

THE NATIONAL GAS COMPANY OF TRINIDAD AND TOBAGO LIMITED
CORPORATE QUARTERLY JOURNAL



GASCO news

VOLUME 27 | NO. 1 | APRIL 2017

Asset Integrity Management (AIM) at the NGC Group - p 7



WHAT'S INSIDE

National Energy's
Connection
to Juniper
Project - **p 13**

CONTENTS

PRESIDENT'S MESSAGE

Transferring Knowledge and Experiences among Companies | 03

BUSINESS DEVELOPMENT

What is Asset Integrity and Why Is It Important to Energy Companies? | 04

NGC's Asset Integrity Management Thrust | 07

National Energy: Sustainability in Action | 10

National Energy's Connection to Juniper Project | 13

TTNGL's Condensed Interim Financial Statements for Three Months Ended 31 March 2017 | 16

NGC NEWS

Vance River Recreational Facility Upgrade | 17

Launch of the 2017 Energy Map of Trinidad and Tobago | 18

NGC Shell, PDVSA Finalise Historic Heads of Agreement for Dragon Gas | 19

NGC and bpTT's Supply Agreement | 19

NGC Bocas Lit Fest Launch | 20

NGC's Energy Commodity Trading - Latest Development | 21



Mr. Mark Loquan, President, NGC signs the First Local Content Charter at the T&T Energy Conference 2017 - p 26

NATIONAL ENERGY NEWS

The Solar Energy Park Project | 22

Port of Galeota Warehouse Taking Shape | 23

PPGPL NEWS

President's Appointment | 24

NGC CNG NEWS

NGC CNG Launches Mobile App | 25

Two New CNG Converters Added | 25

INDUSTRY NEWS

Signing of Local Content Charter at the Trinidad and Tobago Energy Conference 2017 | 26

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The Gas Processing 2 Turbo Expander at the PPGPL Plant - p 4



NGC CNG launches its mobile app - p 25

PRESIDENT'S MESSAGE

Transferring Knowledge and Experiences among Companies

The Trinidad and Tobago Energy Conference, hosted by the Energy Chamber of Trinidad and Tobago, has become a staple on the energy calendar among leaders of industry, Government and academia, attracting not only local stakeholders but regional and international visitors as well. The Conference promotes vigorous debate and discussion amongst its audiences and usually sets the tone of the energy landscape for the upcoming year.

Whilst the theme for this year's conference was 'Building Competitiveness in an Evolving Energy World', major emphasis was placed on Asset Integrity Management (AIM). In fact, the last day of the Conference was dedicated to hosting a workshop titled 'National Facilities Integrity Audit and Beyond'.

The agenda of the workshop included a keynote address by Mr. Selwyn Lashley, Permanent Secretary, The Ministry of Energy and Energy Industries (MEEI). His address treated with the purpose behind the audit initiative and disclosed plans and further expectations of the industry stakeholders as a result of the audit.

At the workshop, the NGC Group was represented by Mr. Ramesh Harrylal, Vice President, Operations, PPGPL. His address was entitled 'Our Operational Excellence Journey and the Transition from Managing to Optimising our AIM Programme'. Also representing the Group was Mr. Rafer Mohammed, NGC's Asset Integrity Manager, who participated in the stakeholders' panel and participants' plenary session.

The MEEI contracted Det Norske Veritas Trinidad & Tobago Limited (DNV GL) to conduct a National Facilities Integrity Audit (NFIA) of the local Oil and Gas sector. The audit spanned a nine-month period starting in July 2015, and involved 30 selected companies based on DNV GL's knowledge of the Trinidad and Tobago oil and gas sector and considerations of perceived risk. The final approval for the selection of the 30 companies was given by the MEEI. The audit was comprehensive, encompassing offshore, as well as onshore activities, and covered infrastructure in the upstream, midstream and downstream segments of the domestic energy sector. The primary purpose of the audit was to establish the integrity of the selected facilities.

The NFIA Energy Conference Workshop was intended to collectively discuss the extreme challenges facing the country regarding AIM and how we could collaboratively improve on the national average rating and create risk reduction for the overall domestic energy sector.



Mark Loquan, President, NGC

In the same vein, this edition of NGC Group Gasco News is fittingly "AIM-themed" as it delves into both the existing programmes and new initiatives to optimise and manage the findings of the audit amongst members of the NGC Group. Paramount to this is developing the Group's AIM programmes as a means to establish the transfer of knowledge and experiences amongst the respective companies.

All energy stakeholders should be aware that failure to maintain the integrity of their assets has potential side effects on humans, the environment and even on the financial aspect of the business and the sector. When a company maintains the integrity of their assets, it will allow for smoother operations and fewer interruptions, leading to improved output and profitability for its operation. This in turn leads to safer process plants with fewer accidents; fewer leaks and fewer effects to the environment. Understanding the importance of AIM allows us within the NGC Group to adopt and further develop systems to mitigate these likelihoods. The importance of effective AIM increases as the Group's assets continue to age. AIM is a standard of operating that seeks to protect not only equipment but takes an overall view of health, safety, and environment that we at the NGC Group aspire and will be working arduously to achieve.

Mark Loquan
President

What is Asset Integrity and Why is It Important to Energy Companies?



AIM does not apply merely to ageing infrastructure, instead, it considers all stages of the equipment life cycle, from conception, to engineering and design, construction, operation, inspection, and finally to repair or replace when necessary

While there are numerous definitions of Asset Integrity Management (AIM), PPGPL adopts a “cradle-to-grave” approach to understanding and operating equipment in a safe, reliable manner. AIM does not apply merely to ageing infrastructure, instead, it considers all stages of the equipment life cycle, from conception, to engineering and design, construction, operation, inspection, and finally to repair or replace when necessary.

At present, the topic of Asset Integrity (AI) is gathering a lot of attention in the local oil and gas sector as a result of the national facilities audit which began in July 2015 as part of an initiative of the MEEI. DNV GL was contracted to perform the audit given their knowledge of Trinidad and Tobago’s energy sector and the associated risks. Some people view asset integrity as a “buzz word” which has different meanings and interpretations depending on the audience. In maintenance, asset integrity is defined as the ability of an asset to perform its required function effectively and efficiently, whilst safeguarding life and the environment. Equally as important is AIM.

PPGPL adheres to the United States OSHA PSM 1910.119 for Process Safety Management (PSM) which has 14 elements, one of which is mechanical integrity (MI). This element requires that equipment is properly managed in order to prevent or minimise the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. An MI programme should take into account the inspection and testing of the equipment using procedures that are recognised and generally accepted good engineering practices; and should also consider the suitability of newly fabricated equipment for usage. Written procedures should be established and implemented; and employees tasked with maintaining the ongoing integrity of process equipment should be adequately trained.

In some organisations, MI and reliability are the same, while in others, reliability engineering is considered to be broader in scope. As such, most companies that have a reliability programme would generally meet and exceed the requirements for MI. In some organisations, MI is focused on a select group of

