have the advantage of economies of scale in plant construction and be competitive with other LNG exporting countries. Atlantic LNG shareholders initiated development concepts for pipeline infrastructure to transport gas from the East Coast Marine Area to Point Fortin. Negotiations among the members were protracted with consideration of three pipeline sizes - 36", 48" and 56" - as well as related capital costs, pipeline capacities, rate of growth of gas demand and the number of additional LNG trains.

A 56" pipeline was considered the most capital efficient - 50% more efficient with three times the throughput

capacity compared to a 36" line. However, there were limitations. Only five steel mills manufactured this pipe size, few pipeline contractors had the requisite capability and there were concerns about the impact of construction with wide turns, wide trenches and heavy loads on the environment and infrastructure along the pipeline route.

In November 2002, NGC - the smallest of a five-member consortium - presented a proposal to build and operate a 56" pipeline to Point Fortin. This proposal was met with

scepticism that NGC could undertake this project with limited experience in pipeline construction of such large scope and managing an estimated US\$189 million project.

Eventually, however, the recommendation was made that NGC as the state company in the consortium should construct, own and operate the 56" pipeline.

This was a momentous and historic decision, for it demonstrated Government's confidence in NGC's

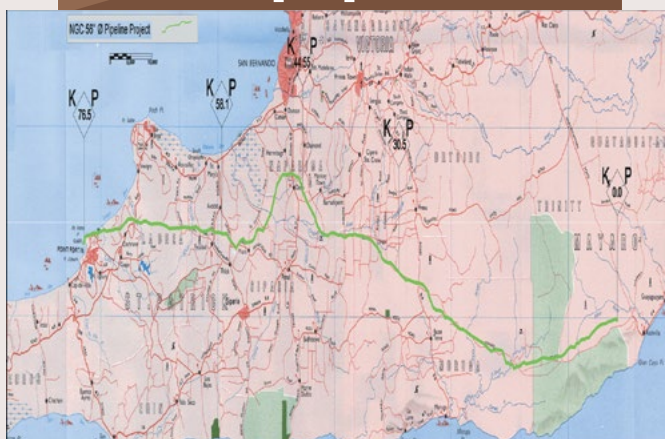
management and technical capability. In 2002, NGC operated three CIPs - the 24" built in 1978, the 30" built in 1982 and the 36" inch built in 2000, with a total of 423 km of large diameter pipelines.

The new project - a 76.5 km long 56" pipeline with a capacity of 2.4 billion cubic feet per day (bcfd) - was a major challenge for NGC. It involved procurement of 56" diameter pipe and fittings, pipeline construction and testing and the borrowing of over US\$200 million within three years. While NGC was delighted by this decision, there was apprehension as this would be the most difficult and challenging project to be undertaken by the Company in its 27-year history. Then Chairman of NGC, Keith Awong accepted the challenge and declared that "failure was not an option". NGC had to complete the pipeline construction ahead of the Train 4 LNG plant completion otherwise it could face penalties for non-completion.

Project design

The first crucial decision was incorporating the Atlantic LNG pipeline team as part of the organisational structure to undertake this project. Clarence Harnanan

The Origin of the 56" pipeline





Vice President, Group Technical Operations – was appointed as NGC’s project manager, and Ian Cansfield had responsibility for Operations, Construction, Engineering, Contracts and HSE. In February 2003, NGC formed the NGC Pipeline Company Limited (NPCL) to own the CIP and insulate the Parent from potential liabilities of the pipeline company.

The next step was pipeline design. The pipeline was designed to conform to Ministry of Energy standards which adopted the US Code of Federal Regulation 49 CFR 192, the minimum Federal safety standard for transportation of natural and other gas by pipeline. The pipe material was API 5L X70 carbon steel pipe, with different wall thicknesses to meet three class locations as follows:

- **Class 1: 56.7 km with wall thickness 0.708”**
- **Class 2: 4.4 km with wall thickness 0.825”**
- **Class 3: 15.4 km with wall thickness 0.965”**

The design took into consideration construction challenges in areas where conventional techniques could have major environmental impacts, such as rivers, wetlands and marshes. In these areas, a less invasive process was proposed for laying pipe – Horizontal Directional Drilling (HDD).

This was a trenchless technology adopted from the oil well drilling industry. It involved drilling a pilot hole using a special slant rig, then enlarging the hole to about 72” to accommodate the 56” pipe. The pipe string would then be “pulled back” through the hole to the starting point.

This technology allowed for the burial of the pipes far below the normal depths of conventional crossings. It would be used to cross the environmentally sensitive Oropouche River, Guapo River and Clifton Hill Beach. A total of 2.1 km of HDD was planned with the deepest point being about 100 feet below the surface.

Another challenge was the Right of Way (ROW). NGC had to ensure that the pipeline corridor was available, otherwise, it would face claims for delays from the contractor. A detailed review of the ROW which contained the 24” and 36” pipelines existing revealed that in order to have adequate construction space, some 18 hectares of additional corridor lands had to be acquired, and 39 household structures purchased.

Safety and Environment Planning

One of the special features of this pipeline was the use of five mainline valve stations, which would allow for depressurisation of only a section of the line in the event of a pipeline leak. The other standard pipeline construction requirements such as coloured tape above the top of the buried pipe, pipeline identification at crossings, and evenly-spaced markers were included as safety features.

The pipeline was designed with an extra 0.25" of wall thickness as a corrosion allowance and internal and external coating of 3mm fibre-bonded epoxy (FBE) protection. In addition, cathodic protection was added externally to preserve pipe integrity. Special ultrasonic flowmeters were installed at Beachfield and Point Fortin to detect leaks. The entire pipeline would be continually monitored by a SCADA system.

During pipeline construction, a total of 85 hectares of forest was cleared in the Victoria/ Mayaro, Rochard Douglas and Morne L'Enfer forest reserves. In accordance with the Company's "no net loss" policy, NGC initiated a programme to reforest portions of critically degraded forest within 2.5 km of the pipeline corridor. This programme was implemented with the assistance of an experienced silviculture consultant. It would be executed in collaboration with the Forestry Division and nearby communities, with limited employment opportunities for planting and caring for the new forest.