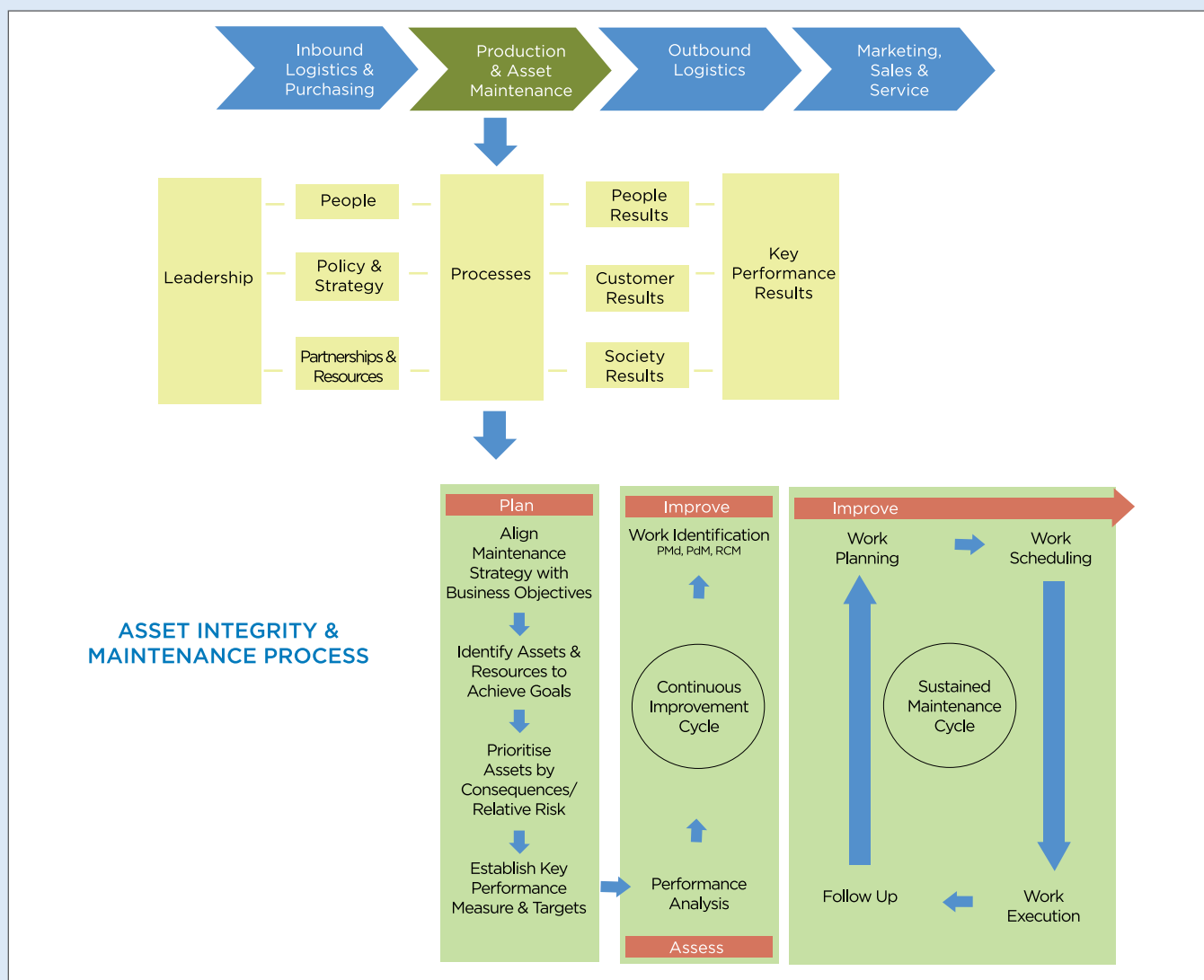


Figure 1: The European Foundation for Quality Management (EFQM) Asset Integrity & Maintenance Process

equipment and controls focused on preventing loss of containment of highly hazardous chemicals from the process.

From this perspective, AI makes good business sense since a proper programme allows the company to achieve high levels of plant efficiency and reliability, and low levels of unplanned downtime.

ASSET INTEGRITY MANAGEMENT PROGRAMME

The PPGPL AIM programme is aligned with the European Foundation for Quality Management (EFQM) model, shown in Figure 1.

The objectives of the AIM programme at PPGPL are derived from the vision and mission of the company. At PPGPL, the main objective is to ensure that the assets stay fit for purpose, safe and operational under all circumstances. As such, the programme is designed to ensure the following:

- Safe operations
- The integrity requirements as stipulated in the MI element of the PSM are met
- Best-in-class asset availability and reliability
- Continuous improvement, optimisation of maintenance, testing and inspection activities to meet safety and strategic business objectives
- Operational excellence.

The AIM programme comprises a combination of technically based asset integrity maintenance initiatives listed below:

- Preventative Maintenance (PM)
- Predictive Maintenance (PdM)
- Condition-Based Maintenance (CBM)
- Static Equipment Inspection Programme;
- Risk-Based Inspection (RBI)
- Root Cause Failure Analysis (RCFA) & Defect Elimination (DE)
- Reliability Centered Maintenance (RCM)

This list is not an exhaustive one but reflects those initiatives selected due to their applicability. The optimal combination of the aforementioned control failure modes impacting on the asset's or equipment's ability to perform its intended function at the required performance level, is of the utmost importance. The work activities generated are also risk assessed to determine if they are worth being completed based on the consequences of their failure. Key to indicating compliance with any standard is that there must be a written procedure and documentation to show that it is being followed.

ADOPTION OF BEST PRACTICES

One of the means of achieving a world-class maintenance programme is through continuous improvement. At PPGPL, we continuously evaluate new approaches and if there is value in adopting them, the organisation tries to incorporate these practices into our asset integrity maintenance strategy. Five years ago PPGPL adopted risk-based inspection (RBI) as outlined in API 580. Today, this is considered one of the most powerful tools for the management of static inspection programmes throughout the oil and gas industry worldwide. RBI can significantly reduce organisational risk for the same budget spend by prioritising assets based on risk (See Figure 2).

Similarly, another significant best practice is that RCFAs at PPGPL are now considered to be standard operating procedure, and is the process that is used whenever there is a significant failure or a failure with a complex mechanism. Occasionally, if required, components are sent for metallurgical analysis which helps to reveal the invisible clues which allows PPGPL to determine the mode of failure.

PPGPL'S NEW INSPECTION APPROACHES

In addition to the use of new programmes and approaches, one key path to continuous improvement is through the use of new technology. At PPGPL, together with the company's service providers, the company continuously seeks out whatever new technology that is relevant, and can provide either an easier way of doing things or a solution to a problem. Many of the advantages of new technology or tools are dependent on their application, as shown in the examples below.

ULTRASONIC SCANNING

- The ultrasonic scanner can give 100% coverage significantly increasing probability of detection of defects and corrosion
- Data is recorded and retrievable for further processing or analysis.

GUIDED WAVE EXAMINATION:

- Can inspect 40-100 feet of pipe in a single shot

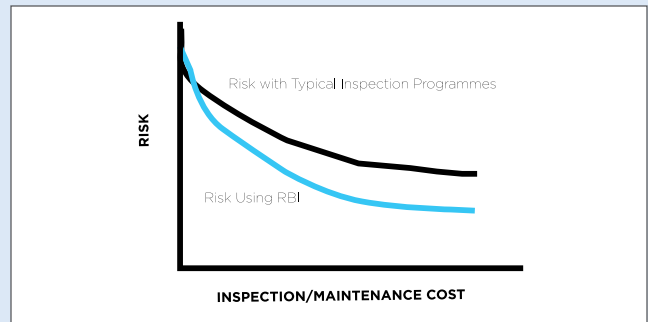


Figure 2: Risk-Based Inspection model – risk is reduced to a greater degree that at the same cost using a ‘typical’ inspection programme

- The inspection is volumetric, which means it will inspect 100% of the pipe and will identify internal and external corrosion
- It is a screening tool and does not quantify percentage wall loss but identifies the existence of an anomaly. Proving up is required.

ACHIEVING SUCCESS WITH ASSET INTEGRITY

Key to achieving success with asset integrity at PPGPL, is the clear strategic alignment with business objectives and leadership support; coupled with the drive to continuously adopt best-in-class maintenance systems and practices. In addition to these, the use of maintenance performance measures, (for example KPI reporting and information systems that provide timely, accurate, consistent and relevant data to users at all levels of the organisation) allows the company to track its performance on a real-time basis. A culture that nurtures the empowerment and development of its employees at all levels, also ensures that success is not driven by leadership alone, but all members of the organisation are compelled to contribute. Finally, the efficient performance of other departments like supply chain management, HSSE and warehouse, which can at times be overlooked, is vital for the flow of materials and contracts, and will aid maintenance to succeed in its role.

FUTURE PLANS FOR ASSET INTEGRITY

As indicated previously, PPGPL believes in continuous improvement in all areas and this quest for excellence is what will allow the company to get better at asset integrity. On the horizon, PPGPL sees itself reviewing its implementation of the ISO 55000-3 Asset Management Standard and performing a gap analysis against what we currently do. The integration of all our asset management software is another area for improvement which will provide an easier way of completing tasks and recording history for trends. Finally, the development of a training and competency matrix which will have all maintenance persons fluent in the language of maintenance and maintenance improvement is also being considered.

BUSINESS DEVELOPMENT

NGC's Asset Integrity Management Thrust



Mr. Selwyn Lashley, Permanent Secretary, Ministry of Energy and Energy Industries reveals findings of the National Facilities Audit at the Trinidad and Tobago Energy Conference 2017

The Energy Chamber of Trinidad and Tobago hosted its annual Trinidad and Tobago Energy Conference from 23rd–25th January 2017 at the Hyatt Regency, Port of Spain. NGC's President, Mark Loquan, was a feature speaker on Day 2 of the conference and a panellist on the closing plenary discussion on Day 2. During his presentation, Mr. Loquan underscored the importance of strengthening institutional capacity within T&T. Acknowledging that NGC was ranked below average on the National Facilities Integrity Audit, he pinpointed measures to improve the Company's performance, such as partnering with the Government to implement a well-defined regulatory framework; paying particular attention to crucial areas including safety and asset integrity; and improving competencies within the organisation.

Within the organisational structure at NGC, there is a department dedicated to administering the Company's Asset Integrity Management System (AIMS). The system is essentially the means of ensuring that people, systems, processes and resources perform their required functions effectively and efficiently and are fit for purpose over the lifecycle of any asset. As a management process, AIMS includes policy development, organising, planning and implementation, measuring performance, and audit and review.

T&T ENERGY CONFERENCE WORKSHOP: NATIONAL FACILITIES INTEGRITY AUDIT AND BEYOND WORKSHOP

"Energy companies developed their health and safety programmes more than they have developed their programmes which support Asset Integrity Management." This is one of the findings of the National Facilities Integrity Audit (NFIA), conducted by DNV-GL. The audit was submitted to the MEEI on 18th January 2017. The findings of the NFIA are expected to be reviewed and submitted to Cabinet for consideration and approval of a national plan for AIM.

The findings of the report were disclosed by Mr. Selwyn Lashley, Permanent Secretary, MEEI, at a panel discussion titled, 'National Facilities Integrity Audit and Beyond Workshop'. "What is clear is there is unevenness in the energy sector when it comes to AIMS" said Lashley, adding, "The equipment audit showed a wide variation in the apparent management and condition of the assets across the industry." The audit stated that there is not enough information sharing in the industry when it comes to AIM.

Following Mr. Lashley's presentation, NGC's Asset Integrity Manager, Rafer Mohammed, participated in the panel discussion alongside his counterparts Kevin Doorlarchan, AIM Manager, Petrotrin; Stephen Carboy,

BUSINESS DEVELOPMENT



Mr. Rafer Mohammed, Asset Integrity Manager, NGC, (right) interacts with fellow delegates at the AIM panel discussion at the T&T Energy Conference 2017

Director, Operations Excellence, Atlantic LNG and Charles Roopa, AI Engineer, PPGPL.

Regarding the usefulness of undertaking the NFIA, Mr. Mohammed noted, "As reflected by the results of the audit conducted by the MEEI, there is an opportunity for organisations to improve in many areas of their AIMS". He also stated, "Organisations are willing to learn from the successes of others and some discussions to that effect have in fact already been opened up." These sentiments were echoed by other members of the panel.

NGC ASSET INTEGRITY: WHAT IS OUR CURRENT STATE? WHERE WOULD WE LIKE TO BE IN THE FUTURE?

Following the Energy Chamber's T&T Energy Conference, NGC held an AIM Plan Rollout Session on Friday 17th February 2017. Addressing NGC's leadership team, NGC President, Mr. Mark Loquan, led the way in outlining the Company's approach to AIM.

The presentations highlighted the importance of processes and systems (e.g. Project Management, Contractor Management, Training, and Risk Management) across the organisation, and their

"As reflected by the results of the audit conducted by the MEEI, there is an opportunity for organisations to improve in many areas of their AIMS"

influence over the Company's overall performance in AIM.

The significance of AIM was reinforced by Mr. Loquan who stated, "In my previous life, asset integrity was so imbedded within the organisation that you almost forgot it was an asset integrity programme... NGC's Asset Integrity Plan is aligned to the Company's Strategic Pillar 'Strengthen the Organisation' where the focus is on competencies; structures; occupational safety; governance; and how well we work with our counterparts (both internally and externally); all with the aim of optimising how we run our systems and processes."



NGC's President, Mr. Mark Loquan, addresses NGC's leadership team at the AIM Plan Rollout Session

Mr. Loquan added, "We are a gas company, in charge of a potentially dangerous product... we all have a responsibility to ensure our resources are utilised in a manner that does not bring harm to people, equipment and the environment... here is where asset integrity comes into play... It's the right way to run our business."

Mr. Mohammed, in explaining the genesis of the National Facilities Audit (NFA) and its role in shaping NGC's Asset Integrity Strategy, cited that, "The NFA project involved 30 companies spanning the energy value chain including NGC and PPGPL." He continued, "with respect to asset integrity, it was extremely important to leverage the competencies already present within the NGC Group, such as PPGPL who were one of the top rated companies in the Audit."

In his presentation Mr. Mohammed, mentioned that "a key feature of the strategy going forward is the creation of an Asset Integrity Steering Committee, comprising executives from across the NGC Group."

Once established, the steering committee will be responsible for:

- Co-ordinating AIM
- Establishing standardised systems
- Leveraging from the strengths within each Company

- Achieving and sustaining a high level of performance in AIM across the Group.

At the session, it was divulged that Atlantic LNG was listed as the top performer in the NFIA. As such, Mr. Stephen Carboy, Director of Operational Excellence at Atlantic LNG, was invited to NGC's rollout session to share Atlantic's journey and relate the company's perspective on Asset Integrity. In his discussion with NGC's leadership team, Mr. Carboy explained the 'WHY' behind Atlantic's Asset Integrity Programme and urged NGC's leadership team to do the same. He advised the team, "If someone resists your processes, try to find out the 'WHY' behind the resistance ... if you don't achieve the results you set ask yourself 'Why'. Find your 'WHY'... this is what will motivate you when you think your job is done. Engage your people... be curious... curious how your system works... look at other ways of doing work and never ever assume you know the best way. It doesn't matter what kind of expert you are... don't ever think you know the answer 100% of the time. As leaders you need to drive constructive dissatisfaction and keep thinking that you can do better."

The session ended on a positive note, highlighting NGC's focus, the expectations and the AIM Structure.

BUSINESS DEVELOPMENT

National Energy: Sustainability in Action



National Energy Headquarters Extension

National Energy's core business is the conceptualisation, promotion, development and facilitation of new energy-based and downstream industries in Trinidad and Tobago. National Energy's mandate includes developing new estates and industrial deepwater ports, operation of marine and other infrastructural assets, towage and harbour operations, as well as the sustainable management of our environment.

As part of the NGC Group of Companies, National Energy is at the forefront of the Government's thrust to create a more diversified energy sector and dynamic national economy. Leveraging its assets which include, inter alia four, multiuser pier facilities comprising six berths at the Port of Point Lisas, ISCOTT Dock, tugs and workboats, National Energy facilitates the operation of major downstream energy-based industries in Trinidad and Tobago. The company also manages the operations of Berth 3 at the Port of Brighton, La Brea and the Port of Galeota.

For companies like National Energy, business sustainability is more than mere window-dressing. It involves adopting strategies and activities that meet stakeholder and business needs, while protecting, sustaining and enhancing the human and natural resources needed in the future. It encompasses the economic, environmental and social pillars critical to the organisation's future.

ECONOMIC SUSTAINABILITY

National Energy's fixed asset value as at 31st December 2016, totalled in excess of TT\$900 million (US\$134 million). Given the strategic role that these assets play in the economic climate of Trinidad and Tobago's energy sector, National Energy has recognised the criticality of its business processes, systems, tools, competence and resources. To this end, the company has undertaken and continues to embark upon strategic initiatives aimed at fostering the sustainability of its operations in the changing economic climate. This has resulted in a focus on commerciality and operational excellence including asset integrity.

TOWAGE OPERATIONS

National Energy employs a robust maintenance management system for its vessels which provide continuous towage services to users. Included in the maintenance activities is the regular scheduling of dry-docking activities to ensure safety of vessels and adherence to classification society requirements. The provision of towage services is considered one of the major revenue generating streams for National Energy, accounting for approximately 30% of the company's annual revenues over the last five years.

PORT OPERATIONS

Fiscal stability is a major driver of economic sustainability for organisations and National Energy is no exception. In September 2014, the Port of Galeota was officially opened for business. Since its opening, the Port has conducted commercial operations with



The NEC Legacy

major energy industry players such as bpTT, Repsol, Trinity Exploration and BHPTT, who have been utilising the Port for loading and offloading operations in support of upstream oil and gas activities.

This asset, comprising the Port of Galeota Phase 1, offers a 1.2km private access road, seven acres of reclaimed land, 7.0 acres of existing backland as marshalling area for materials storage and commercial activities, dredge depth of 7.6m, 529m of quay wall providing five berths, a 1km long, 80m wide navigation channel and 200m diameter turning basin, administrative facilities and a 2,700m² warehouse facility. Further, expansion to Phase 2 is expected to bring a dredge depth of 12.8m, 466m of additional quay wall consisting of five additional berths, as well as berthing and mooring which takes into account 60,000 tonne DWT ships.

The Port of Galeota which is envisioned to be a major logistics hub for emerging energy markets in South America and the Guyana-Suriname basin in particular, has seen growth in revenues of approximately 20% over the period 2015 - 2016.