Procurement of Pipe

The procurement of pipe was one of the next major tasks for the project team. Bids were invited from four mills, with Europipe GmbH having the lowest bid, and the most competitive offer in the major areas of consideration: coating cost with FBE, transport cost for delivery at Point Lisas or La Brea and export credit financing costs. A contract worth US\$44,454,800 for coated pipe to be delivered to the La Brea port was signed with Europipe GmbH in July 2003.

It was indeed a very proud and momentous day for NGC when the first shipment of pipe – 657 pieces weighing 6,627,238 kgs – arrived at the La Brea/Brighton port on the 'MV Marissa Green' from Germany on 15 September 2003. It is warmly recalled that two members of the shareholder companies observing the unloading of the pipe exclaimed that they never believed the pipe would arrive for the project.

This was the first major hurdle crossed. NGC had demonstrated that it was capable of managing this project and gaining the confidence of Atlantic LNG shareholders. For then Chairman of LABIDCO, Clarence Mitchell, it was a significant day as it represented the first major commercial activity for the expanded port and estate after the struggle for recognition as an industrial port and estate.

Selection of the Construction Company

The third major task was the selection of a construction company. The project anticipated pipeline construction taking place over two years, with the recognition that Trinidad's rainy season could severely affect the heavy earth-moving, trenching, welding and backfilling construction activity. On 22 April 2003, tenders were invited from six international pipeline contractors. Bids received ranged from US\$65 to US\$109 million.

The tenders were evaluated by a team of NGC personnel in conjunction with NGC's Engineering and Project Management consultants – Kellogg Pan American Corporation. The evaluation process involved analysis of commercial, technical and contractual terms and conditions. In addition, there was a consideration of local content, training and community relations proposals.

The Board selected Bechtel International Inc., with the sum of US\$69,318,585, as the preferred supplier at a special meeting on 15 August 2003. Bechtel had promised US\$30 million in local content and identified API Pipeline Construction Company as the main local sub-contractor.



This contract had terms that were unusual for the industry as it allowed for adjustment in contract price if there was an increase in the minimum wage of construction workers in the energy sector. As a state enterprise, there was a requirement for understudy for expatriate employees in this project. NGC also had the right to audit for monitoring wages, training, local content and community relations.

Construction of Pipeline

Construction commenced on 5 January 2004 with clearing and grading of the ROW.

One of the first issues in the construction phase was the logistics of getting 6,500 lengths of 56" pipe, fittings and other construction materials to the ROW in a timely manner. There were laydown yards in Siparia, Monkey Town and Rochard Douglas in addition to La Brea and Beachfield. The pipes varied in weight from 7.5 to 10.2 tonnes each, depending on wall thickness. The trucks could only carry up to two pipes per truckload, bearing in mind the weight-bearing capacity of bridges and the rural roads. Also, because of truck size and the number of truckloads – about 500 per month – there were concerns about road congestion, noise and dust which would cause inconvenience to other road users and the community.

As a result, the Department of Highways helped coordinate traffic. The movement of pipe was spread over 17 months, from November 2003 to March 2005, in a total of 8,900 truckloads. Construction commenced on 5 January 2004 with clearing and grading of the ROW.

The first of the three horizontal directional drills commenced on 19 January 2004 at Guapo River and was completed in June 2004. The technical challenges in the HDD included maintenance of hole stability; avoidance of kinking of the pipeline; and getting the pipeline in neutral buoyancy. The latter meant ensuring the pipeline did not drag on the bottom or float to the top, causing damage to the pipeline coating or causing the pipeline to get stuck in the hole, which would have led to abandonment of the HDD. The success of the three HDDs is noteworthy especially with this large diameter pipe, given the industry experience that one in three HDDs has to be abandoned.

With 6,500 joints, it was projected that welding could be completed on the long spreads during the first dry season. While the preferred method to join the pipes was automatic welding, it was recognised that there must be significant local content in this project. However, there had to be a balance between manual welding which would require two man-days of welding per joint and

automatic welding which would require two to three hours per joint. Peak employment was projected to be 450 persons during the first dry season and about 225 in the second dry season. Instead, recruitment reached some 665 personnel during the first quarter of 2004 and up 1,150 in 2005.

The first dry season was unseasonably wet. The first major work stoppages occurred on 20 February 2004, when striking workers from the Train 4 construction site forced the closure of construction work on the pipeline. This strike continued for 11 weeks, causing major disruption in the completion schedule. It was eventually settled through the intervention of Minister Lenny Saith who got the parties together and hammered out an increased wage solution by 6 May 2004. Bechtel increased hourly wages, introduced attendance allowances, overtime premiums and safety incentive bonuses. At the end of May 2004, the projected completion milestone of 67.6% was not reached – actual progress was only 22.3%.

To get back on schedule, Bechtel requested US\$57 million to meet the original target completion date otherwise they projected completion by the dry season of 2006, with the increased cost of US\$50 million. NGC considered many options, including termination of the Bechtel contract and holding discussions with another supplier to complete the project. In addition, NGC sought the assistance of a claims consultant to examine and advise on Bechtel claims.

In July 2004, NGC claimed force majeure and held negotiations with the pipeline shippers, seeking a financial contribution to offset the Bechtel claim. Initially, the shippers offered one-third of the Bechtel claim with a cap of US\$10 million. After negotiation, Bechtel reduced their claim to US\$35 million. In August, the LNG shippers agreed to finance US\$15 million by increasing Bechtel's completion bonus per mscf produced from the early completion date to the projected date had the acceleration not been implemented.