The commercial development of National Energy's La

Brea assets is also of equal importance. In 2015 the company commenced the reconstruction of Berth 2 at the Port of Brighton La Brea. This project proved instrumental in the successful loadout of bpTT's Juniper Platform in January 2017. Moreover, the completion of this project in May 2017 will provide 307m of berth space and a heavy lift platform which is crucial for import and export activities associated with the development of the TT\$6.3 billion flagship Caribbean Gas Chemical Limited (CGCL) Methanol/DME facility at the Union Industrial Estate, La Brea, a project which is estimated to bring \$2.2 billion for the local economy.¹

SUSTAINING ASSET INTEGRITY

The impact of channel siltation on the safe entry and exit of vessels demands a rigid maintenance dredging routine, as well as asset integrity management programmes. In this regard, maintenance dredging of the Point Lisas harbour, Ports of Brighton and Galeota is scheduled to begin in May 2017. This is vital as reduced draft restricts vessel movements, curtails revenues and can influence International Ship and Port Facility Security (ISPS) Code certification, as well as reputational risks.

¹ *Trinidad Express Newspaper*, 2nd September, 2015.

Additionally, in 2016 National Energy engaged DNV GL Global, who was conducting a National Facilities Audit on behalf of the MEEI, to undertake an audit of some of its facilities. This undertaking by the MEEI was directly in line with the NGC Group's Asset Integrity initiatives. This proactive stance has contributed to the formation of the NGC Group's Asset Integrity Steering Committee. It has also provided National Energy with a holistic view of its assets from a different perspective and reinforced the importance of its efforts in the area of Asset Integrity Management.

An immediate outcome of our audit has been steps towards the undertaking of an exercise to reinforce Cathodic Protection at all of our port facilities. The company recognises that while operational technologies at seaports have changed dramatically, one issue remains fundamentally unchanged; the impact of a saltwater environment on port infrastructure and the potential impact on users of the port.

ENVIRONMENTAL SUSTAINABILITY

The goal of environmental sustainability is to minimise environmental degradation and to stop and reverse the process that leads to environmental destruction. National Energy has instituted Compliance Monitoring at its port facilities to ensure that its operations comply with environmental regulations as governed by its Certificates of Environmental Clearance from the Environmental Management Authority (EMA).

Additionally, with the current environmental climate, the importance of sustained energy sources must be underscored. In 2014, National Energy assisted the MEEI and the Trinidad and Tobago Electricity Commission (T&TEC) with several initiatives geared towards spreading awareness and education to the population on the benefits of renewable energy for a sustainable future. Initiatives included the supply and installation of solar lighting in four community centres in the Northwest Zones, installation of Solar Stills and Stand Alone PV Systems in 20 schools within the North East, North West and South Central/Zones, and the construction of a Solar House at The University of the West Indies Campus in Point Lisas.

Also on National Energy's agenda, is the establishment of a Solar Energy Park. This project will seek to establish a new energy-based industry in Trinidad and Tobago, aligned to the Government's diversification strategy for the economy.

SOCIAL SUSTAINABILITY

National Energy recognises that social sustainability is significant to optimise efficiency and effectiveness, as the organisation operates within the context of the social environment. The company has adopted a multifaceted approach to social sustainability built around the principles of Corporate Social

Responsibility (CSR), Stakeholder Engagement and Employee Engagement.

CSR

National Energy's CSR Plan is founded on five pillars – Capacity Building, Education, Youth, Sport and Culture. Based on the needs of the community, emphasis may shift from one aspect to another. For example, during the last two years, Capacity Building has been the focus in National Energy's fenceline community of La Brea and environs. The company partnered with groups and individuals in the community to provide targeted training programmes in preparation for opportunities that would arise from the Caribbean Gas Chemical Limited (CGCL) Natural Gas to Petrochemicals Complex being constructed at Union Industrial Estate (UIE).

STAKEHOLDER ENGAGEMENT

Stakeholder Engagement at all levels and stages of National Energy's projects has proven to be a valuable strategy for ensuring that issues are identified and managed efficiently. By engaging with its various stakeholders, the organisation is not only achieving the social licence to operate, but also benefiting from insights and perspectives that stakeholders provide. Continuous engagement with stakeholders is assisting the company to manage the flow of information, mitigating against work stoppages which may result from lack of communication and misconceptions.

EMPLOYEE ENGAGEMENT

Employees represent one of the most important stakeholder groups in any organisation, as they are responsible for carrying out the organisation's plans towards achieving its vision. At National Energy, employees are engaged through the Brand Ambassador Programme in which they are encouraged to participate in various activities aimed towards public education, CSR and brand reinforcement. The company also recognises employees' exceptional performance through its Reward and Recognition Programme and utilises a variety of communication channels to keep employees informed about the company's activities.

CONCLUSION

National Energy acknowledges sustainable development as the pathway to the future and operates within a framework to generate economic growth, achieve social development, exercise environmental stewardship and strengthen governance. Balancing these multiple perspectives within the context of budgetary constraints poses a continuous challenge. However, the company is rising to the challenge to ensure that the country's energy resources are optimised for the benefit of this generation and those to come.

BUSINESS DEVELOPMENT

National Energy's Connection to Juniper Project



Stabilising the barge with National Energy's tugs during the Juniper loadout operation

On 20th January 2017 BP Trinidad and Tobago LLC (bpTT) announced that the new Juniper offshore platform had begun its journey towards the southeast coast of Trinidad where it would be installed as bpTT's 14th offshore installation in Trinidad.

Prior to that, there had been a great deal of buzz in the local energy sector about the Juniper Project, as it is touted to be an important part of the future of the Trinidad and Tobago energy landscape and to bring some relief for the gas supply curtailment issues. The project represents a US\$2 billion investment in Trinidad and Tobago and one of BP's largest start-up projects in 2017.

LOCAL CONTENT IN JUNIPER PROJECT

The Juniper Project is one that can be regarded with pride by the people of Trinidad and Tobago as local companies worked collaboratively with international stakeholders to bring the project to fruition. As highlighted by bpTT's Regional President, Mr. Norman Christie:

"The Juniper project is significant for both bpTT and Trinidad and Tobago. At the peak of the project, there were over 750 workers onsite at TOFCO - 95% being Trinidadian and more than half from the surrounding

La Brea community. The gas from Juniper will be the largest volume of gas brought into the country in several years. I look forward to seeing this project starting up and bringing much needed natural gas that can help alleviate the supply and demand imbalance in T&T." (World Oil 2017).

The Juniper Project, a Normally Unmanned Installation (NUI) comprises a platform made up of a deck (topside), jacket, piles and corresponding subsea infrastructure linked to the Corallita and Lantana fields located 50 miles offshore in 360 feet of water in the Trinidad Columbus Basin. The development will produce up to 590 MMscfd through a 10km, 26" riser and pipeline from Juniper.

The Juniper deck consists of three levels: the upper deck, the main deck and the cellar deck. An aluminium helideck was fabricated at the TOFCO fabrication yard in La Brea, Trinidad, measuring 148 feet tall and weighing about 5,100 short tons. A 170' long vent boom is connected to the upper deck at a 45 degree angle and an Oil States Offshore Nautilus pedestal crane is located on the upper deck. The leg spacing is 90' x 60'. The jacket and piles, fabricated at Gulf Marine Fabricators in Aransas Pass, Texas, sailed to Trinidad in December 2016. The jacket measures 389

feet tall and weighs roughly 5,200 short tons. Eight 84" diameter along steel piles with eight 92" skirt pile sleeves secure the platform in place. The platform installation is being handled by the Thialf, the largest deepwater construction vessel operated by Heerema Marine Contractors.

TOFCO, which is a tenant of the National Energy-managed LABDICO Industrial Estate, can now boast of its achievements of the Juniper Project, which is the company's largest project to date and which was inducted into its hall of fame as platform Number 9.

NATIONAL ENERGY'S ROLE

For National Energy and by extension, the energy sector of Trinidad and Tobago, 2017 started with signs of optimism for productive times ahead. This resulted from the achievement of major milestone at Berth 2, Port of Brighton, La Brea on 4th January, 2017 when bpTT's Juniper platform was successfully loaded out from TOFCO's Fabrication Yard.

National Energy, in collaboration with La Brea Industrial Development Company Limited (LABIDCO), was required to repair Berth 2 at the Brighton Port for the reinstatement of port operations. In preparation for the Juniper platform project, National Energy incorporated the loading requirements of Juniper (topside and jacket) into the engineering design by means of a dedicated Heavy Loading Platform (HLP) to facilitate this loadout and future loadouts.

Additionally, emphasis was placed on having the HLP completed on time for the loadout. The delivery of a completed HLP and 656 feet (200m) of quay wall was incorporated as a construction milestone to ensure delivery by November 2016 ahead of the loadout schedule. National Energy was also able to manage bpTT's expectation with regular progress meetings and reports.

The Juniper platform was the largest offshore platform ever fabricated in Trinidad. The operation involved upfront planning, quality checks, focus, precision and coordination by the LABIDCO, National Energy, TOFCO and Technip teams to ensure that the platform was safely moved through the HLP at Berth 2, then onto Barge 455. Overall, this meticulous operation lasted for more than 24 hours, with the transportation of the deck on self-propelled modular transporters (SPMT) from TOFCO's yard to the levelling and compensating of the heavy loads onto the barge. National Energy's tugs, the *NEC Majestic* and *NEC Empress* also played a critical role in the loadout, as they were required to stabilise the barge against the currents as the day went on.

After Juniper was placed on to the barge, it was welded and secured in place. Transport to the Juniper field off the southeast coast took place thereafter



The Juniper loadout operation lasted more than 24 hours

and the platform was then installed on its jacket in preparation for production.

President of National Energy, Dr. Vernon Paltoo, who witnessed part of the loading operation, expressed his satisfaction with the work done by the National Energy and LABIDCO teams in delivering the HLP ahead of schedule and fit for purpose. He stated, "This augurs well for the future of platform fabrication in Trinidad and Tobago. Again, we have demonstrated that we can effectively deliver on projects in support of national development."

The repairs to Berth 2 project continues to progress towards completion in May 2017. The installation of the piles was completed and the project is overall 96% completed as at March 2017. The project recorded:

- 549 working days
- 555,900 man-hours without a lost time incident
- Over 70% local workforce during labour intensive periods

ADDITIONAL SUPPORT OPPORTUNITIES

The Port of Galeota, which is also managed by National Energy, was opened on 5th September 2014. It offers endless possibilities for companies operating on the east coast, and the southern and southeastern peninsulas of Trinidad. Based on its strategic location,



The 200m of quay wall and heavy lift platform completed at Berth 2, ahead of the Juniper loadout

the Port of Galeota is also positioned to become a gateway to South America, in particular Guyana and Suriname, which have had recent hydrocarbon discoveries.

Phase 1 of the Port has been operationalised in order to capitalise on the opportunities presented in the new burgeoning territories as well as upcoming deepwater exploration projects such as bpTT's Juniper. Phase 1 comprises five berths, one of which is dedicated to the Trinidad and Tobago Coast Guard. The facility provides a draft depth of 7.6m with a 200m turning basin and 80m channel. Users also have access to 529m of quay wall, 1.2km of paved roads and 15 acres of backlands.

CONCLUSION

National Energy is well positioned as a force that will drive the expansion of the Trinidad and Tobago energy sector into the future. The company is taking a proactive approach to promoting Trinidad and Tobago's energy brand regionally and internationally, as well as continuing to execute the development of energy projects and infrastructure. Its role in the Juniper Project's continuing success story is evidence of this.

Quick Juniper Facts

- The project, which was officially sanctioned in August 2014 is located in the East Mayaro Block (Block EM) off Trinidad and Tobago's south-east coast, and comprises the development of the Corallita and Lantana gas fields owned by BP Trinidad and Tobago (bpTT).
- The total reserves of the Juniper project are estimated to be 1Tcf. The Corallita and Lantana gas fields, discovered in 1996, are part of the prolific Columbus Basin.
- The Juniper facility will take gas from the Corallita and Lantana fields located 50 miles off the south-east coast of Trinidad in water-depth of approximately 360 feet.
- Drilling of the five subsea Juniper wells by the Diamond Ocean Victory semi-submersible rig commenced in May 2015. First gas from the facility is expected in 2017.
- Gas from Juniper will flow to the Mahogany B hub via a new 10km in-field flowline which was installed in 2016.
- The subsea production capacity will be 590 MMscfd of natural gas and 2,500 barrels a day of condensate.
- As bpTT's first subsea field development, Juniper will have a production capacity of approximately 590 MMscfd, which will flow through the Mahogany B offshore hub.

Condensed Interim Financial Statements

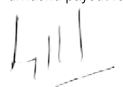
For The Three Months Ended 31 March 2017

CHAIRMAN'S STATEMENT

I am pleased to report that for the first quarter of the year, 1 January to 31 March, 2017, Trinidad and Tobago NGL Limited ("TTNGL" and "Company") recorded after tax earnings of \$56.9 million. This represents an 88.4% improvement when compared to the corresponding quarter in 2016 in which a profit of \$30.2 million was recorded. Earnings per share for the period were \$0.37, compared to \$0.20 for 2016 - an improvement of 85.0%.

The significantly improved profits were driven by improved share of profit from TTNGL's investment in Phoenix Park Gas Processors Limited ("PPGPL"). While PPGPL continues to be challenged by lower natural gas volumes to Point Lisas for processing, the improved performance at PPGPL was directly related to improved Mont Belvieu product prices, sustained cost management initiatives and initiation of planned marketing activity. Several gas supply initiatives, which have been well ventilated publicly, are being pursued by upstream companies and supported by NGC to reverse these shortfalls over the short and medium terms. Product prices have also rebounded for 2017 and were 42% higher than the corresponding period in 2016. Based on our current forecast and assumptions, we continue to be cautiously optimistic that this price recovery will continue over the near and medium terms.

PPGPL is at an advanced stage of implementation of its full portfolio of value-creation activities to diversify and enhance its earnings on a sustainable basis. This, coupled with a prudent cost and cash management philosophy, has created a robust cash and balance sheet position which will enable TTNGL to maintain its dividend payout ratio. The Board and Company continue to maintain an optimistic view of the future.



Gerry C. Brooks
Chairman

STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME TT \$'000

	Unaudited		Audited
	Three months ended	Three months ended	Year ended
	31 Mar 2017	31 Mar 2016	31 Dec 2016
	\$'000	\$'000	\$'000
Income			
Share of profit from investment in joint venture	57,227	31,087	163,955
Interest Income	186	--	219
Total income	57,413	31,087	164,174
Expenses			
Impairment reversal	--	--	17,831
Legal and professional fees	(129)	--	(704)
Other expenses	--	(688)	(956)
Profit before tax	57,284	30,399	180,345
Income tax expense	(358)	(190)	(777)
Profit for the period	56,926	30,209	179,568
Other comprehensive income:			
Exchange translation differences, net of tax	211	74,461	165,199
Other comprehensive profit	211	74,461	165,199
Total comprehensive profit	57,137	104,670	344,767
Earnings per share			
Basic (dollars per share)	0.37	0.20	1.16
Diluted (dollars per share)	0.37	0.20	1.16

STATEMENT OF CHANGES IN EQUITY TT \$'000

	Share capital \$'000	Translation reserve \$'000	Retained earnings \$'000	Total equity \$'000
Three months ended 31 March 2017				
Balance at 1 January 2017	2,772,120	146,005	442,529	3,360,654
Profit for the period	--	--	56,926	56,926
Other comprehensive income	--	211	--	211
Dividends	--	--	(154,800)	(154,800)
Balance at 31 March 2017	2,772,120	146,216	344,655	3,262,991
Three months ended 31 March 2016				
Balance at 1 January 2016	2,772,120	(19,194)	495,161	3,248,087
Profit for the period	--	--	30,209	30,209
Other comprehensive income	--	74,461	--	74,461
Dividends	--	--	(154,800)	(154,800)
Balance at 31 March 2016	2,772,120	55,267	370,570	3,197,957
Year ended 31 December 2016				
Balance at 1 January 2016	2,772,120	(19,194)	495,161	3,248,087
Profit for the period	--	--	179,568	179,568
Other comprehensive income	--	165,199	--	165,199
Dividends	--	--	(232,200)	(232,200)
Balance at 31 December 2016	2,772,120	146,005	442,529	3,360,654

STATEMENT OF CASH FLOWS TT \$'000

	Unaudited		Audited
	31 Mar 2017	31 Mar 2016	31 Dec 2016
	\$'000	\$'000	\$'000
Cash flows from operating activities			
Profit for the year before taxation	57,284	30,399	180,345
Impairment reversal	--	--	(17,831)
Interest and other investment income	(189)	--	(219)
Share of income from investment in joint venture	(57,227)	(31,087)	(163,955)
	(132)	(688)	(1,660)
(Decrease)/Increase in amount due to related party	(1,349)	1,023	2,172
Decrease in trade and other receivables	--	--	436,972
Decrease in trade and other payables	(344)	(58)	(20,035)
Cash flows from operating activities	(1,825)	277	417,449
Taxation paid	(359)	(190)	(544)
Net cash flow (used in) generated from operating activities	(2,184)	87	416,905
Cash flows from investing activities			
Interest and other investment income	189	--	219
Dividends from joint venture	39,493	64,019	181,294
Net cash generated from investment activities	39,682	64,019	181,513
Cash flows from financing activities			
Dividends paid	--	--	(232,200)
Net cash used in financing activities	--	--	(232,200)
Net increase in cash and cash equivalents	37,498	64,106	366,218
Net foreign exchange differences	5	(87)	(138)
Cash and cash equivalents at 1 January	366,080	--	--
Cash and cash equivalents at end of period	403,583	64,019	366,080

NOTES TO THE CONDENSED INTERIM FINANCIAL STATEMENTS FOR THE THREE MONTHS ENDED 31 MARCH 2017

1. Basis of preparation -

These condensed interim financial statements have been prepared in accordance with International Accounting Standard 34 - "Interim Financial Reporting". They do not include all of the information required for full annual financial statements, and should be read in conjunction with the audited financial statements for the year ended 31 December 2016. These condensed interim financial statements have not been audited and were approved by the Board of Directors on 9 May 2017.