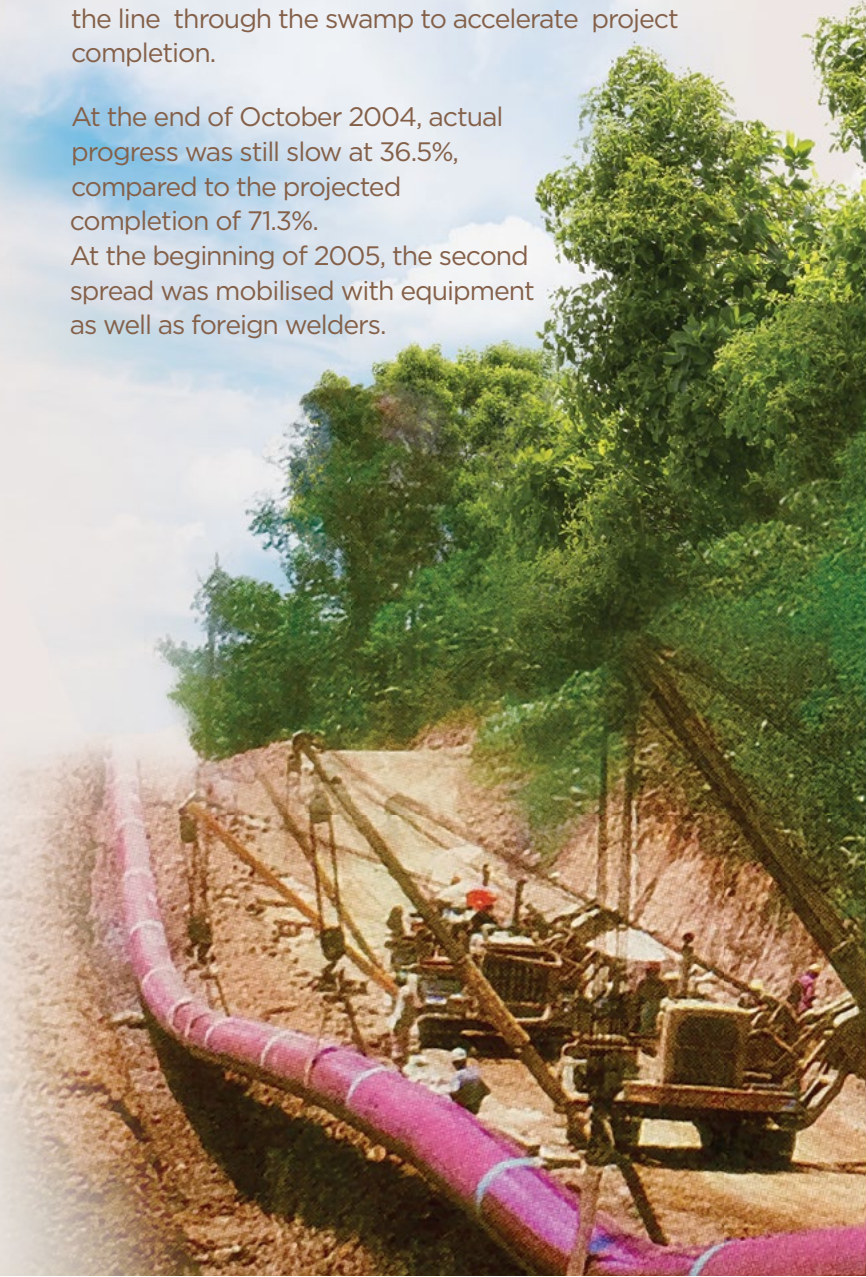
As part of the acceleration programme, Bechtel agreed to add a second spread at the start of the 2005 dry season.

Also, the work week was extended to include Sundays and night-time work where safe and productive was also added to increase productivity.

In the design of the construction work through the swampy areas in Oropouche, Bechtel had bid on the basis of using screwed anchor and concrete coating for buoyancy control to prevent the 56" pipe from 'floating' up to the surface in the rainy season. However, the production rate of drilling the anchors and placing concrete collars around the pipeline was very slow, and it would have taken months to lay the pipeline through the swamp. NGC considered the alternate solution of using 'Sak-weights', essentially polyethylene bags filled with heavy iron ore fines placed as a saddle on the pipelines to weigh them down. NGC agreed to implement this simple and speedy solution for laying the line through the swamp to accelerate project completion.

At the end of October 2004, actual progress was still slow at 36.5%, compared to the projected completion of 71.3%.

At the beginning of 2005, the second spread was mobilised with equipment as well as foreign welders.



By April 2005, there were revised projections of the available-for-service date, with the optimistic forecast of September 2005 but a more realistic projection of mid-December 2005 based on the rate of progress.

In November 2005, the pipeline was cleaned and gauged and the final golden weld was completed on 17 November 2005. After pressure testing and dewatering, the pipeline was filled with nitrogen on November 23, followed by first gas fill of 207 mmscf at 750 psi on 25 November 2005. The pipeline was ready for service on 1 December 2005. On 17 January 2006 the pipeline was certified for service by Det Norske Veritas, meeting the requirement of the Ministry of Energy.

Public Relations Activities

Following the decision to build this pipeline, NGC developed an extensive Public Relations programme to ensure that there was public support for this major infrastructure project. Presentations were made to the Standing Committee of Energy, the South, Trinidad and Point Fortin Chambers of Commerce, as well as the Permanent Secretaries of various Ministries to sensitise them about the project in terms of safety and environmental concerns, job creation, procurement opportunities for suppliers, challenges during construction and economic benefits to the nation. Consultation meetings were held with residents of various villages that would have been affected by the construction activities in terms of damage to roads from heavily loaded trucks, road closures and general construction activities. The pipeline route design anticipated 57 road crossings. The contractor used 38 open cut trenches across the road while the remaining 19 crossings were made using simple boring under the road. At the end of the project in 2006, NGC resurfaced roads that were affected by the project, sporting facilities were improved or newly built for some villages, and physical improvements were made to some schools. Enhanced community relations were developed so that in the event of any incident relating to the pipeline, the communities would advise NGC for corrective actions to be taken. The Company allocated \$500,000 to provide educational grants to a maximum of three students per pipeline community over the period 2005 to 2010.

Financing Plan

Faced with owning, constructing and operating a pipeline with an estimated cost of US\$260 million, NGC obtained the services of a financial adviser on a competitive tender.

The CIP was the first pipeline project financed in Trinidad and Tobago. It was a groundbreaking deal for all previous pipelines had been financed by loans guaranteed by revenues from NGC's gas sales contracts. Atlantic LNG had been extremely successful in the previous five years and this pipeline project was seen as critical to the operations of Atlantic's Train 4.

The borrower was NPCL, a subsidiary of NGC, and the loan was the largest single loan ever undertaken by NGC at the time.

This financing of the CIP was selected as Global Trade Review's annual Best Deal of the Year in 2005. Not only does 2020 represent the 15th anniversary of the completion of the CIP pipeline, but on 20 June 2020, NGC made its final payment on the project loan.