2. Significant Accounting Policies -

The accounting policies applied in these unaudited condensed interim statements are consistent with those applied in the audited financial statements for the year ended 31 December 2016.

3. Currency

All monetary amounts are stated in Trinidad and Tobago dollars.

ngl

Trinidad and Tobago NGL Limited

A subsidiary of  THE NATIONAL GAS COMPANY OF TRINIDAD AND TOBAGO LIMITED

Vance River Recreational Facility Upgrade



Official handover of the Vance River Recreation Facility

NGC, along with the Vance River Village Council, hosted a ceremonial opening to mark the official handover of the Vance River Recreational Facility to the Siparia Regional Corporation and Vance River Village Council on 15th February 2017.

Siparia Councillor, Mr. Gerald Debisette, offered words of gratitude at the handover, "We thank NGC for this facility and hope that this Centre produces another great talent such as that of Avery John."

The upgrade of recreational grounds and facilities is a part of the NGC's CSR portfolio, as it is a space which encourages communal pursuits, sporting activity and entrepreneurial undertakings within the Vance River Community. Other Company CSR initiatives are in the areas of Arts and Culture; Sport; Education; Youth Development and Empowerment, and Environmental Preservation.

This was one of several projects started and completed in various communities which were impacted during the construction of the 56-inch-diameter Cross Island Pipeline Project (CIPP). CIPP involved laying of pipeline and construction of associated facilities from Guayaguayare to Point Fortin.

The TT\$2.5M upgrade of the Vance River Recreational Facility, included:

- Sport pavilion, inclusive of offices, seating area, washrooms and storage area
- Construction of drains around basketball court
- Construction of car park and roadway
- Construction of water tank stand
- Refurbishment and upgrade of existing basketball court
- Construction of fencing around basketball court
- Construction of drains to front of pavilion
- Construction of septic system
- Construction of wheelchair access for pavilion.

NGC's Manager, Corporate Communications, Ms. Lisa M. Burkett, told all present that, "Vance River may be a small community, but it has raised many accomplished sportsmen over the years, including ... Avery John who was part of our beloved Soca Warriors. The Vance River Recreational Facility was no doubt a launching pad for their sporting careers, and now thanks to the recent upgrades, it is amply outfitted to service many more generations... Even more gratifying is the fact that this refurbishment project not only rejuvenated a landmark facility and secured a training ground for future athletes, but it also gave an economic boost to the community by generating employment for residents of Vance River and environs. That is the kind of rounded impact that makes an investment worthwhile, and which made this project particularly rewarding for us as sponsors."

Launch of the 2017 Energy Map of Trinidad and Tobago



(L-R) Mr. Mark Loquan, NGC President; Mrs. Candace Clarke-Salloum, External Relations Manager, Shell; Mr. Selwyn Lashley, Permanent Secretary, MEEI and Mr. Fitzroy Harewood, President, Petrotrin at the official launch of the 2017 Energy Map of Trinidad and Tobago

NGC has co-sponsored the publishing of the 7th edition of the Energy Map of Trinidad and Tobago. The other sponsors were Petrotrin, BHP Billiton Trinidad and Tobago and Shell Trinidad and Tobago. The Energy Map of Trinidad and Tobago 2017 Edition was produced by Petroleum Economist Limited based in London, England, who is one of the key cartographic institutions involved in the creation of energy maps worldwide. The T&T Energy Map is part of Petroleum Economist's portfolio of energy maps and can be found on its e-commerce site, where it is sold and distributed to energy stakeholders and other customers.

In delivering welcoming remarks at the launch, Ms. Christine Punnett, Head, External Communications, NGC, noted: "Interestingly, although we live in the age of electronic media, it might still be surprising to some that printed maps continue to be very much in demand and to generate much interest and admiration. Today, I am proud that the maps have become a staple and a 'must-have' item for so many companies in and out of the energy sector. The sponsors therefore recognise the continuing appeal and potential of maps as communication/educational tools, and the prestige they bring to their respective image-building activities."

NGC has a long association with the map, having introduced its production in 1994. Since then, NGC and various energy companies have partnered to update the energy map every two years, ensuring that the varied energy landscape of Trinidad and Tobago is correctly represented in this creative and

information-dense format. The map enjoys great marketability as it is offered for sale internationally and showcases its sponsors.

In delivering remarks, NGC's President Mark Loquan stressed, "We have a map that is very holistic and complete ... We are very proud to continue to be closely associated with the map and its production. Our strategic intent is to grow our organisation and business not just here in this country, but also in the wider Caribbean region and elsewhere. The appeal of the Energy Map of Trinidad and Tobago assists in our mission as a Company and as a country, showcasing the depth of our energy involvement."

The map is also distributed to prospective investors, ministries, tertiary institutions and libraries, as well as diplomatic missions resident in Trinidad and Tobago. The map is used by its sponsors as a tool to highlight the many strides made in local energy sector development. Of interest, the map provides comprehensive statistical information on:

- The local petroleum sector
- The location of oil and natural gas fields
- Associated pipelines and offshore facilities
- Key ports and territorial waters
- The earmarked deepwater horizon for exploration and development.

The 2017 Energy Map of Trinidad and Tobago was officially launched on 7th March 2017 at the Radisson Hotel, Port of Spain.

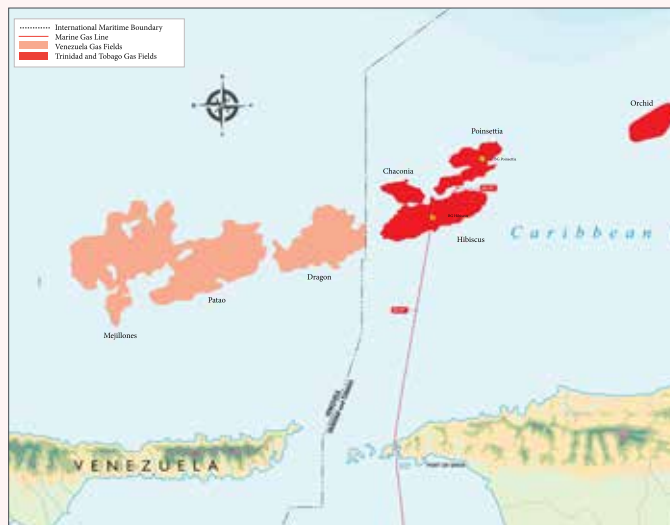
NGC, Shell, PDVSA Finalise Historic Heads of Agreement for Dragon Gas

15th March 2017 saw the signing of a Heads of Agreement (HoA) among NGC, Shell and Venezuela's state oil and gas company, Petroleos de Venezuela SA (PDVSA), and marked an historic chapter in the energy evolution of Trinidad and Tobago and Venezuela. The execution of the HoA follows the earlier Government-to-Government Agreement signed by Trinidad and Tobago's Prime Minister, Dr. The Honourable Keith C. Rowley and Venezuelan President, Nicolas Maduro on 5th December 2016.

Importantly, the agreement will create a framework for both countries through the consortium of NGC, PDVSA and Shell, to access and monetise a significant quantity of gas from the Dragon Field, utilising infrastructure owned by Shell and NGC. Dragon is part of the Mariscal Sucre complex, which holds 14.7 tcf of reserves and has the potential to transform both countries' economic and energy fortunes.

NGC's Chairman, Mr. Gerry C. Brooks, on signing the agreement, emphasised that this was another clear expression of the new Board's intent to aggressively pursue all available solutions to solve the T&T gas supply challenge in the shortest possible time frame.