Conclusion

The 76.5 km 56" diameter Cross-Island Pipeline was successfully completed and available for use by the Atlantic LNG Train 4 before the plant was ready for natural gas. This project was a monumental task to be completed in time for the LNG plant, financed at a very competitive international rate and within budget. The final project cost was US\$260 million. NGC was able to overcome the scepticism that the project could be completed ahead of the Atlantic LNG Train 4. In reality, the gas supply to undertake the performance test was not available until March 2006. NGC was able to demonstrate world-class capability to own, build and operate major natural gas pipelines. This project earned NGC respect as a global natural gas pipeline company.

Frank Look Kin
17th September 2020



Personal Note

I am grateful for the invitation to prepare this paper on the Cross-Island Pipeline to mark the 15th Anniversary of the completion of NGC's largest and most expensive (at the time) pipeline infrastructure. In the preparation of this paper, I went through hundreds of documents from the project files that I had kept and consulted with Project Manager – Clarence Harnanan to recall some of the details and critical decisions of this three-year project which had started 18 years ago. There were occasions when I had to use monthly reports of Atlantic LNG Train 4 to reconstruct what had occurred on the pipeline project since there was monthly reporting on the pipeline to the Atlantic shareholders. Finally, I was able to access the Minutes of Board meetings which helped confirm the facts on this project.

The research and personal recollections of the Cross Pipeline Project have made me appreciate

and recognise that this project was the most successful ever undertaken by NGC during my tenure as President. My sincere thanks and gratitude must go to Clarence Harnanan, the NGC Project Manager, and to then Chairman of the Board, the late Keith Awong. Clarence was able to manage the Project team headed by Ian Cansfield without unnecessary conflicts and delays which could have occurred with an international project team and with the shareholders from the Atlantic LNG Train 4 team. The Chairman of the Board facilitated timely and speedy decision-making when crucial high-value decisions had to be taken. The entire group of NGC staff from Legal, Finance, Technical Operations, Commercial, Safety and Security and Corporate Communications functioned as a dedicated team to complete this project within cost and schedule. It was a great team effort.

**LABIDCO LAYDOWN YARD
DURING CIP CONSTRUCTION**



Spotlight on

NGC was incorporated to stand as a proxy for the citizens of Trinidad and Tobago in the commercialisation of natural gas, and ensure that rents from the industry were channelled back to the ultimate owners of the resource. The primary mechanisms which have allowed NGC to share the profits of its business with wider society have been dividends and taxes to Government.

However, along the way, as NGC's footprint grew and operations took the Company into the heart of communities, the opportunity presented for NGC to make more direct infusions of capital into the lives of citizens. 'The people' were not an amorphous far-removed shareholder, but neighbours with names and faces, goals and ambitions, challenges and fears. These were lives that NGC directly impacted, and could directly improve, outside of its contributions to the public purse.

THE EVOLUTION OF CSR

In 1992, a Community Relations (CR) Department was formed to conceptualise and administer programmes that would benefit members of fenceline communities in or near which NGC had an infrastructural or operational presence. Due to the expanse of NGC's network, many interventions were broad scale, even national in impact. Early programmes sought to equip residents to find gainful employment, refurbished or built sporting and training facilities, invested in youth empowerment and education, facilitated cultural preservation, supported NGOs and other worthy social causes.

In addition to their social benefits, such programmes helped the Company build reputational currency in its spaces of operation, as well as strong, symbiotic relationships. Supported communities could be relied upon to partner with NGC in the event of emergencies, and to defend its license to operate.

As the years went by, NGC's approach to its social interventions evolved along with international best practice. The discourse changed from CR to Corporate Social Investment (CSI), which was later replaced by Corporate Social Responsibility (CSR). The changing terminology reflected the different philosophies that drove investment in community and social causes. Behind the nomenclature, however, there was a common thread – a commitment to care for people and planet.

OVERVIEW OF HIGHLIGHT CSR INVESTMENTS

Since the start of its CSR programme, NGC has given support in cash, kind and volunteer time to hundreds of groups, entities and causes throughout Trinidad and Tobago. Some investments have been proactively initiated, based on recognised needs in communities or social sectors, while others have been made in response to requests received. The following pages outline some of the big investments made by the Company over the years, as well as the outcomes achieved with NGC's support.



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Marine Environmental Awareness Programme (MEAP)

Coastal community training programme to train residents from across all coasts of Trinidad and Tobago to build and fix boats, repair boat engines and make and repair fishing nets. The programme evolved to include courses in life-saving skills as well as fruit, meat and fish processing.

Outcomes

Development of income-generating and livelihood-supporting skills sets

Reforestation programme

Large-scale reforestation exercise to replant areas cleared during pipeline construction activities in South Trinidad. Over 315 hectares have been replanted with more than 13,000 trees.

Outcomes

Restoration of a dense, mixed-species tree canopy in degraded sites; employment and training opportunities in site communities



Energy SmartTT App

Mobile app developed in-house to educate and sensitise the national public around the issue of energy efficiency

Outcomes

Support of the national clean energy agenda; more responsible energy consumption practices at the domestic level

1990s

1999
- PRESENT

2005
- PRESENT

2019
- PRESENT

LAUNCHED IN
2020

Self-Initiated Projects



NGC Right on Track

Science-based programme that introduces children to the fundamentals of both track and field and basketball, through a roving caravan that takes lessons into communities and schools throughout the year.

Outcomes

Discovery and development of young sporting talent; feeder for national athletics programmes



Pan score transcription project

Project to record, transcribe and publish scores from Panorama compositions of NGC-sponsored steel bands.

Outcomes

Enrichment of local repository of steelpan music scores; preservation of locally produced music for posterity.

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Lydian Singers and Steel Orchestra

Decorated local choir formerly led by the late Dr. Pat Bishop TC, which performs with accompaniment from Indian and African drums, an orchestra and steel band.

Outcomes

Heightened profile of local ensemble; enrichment and preservation of local art and culture

1991-2014

Supported Groups



Steel Bands

1993-2006: Assistance to unsponsored traditional steel bands, conventional community bands involved in Steel Band Competition. In 2007, NGC took a decision to concentrate support to steel bands in the single pan category and conventional bands which are based in fenceline or pipeline communities.

NGC eventually assumed title sponsorship of NGC Couva Joylanders, NGC La Brea Nightingales and NGC Steel Xplosion - all bands based in NGC's fenceline communities. Funding disbursed for purchase of equipment, participation in competitions, capacity building and music literacy training, as well as a pan manufacturing and tuning training programme.