The Dragon Field's reserves according to the Chairman, will buttress Trinidad and Tobago's gas reserves going forward. The gas obtained from Dragon will produce an estimated 300 MMcfd of natural gas



from four wells. In the first phase, gas from Dragon will provide a much-needed boost to the country's supply for both LNG and the petrochemical sectors.

First gas from Dragon is expected in 2020, though there have been calls by the leaders of both countries to decrease the timeline. Trinidad and Tobago and Venezuela will take responsibility to operationalise the plan to extract and monetise the gas from the Dragon Field.

NGC and bpTT's Supply Agreement

On 31st March 2017 it was announced that NGC and BP Trinidad and Tobago (bpTT) finalised agreement on key terms for a new gas sales agreement. Both parties will be moving forward with urgency to finalise the gas sales contract which is a critical prerequisite for the sanction of Angelin, bpTT's next major field development after Juniper.

BP has proposed to invest US\$5 billion in future development, which will greatly assist in the alleviation of the gas shortage situation. NGC's President, Mr. Mark Loquan has stated that Angelin will build upon recent game-changing initiatives in Trinidad and Tobago, such as the Trinidad Offshore Compression (TROC), Juniper, and Dragon projects. The Angelin gas development project, coupled with these projects, will stabilise gas production against projected decline.

Regarding negotiations, NGC Chairman Mr. Gerry C. Brooks commended both the NGC and bpTT teams for

the very responsible and constructive manner in which the negotiations were conducted.

Mr. Norman Christie, bpTT Regional President, has stated "We are pleased that negotiations with NGC on a new gas sales agreement have reached this critical milestone. Finalising the gas sales agreement will pave the way for the Angelin project and future investments. bpTT recognises the critical need for increased production from indigenous gas resources and aims therefore to have the start-up of Angelin follow after Juniper which is scheduled to start production in 2017. Reaching agreement with NGC on key contractual terms has preserved Angelin's project timeline which anticipates the start of production in early 2019."

Both the Chairman and President of NGC have indicated that in order to pre-empt any future gas shortage situation in Trinidad and Tobago, discussions and negotiations around future projects will be conducted with the appropriate lead times.

NGC Bocas Lit Fest Launch



Cross-section at the NGC Bocas Lit Fest Launch 2017

The 2017 edition of the NGC Bocas Lit Fest was officially launched on 22nd March 2017 at the National Library and Information System Authority (NALIS), Port of Spain. NGC's support for the festival has grown from being that of a major sponsor in 2011 to title sponsor since 2012. For the past five years, the NGC Bocas Lit Fest has been one of NGC's flagship 'investments' within its CSR programme. The Festival's scope and popularity (both regionally and internationally) have grown substantially since its inception.

NGC's Manager Corporate Communications, Ms. Lisa M. Burkett, in delivering the sponsor's remarks explained, "While festival attendance has always been healthy, we are particularly optimistic that this year's offerings will see a bumper turnout, for several reasons. Firstly, we have all heard with great pride that the NGC Bocas Lit Fest was named among the world's top 20 literary festivals by Penguin Random House – The Writers' Academy.

"NGC wishes to publicly congratulate NGC Bocas Lit Fest founder, Mrs. Marina Salandy-Brown, and the entire Bocas team on adding yet another commendation to the trophy case. To grow this festival in six years, from an idea into a globally acclaimed, best-in-class event, is nothing short of remarkable, and it speaks volumes about your passion and industry."

The 2017 festival runs from 26th-30th April but includes a line-up of pre-festival events here – a

full month of exciting events leading up to the 2017 Festival as it was highlighted at the media launch that the NGC Bocas Lit Fest does more than just promote writers and books.

Mrs. Marina Salandy-Brown provided an outline for this year's festival, confirming that the programme of activities was geared towards promoting national development with an interactive Festival Prison Project, facilitated by fashion designer Anya Ayouny Chee and writers Debbie Jacob and Dr. Baz Dreisinger. This comes on the heels of a successful writing workshop for inmates at the Port of Spain Prison last year.

NGC Bocas Lit Fest also addressed the extremely topical issue of human rights. "Violence against women, against children, human trafficking, and general aggression upon our freedom to move and do as we please: these are all top-of-mind concerns for Trinbagonians, and Bocas promises to build on the national conversation around them through insightful panel discussions. With the public clamouring for solutions and more forums to air their concerns, we expect a healthy turnout at these sessions," added Ms. Burkett.

She stated, "Literacy goes beyond the simple ability to read and write to encompass a degree of knowledgeability and learning. In the spirit of promoting literacy in its fullest measure, the NGC Bocas Lit Fest makes space in its agenda for intellectual discussion and open debate."

NGC's Energy Commodity Trading – Latest Development

Trinidad and Tobago LNG (TTLNG), a subsidiary of NGC, delivered its first of 18 cargoes to Egypt Natural Gas Holding Company (EGas) as part of a new LNG supply deal on 4th April 2017.

In *Gasco News* January 2017, it was reported, TTLNG conducted its first, third party trade when an LNG cargo was purchased and loaded at Bonny Island, Nigeria and delivered to Jebel Ali, Dubai. TTLNG started marketing its LNG cargoes on its own in August 2012. Working with its trading partner Gunvor, NGC and the MEEI representatives met with EGas officials in December 2016 and subsequently closed the deal earlier this year, for supply in the period April to December 2017. This comes at a time when the LNG market has become highly competitive with new supply sources entering the market, and capturing market share is much more difficult.

In addition to the incremental earnings, this helps to build TTLNG's credentials as a global trader whilst managing the new risks involved. The approach has been a team effort comprising several divisions in NGC, namely Legal, Finance/Treasury Operations, Accounting and Value Optimisation. The TTLNG Trading Team was able to negotiate and develop agreements for the purchase/supply of LNG for the period April to December 2017, which increased the



*From left to right: Reeya Bholai; Vinod Rajkumar; Junior Guevara; Wahaid Abdool; Kwailan Brathwaite
Inset: Melissa Bhimsingh*



TTLNG sales portfolio from three cargoes per annum to 21 cargoes. The team comprises:

- Vinod Rajkumar – Senior Commercial Advisor, Value Optimisation
- Melissa Bhimsingh – Commercial Analyst, Value Optimisation
- Wahaid Abdool – Commercial Analyst, Value Optimisation
- Kwailan Brathwaite – Commercial Advisor, Value Optimisation
- Reeya Bholai – Legal Counsel, Contracts
- Junior Guevara – Security Co-ordinator

It has also been a learning experience for all involved as the Company continues to develop new skill sets that can add sustainable value.

NATIONAL ENERGY NEWS

The Solar Energy Park Project

Due to the importance of renewable energy in creating a sustainable energy future, National Energy has included renewable energy as one of its key areas of focus for development and continues to work with governmental and private partners to advance the implementation and use of renewable energy technologies in Trinidad and Tobago. One of the exciting undertakings the company is currently spearheading is the Solar Energy Park Project.

The project involves the development of a new manufacturing industry based on advanced technology. If implemented, Trinidad and Tobago could see the creation of an energy park consisting of four plants: a metallurgical grade silica plant; a poly-silica plant, a float glass plant, and an integrated photovoltaic (PV) plant. Utilising silica sourced within the region as raw material, the complex would produce components for use in PV-based technologies.

In 2016, National Energy engaged a renewable energy consultancy firm, to update the 2013 feasibility study, examining the economic models of the project, among other aspects. The updated study is being reviewed by National Energy's Board of Directors. Additionally, the company is engaging stakeholders including, the MEEI, the Energy Chamber, state agencies and industry partners to obtain feedback on the project's feasibility.

President of National Energy, Dr. Vernon Paltoo, along with members of the Energy Industry Development Division attended the Clean Energy Central America and Caribbean (RECAM) Conference 2017 held in Panama City, Panama from 7th-9th March, 2017.

At the Conference, Dr. Paltoo and the National Energy team presented the project to a wide cross-section of international renewable energy firms. The RECAM Conference brought together companies operating at various points along the renewable energy value



The National Energy Team, from left: Ms. Aribeca Cazaubon, Team Leader, Energy Industry Development (EID); Dr. Vernon Paltoo, President, National Energy; and Ms. Marcia Maynard, Acting Manager, EID

“The project involves the development of a new manufacturing industry based on advanced technology.”

chain including manufacturers, installation and service companies, government agencies, multinational banks and investors. Additionally, meetings were held with potential investors to gauge their interest and refine development strategies based on feedback received. The team met with some of the world's major PV organisations, including JA Solar and Jinko Solar.

At an estimated capital cost in excess of US\$1 billion, the Solar Energy Park Project would represent a monumental leap forward for Trinidad and Tobago in the renewable energy manufacturing business. The new industry would also lead to the diversification of technological skill sets and the emergence of ancillary business clusters to support the industry.

Port of Galeota Warehouse Taking Shape



Roof sheeting is installed at the warehouse building, Port of Galeota

The Port of Galeota is continuing on its way to becoming a hub for logistical and offshore support services with the construction of a 29,000 ft² warehouse to serve port users. Construction works began in October 2016 and at the end of March 2017, the building was 73% completed.

The 'pre-fabricated' design in which various components were manufactured off site and then installed on site, has benefits in terms of cost reduction and improved efficiency. As at 31st March 2017, the foundation of the warehouse was completed and structural members (beams, columns, braces and purlins) had been installed. All bolts have been

tightened, base plates grouted, roof sheeting and wall cladding installed. External works comprising roads and drainage are ongoing and electrical installation will commence in April.

The warehouse will feature a five-tonne capacity overhead crane to facilitate loading and offloading of equipment and material from trucks, which would be able to drive through the building. The facility will also offer bonded warehousing and a 'cold room' for sans-materials.

Discussions are ongoing with potential clients for use of the warehouse facility, which is scheduled to be completed in May 2017.



Port of Galeota

President's Appointment



Mr. L. Dominic Rampersad, President, PPGPL

Mr. L. Dominic Rampersad was appointed as President of Phoenix Park Gas Processors Limited (PPGPL).

Mr. Rampersad has over 26 years' experience in financial accounting, and has held various portfolios at PPGPL. These include Management Accountant, Financial Accountant and Business Development Project Leader. He was a key contributor to the successful completion of five expansion projects, which resulted in the doubling of PPGPL's gas processing, fractionation and NGLs storage capacity. From 2003 to 2014, he performed the role of Vice President, Finance and Information Technology responsible for the finance, information technology, project financing and corporate legal functions; and also performed the role of Corporate Secretary.

He is a member of the Association of Certified Chartered Accountants and the Institute of Chartered Accountants of Trinidad and Tobago. In addition to this, Mr. Rampersad currently serves as a Director on the boards of the Unit Trust Corporation of Trinidad and Tobago and the American Chamber of Commerce of Trinidad and Tobago.

The NGC Group of Companies congratulates Mr. Rampersad on his new appointment and wishes him every success in his endeavours. In the next edition of NGC Group Gasco News, expect a full length interview on Mr. Rampersad's vision for PPGPL.



PPGPL's Head Office

NGC CNG NEWS

NGC CNG Launches Mobile App

A mobile app has been launched by the NGC CNG Company Ltd. The app features the following:

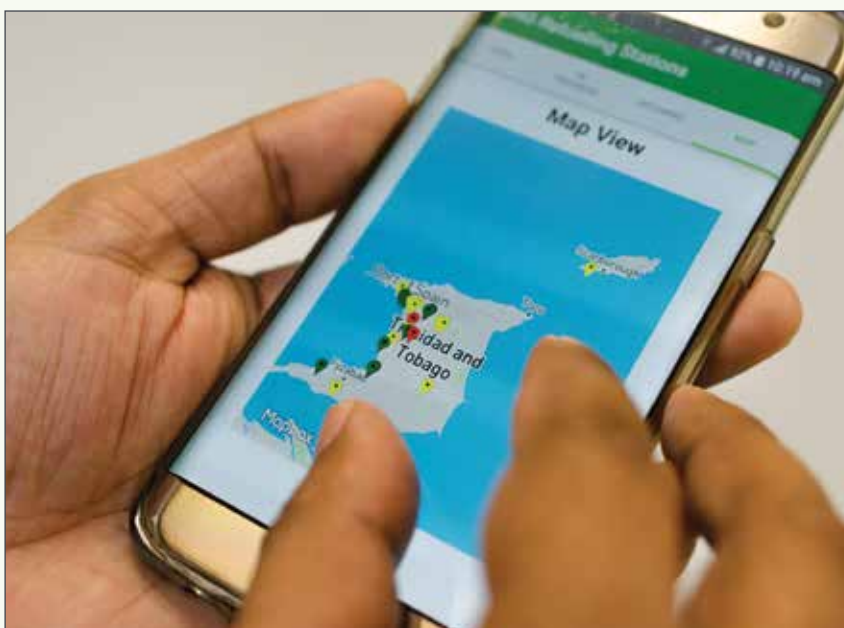
- CNG Savings calculator
- CNG Return on Investment calculator
- Current CNG incentives and grants
- Current CNG refuelling stations and those planned for 2017 & 2018
- Frequently asked questions about CNG
- Corporate information on NGC CNG.

Another interesting feature of the app is a feedback mechanism where users can report any issues at CNG stations. The app, launched in March, was developed by Shiva Persad, NGC's Application Developer (Ag.) from the Systems, Planning and Development section of the Information Technology Department. Shiva was a recipient of NGC's Postgraduate Scholarship Programme. He read for an MSc IT for the oil and gas industry. He worked on the mobile application for his master's project, which earned him an A for his project investigation and project component courses.

The release of the mobile app is just the start for NGC CNG as there are further iterations planned to update the app during 2017. These updates will improve the app's functionality and hopefully facilitate its use as a utility mobile app amongst Trinidad and Tobago's population. The app can be downloaded from the App store or Google Play.



Snapshot of the NGC CNG Mobile App



Two New CNG Converters Added

2017 saw the licensing of two new CNG converters. ANSA Automotive Ltd and Dumore Enterprises were awarded their CNG Service Licences earlier this year, which now allows them to convert gasoline and diesel vehicles to use CNG. They joined the previously licensed Massy ACL, bringing the total number of licensed converters to three. With over 800,000 licensed vehicles in Trinidad and Tobago, conversions will form a significant part of the NGC CNG targets. A gasoline vehicle when converted now has two fuels, gasoline and CNG, and can operate on

either one. A diesel vehicle when converted still uses some diesel, but CNG replaces between 50-60% of the diesel. A gasoline vehicle conversion ranges from \$10,000-\$12,000, where a diesel conversion is twice as expensive for a comparative vehicle. In March 2017, a meeting with all licensed converters and those which have applied for a conversion licence was held to further explain the CNG programme, as well as the various CNG incentives and grants offered by NGC CNG.

INDUSTRY NEWS

Signing of Local Content Charter at the Trinidad & Tobago Energy Conference 2017



The CEOs of the major oil, gas and petrochemical companies in the country sign the Local Content Charter at the Trinidad and Tobago Energy Conference 2017

On 23rd January 2017, the CEOs of the major oil, gas and petrochemical companies in the country signed a charter at the Trinidad and Tobago Energy Conference 2017, committing to work towards increased local content in their operations. This indication of their commitment to increasing local content in their operations will prove beneficial to our energy sector as it will maximise the use of local goods and services, people, business and financing.

The idea of the Local Content Charter is to create a voluntary, industry-led process for companies to work together in this effort. They will also commit to work with other stakeholders such as the Energy Chamber and education/training organisations. In the past, there have been many individual company policies around local content – this represents the first time that they have committed to co-ordinate their strategies and work together.

In 2004, the Government launched a Trinidad and Tobago Local Content and Local Participation Policy and Framework. A Permanent Local Content Committee was then appointed to ensure adherence to the policy and to devise strategies to increase local

content and participation in all energy sector projects. Eventually, provisions for local content were incorporated in Exploration and Production (E&P) Licences and Production Sharing Contracts (PSCs). However, there have not been any significant gains in local content participation and value maximisation. Therefore, the Permanent Local Content Committee was reconstituted in March 2016 with a mandate to:

- Review the current local content and participation policy and framework
- Ensure adherence to the local content policy
- Establish a monitoring entity for the energy sector
- Review arrangements which are in conflict with local content legislation.

NGC's Senior Manager, Engineering and Construction Services (Ag.), Mr. Ernest Esdelle, a member of this reconstituted committee, noted that "in its most simplistic definition, Local Content means any value derived from foreign goods and services delivered locally. The reconstituted Local Content Committee is keen on recommending strategies to drive greater compliance with the country's Local Content Policy by foreign companies and thus maximise value locally."

ONE MOMENT PLEASE



**TO REFLECT ON THE BEAUTY
THAT SURROUNDS US HERE IN
TRINIDAD AND TOBAGO**

The warmth and tranquillity of the Caroni Swamp render it a haven for this blue heron, one of the region's endemic wading birds. An ecologically diverse and highly productive system, the swamp is an important wetland that provides food and protection for many species of animals.
Photo: Brendan Delzin



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