Outcomes

Support of band development into viable commercial entities; stronger and more sustainable pan industry



Tassa Bands

Sponsorship of NGC Sweet Tassa and NGC Bao Simba Entertainers. Funding supports participation in events, band administration and capacity building training. NGC Sweet Tassa has also established a Tassa Academy.

Support was given in the past to Show Stopperz Tassa Group.

Outcomes

Support of band development into viable commercial entities; stronger and more sustainable tassa artform and surrounding industry

2013 - PRESENT



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NIHERST - National Science Centre (NSC)

Aims to advance the levels of scientific and technological literacy in both the children and adults of Trinidad and Tobago and the wider Caribbean, by presenting knowledge and experiences of Science and Technology in their most palatable forms. NGC supported its establishment in 1997 and patronised all of its major activities, including the popular SciTechKnoFest.

Outcomes

Support of national science curricula; stimulation of interest and achievement in technology and innovation



National Association of Athletics Administrations (NAAA)

Governing body for track and field in Trinidad and Tobago. NGC's sponsorship has supported the annual Championship Month of competition, training for coaches and clubs administrators as well as special projects such as the Youth Elite Programme.

Outcomes

Development of globally competitive track and field talent and industry; enhanced national profile in international athletics

1997
-2015

19
94

- PRESENT

20
14

- PRESENT

Supported Organisations



The University of the West Indies (The UWI)

NGC has supported this tertiary level institution through sponsorship of the Eric Williams Memorial Collection, support of the Institute of Engineering, grants for BSc students in the Petroleum Geoscience programme, contributions to the University's Graduate and Research Fund, as well as its Development and Endowment Fund and sponsorship of several Conferences on the Economy. In 2012, NGC strengthened its commitment to investing in research through its sponsorship of The UWI Research Awards, Research Forum, Research Expo and a Chair in Innovation and Entrepreneurship. Most recently, the Company has contributed to the Trevor Boopsingh Energy Research Endowment and given support to The UWI's Collaborative COVID-19 Engineering and Manufacturing Initiative - a Ventilator Development Project.

Outcomes

Support of high-impact research and innovation; strengthened collaboration between academia, Government and private sector in the interest of national development

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Habitat for Humanity Trinidad and Tobago (HFHTT)

Organisation with a vision of helping to secure decent and affordable housing for impoverished families across the country. HFHTT works with vulnerable households on housing solutions, training initiatives, and disaster risk-reduction programmes. NGC has contributed through capital and sweat equity to numerous builds and home improvement projects.

Outcomes

Improved quality of life for families in need; more stable and sustainable communities

2005
-2018

Supported Organisations



2013
- PRESENT

Police Youth Clubs (PYCs) - Couva, Penal, Laventille Road, La Brea and Mayaro

Organisation established by the Trinidad and Tobago Police Service to provide young people with opportunities to study, socialise and take part in extra-curricular activities. NGC's support to PYCs in fenceline communities has funded developmental work, capacity building and social activities for club members. Most recently, NGC sponsored vocational skills training for members.

Outcomes

Creation of opportunities for young people to be productively engaged; support of efforts to reduce juvenile delinquency among disadvantaged youth



Deeds of Covenant with Non-Governmental Organisations

Through Deeds of Covenant, NGC has given support to several NGOs that cater to persons with special needs or provide other critical services to the community, including:

- The Adult Literacy Tutors Association (ALTA)
 - Dyslexia Association
 - Swaha Inc.
- Tobago Council for Handicapped Children
 - The Life Centre
- The National Centre for Persons with Disabilities

Outcomes

Better quality education and care for subsets of the national population with special needs

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Families in Action

Non-profit NGO dedicated to the upliftment and healing of families and individuals ravaged by drug addiction and social abuses through counselling and group support.

Outcomes

Promotion of healthy family life; strengthening of communities.

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1997
- PRESENT

Supported Organisations



1996
- PRESENT

Couva Children's Home and Crisis Nursery

Organisation which aims to provide safe and secure home environment for children who have been abused, abandoned or socially challenged.

NGC was instrumental in relocating the home from dilapidated premises on Railway Road in Couva to its present location in Camden, and has supported the home since.

Outcomes

Support for victims of abuse; creation of opportunities for disadvantaged youth to lead fulfilling lives

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School Games

Series of athletics competitions held for students of Primary Schools. They include the Track and Field Games in the Moruga Zone and in the St. Patrick and Caroni Education Districts, which NGC has been supporting for many years.

Outcomes

Early discovery and development of athletic talent

1995

- PRESENT

(initial year of support varied)

2002-2011

GASCO news

Supported Festivals/Events

45TH
AT THE FOREFRONT OF Energy



CARIFTA Games

Annual athletics competition founded by the Caribbean Free Trade Association (CARIFTA). The Games were first held in 1972 and consist of track and field events, including sprint races, hurdles, middle distance track events, jumping and throwing events, and relays.

NGC was a regional sponsor.

Outcomes

Development of regional track and field talent; enhanced international profile for regional athletes

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NGC Sanfest

Festival which pivots around visual, literary and performing arts, and is open to primary and secondary schools. NGC supports the festival's activities and promotions through capital investments as well as employee volunteerism.

Outcomes

Preservation of traditional artforms and artefacts of culture; cultivation of young artistic talent

2003

- PRESENT

2011

- PRESENT



Trinidad and Tobago Film Festival (ttff)

Celebrates films from and about the Caribbean and its diaspora, as well as from world cinema, through an annual festival and year-round screenings. NGC's investment has supported the festival, as well as training and networking for filmmaking professionals; international promotion of local media content through ttff marketing campaigns; and a Shooting Stars initiative for young filmmakers.

Outcomes

Development of local film industry; creation of opportunities for young filmmakers to be discovered and promoted; promotion of local films in international markets

Multiple periods of support over the festival's history

Supported Festivals/Events



NGC Bocas Lit Fest

The Caribbean's premier literary festival, which brings together writers and readers from Trinidad and Tobago and across the region. It consists of a week of readings, performances, workshops, discussions, film screenings and other events. NGC supports the festival's activities and promotions through capital investments, as well as employee volunteerism.

Outcomes

Enhanced standard of literacy; support for local and regional writers; development of local creative industries; greater presence and recognition of regional writers in international literary circles



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Special School Projects

Projects to address the special infrastructural and equipment needs of schools in fenceline communities. Over the years, NGC has facilitated requests for funding to purchase furniture and office equipment, execute minor infrastructural repairs or implement agricultural projects

Outcomes

Creation of optimal environments for teaching and learning

1997
-2016

2018
-2019

Supported Projects



IAMovement ReThinking Energy campaign

Campaign to educate the public around the need for more efficient energy use, through three-part video series and country-wide school tours, executed by NGO IAMovement. NGC supported video production and promotion, including an essay competition.

Outcomes

Heightened awareness about energy consumption practices and the need for change; greater engagement with young people around the topic of energy efficiency; support of national clean energy agenda

THE FUTURE OF CSR

Today, NGC is again evolving on the CSR front in line with global movements in the field. Corporate Sustainability is the phrase gaining traction. It captures the idea that corporate investments should move beyond donations and one-off contributions. They should instead focus on building capacity for tomorrow – investments today should generate rewards well into the future. Such investments tend to focus on education, empowerment, skills training, restoration ecology and generally building foundations upon which future generations can grow.

Many of NGC's sponsorships over the years have in fact met these criteria, but the Company is now making sustainability a more deliberate choice in its investments. It has already begun to recalibrate existing sponsorships to nurture longer-term benefits and is positioning itself behind new causes that align with the global sustainability agenda.

Whatever its future investments, there is no doubt that NGC will continue to build on its legacy of strong corporate citizenship.

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Dr. Frank Look Kin Reflects on His Years at NGC

Dr. Frank Look Kin





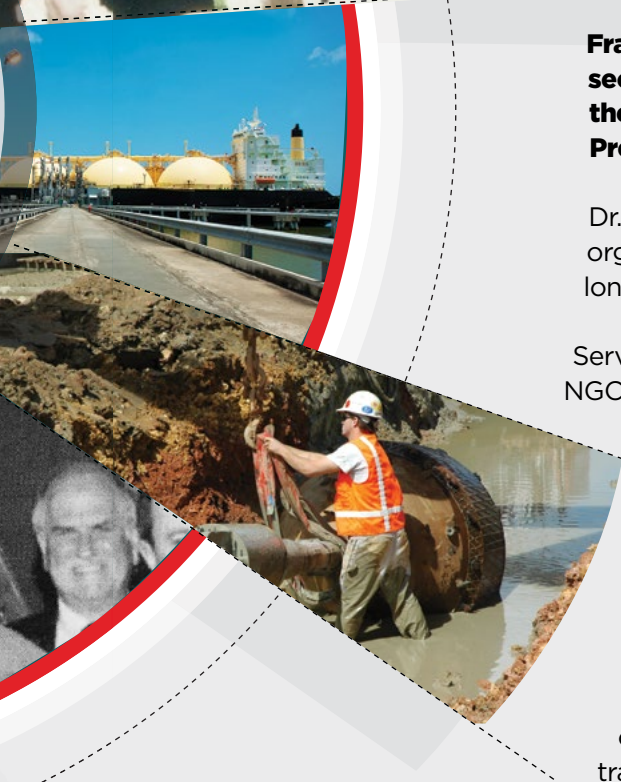
Frank Look Kin left an indelible mark on the history of the energy sector of Trinidad and Tobago through the critical role he played in the phenomenal growth of the natural gas industry while serving as President of NGC.

Dr. Look Kin's enduring leadership legacies also extend to long-term organisational sustainability that ensured the continued success of NGC long after his retirement.

Serving as President of NGC between 1996 and 2009, Dr. Look Kin led NGC into vigorous growth and expansion through the rise in natural gas sales and purchase agreements for the burgeoning gas-based industries. Those agreements propelled the explosive growth of natural gas production to over 1,800 MMcfd by 2009 from 675 MMcfd in 1996.

Though formally retired, he is still active in the energy sector in different capacities. In reflecting on his presidency at NGC, he describes it as both an honour and a huge responsibility.

Undeniably, one of the key decisions under his tenure was the construction of a 76 km 56" diameter cross-island, natural gas transmission pipeline from Beachfield in Guayaguayare to the Atlantic Natural Gas (LNG) facilities in Point Fortin. The US\$260 million pipeline capacity without compression has the distinction of being the largest pipeline constructed in the Western Hemisphere at the time.



Liquefied
with a 2.4 Bcfd
diameter natural gas

Dr. Look Kin was particularly pleased that NGC was able to borrow US\$200 million on the international market with attractive rates to finance the construction of the pipeline without any government guarantee.

The period under which he served was one of rapid growth in gas sales and contracts.

"To accommodate the rapid increase in gas requirement for the country, NGC increased the capacity of the pipeline networks from 1.4 Bcfd to 4.4 Bcfd with new pipelines to be able to handle this gas capacity, a four-fold increase of gas," he recalled.

Dr. Frank Look Kin Reflects on His Years at NGC (continued)

The signing of numerous gas contracts also led to growth in the number of employees in different departments including Commercial, Legal and Operations. One of the top skills that was needed at NGC was negotiation.

“Negotiation was one of the skills that we had to have in the Company and I guess in a sense we all recognised that what was always critical was that whatever value you end up with should always be a fair price from the point of view of the seller and from the buyer.”

Since gas contracts were mainly 15-20 year contracts and volatility in the industry was expected, Dr. Look Kin said it was important to have a pricing formula to survive in good and bad times instead of an uneven deal which left one of the parties unhappy.

“Gas contracts were very complex and at time difficult to understand so we had to have staff in the Company who understood the gas contracts and had to be very careful...but it was done and we were able to grow the number of gas purchase and sales contracts,” he said. He added that the gas sales contracts started at around US\$100 million annually and gas purchase contracts were as high as US\$700 million per year.

“It was not a small industry we were dealing with, and it was critical for us to have the integrity when dealing with transactions. We had to ensure that we satisfied our shareholders in Trinidad and Tobago, as well as shareholders of the multinationals that we were doing things fairly and above board.”

In terms of managing NGC through changes, various strategic four-year plans guided the direction of the Company, while a management system was developed that allowed the Company to track what was going on and what changes had to be made, and how to set projections to stay alive and expand.

“That allowed us to manage the Company and get the results that we wanted,” the former president added.

With changes occurring, he also had to ensure that NGC always had excellent management capability to build longer-term and sustainable organisational efficacy. Succession planning and transition became important issues.

One of the values Dr. Look Kin instilled early on when dealing with customers and employees was integrity.

When customers couldn't agree on a pricing structure, other mechanisms were suggested to get the price that suited the conditions of the Company.

“With employees, you have to ensure a degree of empathy and understand why the employee is disgruntled,” he said, adding that it was important to find a creative solution.

Although he described his leadership at NGC as “stressful” especially during the build-up to negotiations and during the actual negotiations, there were the moments that brought laughter and relief.

One of the memories that still brings him a chuckle is sitting in a brown band maxi-taxi in Point Fortin in 1992 with Directors and Alternate Directors of major multinational energy companies comprising shareholders of Atlantic LNG to sign an agreement to appoint the first chairman of the Company.

He recalled that representatives from NGC, Amoco, Cabot, British Gas and Repsol had completed negotiations at 5 a.m. and a signing ceremony was held later that day.

“Everybody was tired and then we told the two lawyers to finalise the documents and we'll sign them when we get down to Point Fortin. We reached down to Point Fortin and everybody was tired.”

After the official signing ceremony with the Government representatives, we had to approve the agreements among the shareholders. This required the shareholders to go to the guest house which was being used for meetings. Then, someone suggested that the meeting should be held in the brown band maxi-taxi.

“We told the driver, turn on the air conditioning and close the door and we all went into the maxi taxi, 11 of us, and we had the meeting, and everybody signed the shareholder’s documents,” said Dr. Look Kin.

He has even penned a poem about “the cast of characters in that maxi-taxi” and the unorthodox meeting and decision-making which involved some of the most important players in the global energy sector.

Given his vast knowledge about the energy sector and the success he brought to NGC through the astounding rise in the natural gas sector and growth of gas-based industries, it is no surprise that Dr. Look Kin is still called upon by the industry to provide expert advice and guidance.





For the FUTURE

MARK LOQUAN ON WHAT'S NEXT FOR NGC

Disruptions and crises are not unique to the world of business. But the rapid and unprecedented spread of the COVID-19 pandemic which caused enormous financial damage to operations and upended work routines may be the most challenging issue business leaders will ever face in their lifetime.

At NGC, President Mark Loquan, grasping the complexity of the most serious public health

Mark Loquan
– President, NGC



crisis in living memory, applied sturdy human-centric leadership as he prioritised the health and well-being of employees and their families while keeping control room operations running through increased shifts with smaller numbers of employees.

“Some of the lessons at the higher level are that while you deal with a health crisis that is global in nature and, of course, it is impacting you in Trinidad and Tobago, we have to stay focused on business continuity while also remaining focused on the people side,” said Mr. Loquan.

Given the critical and central role of NGC to the energy sector, it was among the few companies to continue operations during the lockdown which began in March, while most of its employees worked from home.

Maintaining empathetic leadership, Mr. Loquan sought to strike a balance by keeping employees safe while ensuring the survival of the business; maintaining strong communication with employees; and motivating employees who were working remotely and virtually.

“What you see happening as we go through time, the focus is on well-being and mental health, the kinds of situations that you wouldn’t necessarily focus on in that way but we understand more and we are more adaptable,” he added.

It is this type of unwavering leadership strength that Mr. Loquan brought to NGC four years ago when he was appointed President. Backed by an expansive global career in the energy sector, Mr. Loquan has helped carry NGC to another level to become a formidable global player by strengthening its foundation blocks and harnessing the immense power and synergies across The NGC Group.

Some of the early developments that propel the NGC Group into its global role include the establishment of a National Energy subsidiary in Guyana, deepening engagement in the US through PPGPL’s purchase of the NGL marketing assets of Twin Eagle Liquids Marketing LLC, the signing of a Memorandum of Understanding on LNG with China, tapping into Ghana and the African region to share expertise, and engaging in discussions with Grenada around new supply.

For the FUTURE

(continued)

Mr. Loquan said it was important to focus on strengthening NGC for the future, to be clear on its direction, the foundation blocks on which to build the Company and the pillars for success.

“I would say it is very important to have a clear direction – to know what you’re doing in an operational sense – as well as strategic focus, to know where we are going, what are the areas that we would focus on across the chain and, of course, our role. We are not just a buyer and seller of gas; we are becoming an integrated player.”

The best value for the people of Trinidad and Tobago, in his view, can be gained by working across the chain and expanding focus, not only locally but regionally and internationally.

Although significant strengthening has taken place in the Company, the focus continues to be on governance, closing gaps in audits, ensuring risk is being reduced, developing employees and adding new skills, such as in geology and risk management. It was also important to get all employees aligned to the latest company strategy and become part of the whole process. It meant harnessing each employee to give their full potential, listening more, building teams, breaking down walls, having more collaboration and participation and engagement of people whether virtual or not.

He added, “It’s about mobilising the organisation to work in the direction required but also being able to work at a strategic level while ensuring the people in your teams are geared up to improve their operation of the business.”

Part of the transformation at NGC is towards becoming a more data-driven organisation, to visually analyse different levels of progress in accordance with schedules.

Peering into the next decade, Loquan said two important areas that will continue to engage the attention of the Government are the gas value chain and the unitisation of the LNG trains.

Describing the gas value chain analysis as a critical piece of work going forward, he said it will position the sector in terms of how it needs to operate, through fiscal incentives or policy, to become competitive and efficient in a more market-driven world.

“It requires a better understanding of how this value chain has changed with the coming of shale gas in the US, new plants, more competition generally,” he asserted.

In terms of the LNG business, Mr. Loquan said there is significant conversation around the unitisation of the trains to make them more efficient and operate as almost one entity instead of several different trains with different commercial arrangements.

Noting that several LNG plants were constructed worldwide in the last decade and more coming on

stream, he said the LNG world is competitive and there will be surplus LNG on the market for a period of time.

“It’s important to utilise the time now to make sure that the unitisation and efficiency of the trains are included as part of the gas strategy,” he said. In terms of the green agenda, a subject that he is passionate about, Mr. Loquan said emissions will continue to rise if the energy mix does not include less coal, more gas as a transition fuel and more renewables.

Noting that many Caribbean countries are using petroleum products, he said Trinidad and Tobago, through NGC, can position itself to help wean countries off petroleum products and oil, a key ingredient for the power sector.

He referred to China and India where LNG and gas continue to play an important role in their energy transition.

“There is a need for clean fuel, and this will not happen overnight, but it is important that during the next decade we position NGC and Trinidad and Tobago to play an influencing role in this whole green focus.”

The NGC Group is already well-positioned in the chain with CNG, renewables and energy efficiency being strategic focus areas.

Under the decisive leadership of President Mark Loquan, NGC is indeed geared to move into a higher level of global involvement while deepening and strengthening its engagement at home.



The next

WHERE DO WE GROW?

For us at the NGC Group, 2020 brings the curtain down on our current Strategic Plan and discussions are underway around our goals for the next five years.

In many ways, 2020 is the threshold into the future. We are now consolidating revenues from current business and looking at where we can grow from here.

Of immediate concern is, of course, navigating the fallout from the global crisis that is the COVID-19 pandemic, which has reached a critical phase with new epicentres and second wave infections.

The true magnitude and impact of the unprecedented pandemic on the world are still to be fully understood, and the virus continues to test all aspects of industry and business operations. COVID-19 has rewritten the rules of engagement for businesses. We must now function in a new normal.

That said, the existential challenges that the world is facing present opportunities for transformation. We now have no choice but to innovate using technology. We have to find new ways to connect. We have to retool and reskill. Agility and flexibility are not options, but imperatives for survival.

Export expertise

- Partnerships with emerging energy jurisdictions in Africa, South America and the Caribbean region

Maximise returns from existing business

- Increased margins from gas sales
- Commodity trading
- Molecular optimisation
- New customers

Promote energy efficiency at the industry and broader national level

- Super ESCO project
- Iterated Energy SmartTT app
- Energy education initiatives

Innovate and streamline processes through technology

- Next-generation, cloud-based enterprise resourcing and planning software
- Advanced tools in field operations - drones, robotics, Extended Reality (XR) technology, 3D printing, industrial Internet of Things (IoT)
- Digitisation of data and processes

Reduce the organisational carbon footprint

- Fugitive methane emissions detection via infrared camera and satellite surveillance
- Enhanced focus on asset integrity management
- Paperless transactions
- Energy audits and facility upgrades

5
GROW FROM HERE?

forty-five

Grow the portfolio of local and international investments

- Joint venture partnerships in upstream exploration and production activities
- Investment in downstream energy-based industries
- International mergers and acquisitions
- Regional LNG projects

Build local capacity for renewable energy

- Solar module assembly plant via National Energy
- Wind farm feasibility studies via National Energy

Initiate and support national projects aligned with SDG targets

- Partnerships with clean energy stakeholders and NGOs
- Extended carbon sequestration study and Beyond 350 reforestation initiative
- Training and development interventions through CSR partnerships
- Sustainability-focused CSR investments
- Climate Change Mitigation Project with UTT

Strengthen accountability and business ethics

- Performance tied to sustainability metrics
- Holistic and audited Sustainability Reports

Build human capital

- Training and retooling for the energy landscape
- Leadership development
- Opportunities for international exposure

In adjusting to this new normal, and indeed in everything we do going forward, we must keep our focus on sustainability. There is no point in renewing our business and expanding into new areas if we cannot grow responsibly and sustainably. We must synchronise our business ethos with the global agenda to clean up our energy consumption and seek the interest of people and planet. For this reason, I am proud to say that NGC is making clean energy and sustainability as a whole, a cornerstone of our growth strategy moving into the next 45.

We tend to speak of the future as if it were a predetermined, prefabricated reality that we will one day meet. In truth, the future is malleable, shaped by today's actions and tomorrow's consequences. As a business, we recognise that long-term success is fruit of today's plans and efforts. While there are many variables beyond our control in the international energy landscape, there are many others that we can turn to our advantage using strategy, foresight, flexibility and most importantly, people.

As we look now to NGC's next 45, we are secure in the knowledge that we can and will shape our own destiny, and continue to carry our country on the tide of our success.

NGC's Corporate

In commemoration of its 45th anniversary, NGC launched a new corporate song in 2020. The song seeks to capture the journey that the Company has made and its place in the country's history. It invites the population to embrace NGC and its achievements as personal triumphs, as the Company belongs to every citizen of this nation. As part of this special anniversary project, the music of this composition has been scored for steelpan, orchestral and choral reproduction. The song has been gifted to NGC by its composer Mark Loquan.

GRAND INTRO INSTRUMENTAL

1st VERSE

Some may take for granted our pipelines
But you have to see
It's all energy
For so many people we're a lifeline
For communities
And for T&T
It continues to be a unique journey
Accomplishing what many wouldn't believe
We are proud to tell our children of this story
Of our history, of this company

CHORUS

NGC (this is our), NGC (our future), NGC
Building our own country
NGC (this is our), NGC (our future), NGC
Shaping our destiny
So proud to be a Trinbagonian
Working for this blessed nation
It's for the people of this country
People just like you and me

2nd VERSE

You will find us all across the nation
From university
To society
We are working hard for all the children
With diversity
Thinking globally
Sustainability is our focus
Through people and our talent, all of us
We're growing with stability and safety
With technology, and financially

CHORUS

NGC (this is our), NGC (our future), NGC
Building our own country
NGC (this is our), NGC (our future), NGC
Shaping our destiny
So proud to be a Trinbagonian
Working for this blessed nation
It's for the people of this country
People just like you and me

Song



OUTRO

(This is our) This is our, (it's our) this is our future
(This is our) This is our, (it's our) this is our future
(This is our) This is our, (it's our) this is our future
(This is our) This is our, (it's our) this is our future
(It's our) This is our, (it's our) this is our
(It's our) Flowing thru meh veins is T&T
(This is our) This is our, (it's our) this is our
(This is our) Flowing thru meh veins is T&T

Fade with:

(This is our), (it's our) repeat

COMPOSED AND WRITTEN BY MARK LOQUAN
LEAD & BACKGROUND VOCALS BY TERRI LYONS
EXECUTIVE PRODUCER MARK LOQUAN
MUSIC PRODUCTION BY JUNIOR "IBO" JOSEPH
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**THE NATIONAL GAS COMPANY
OF TRINIDAD AND TOBAGO LIMITED**



**PHOENIX PARK
GAS PROCESSORS LIMITED**



Trinidad and Tobago NGL Limited



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Company Limited**

National Energy^N
CORPORATION OF TRINIDAD AND TOBAGO

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