

THE NGC GROUP OF COMPANIES CORPORATE QUARTERLY JOURNAL

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# Hello Future



## PRESIDENT'S MESSAGE

Hello Future

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



**PHOENIX PARK  
GAS PROCESSORS LIMITED**



**Trinidad and Tobago NGL Limited**



**NGC CNG  
Company Limited**



**National Energy**  
CORPORATION OF TRINIDAD AND TOBAGO

## PRESIDENT'S MESSAGE

# Hello Future

**I**N January, we agreed on a theme for our first issue of *GASCO News 2020* on the premise that this decade would open a new chapter in global history. 2020 would mark the start of a pivotal decade of action against climate change. It would usher in new technology and a new sociocultural ethos. Paradigms in energy would shift, with markets and consumption evolving in unpredictable ways. For us at The NGC Group, 2020 would bring the curtain down on our current Strategic Plan, and actuate discussions around our goals for the next five years. We saw 2020 as the threshold into the future.

Within a few short weeks, this theme has assumed a new dimension. Humanity has come up against a threat unlike any we have encountered in modern times. A tiny pathogen is felling tens of thousands of people across the world and bringing economies to their knees. The very strength of our new world order – our interconnectedness – became our vulnerability. If it wasn't before, it is now patently clear that the future before us does not just bring opportunity, but unprecedented risk.

For us at The NGC Group, the COVID-19 pandemic has alerted us to the need for constant vigilance and business resilience. Had we been unable to mobilise in response to this crisis, the consequences for Trinidad and Tobago could have been severe. Fortunately, we have been standing with other frontline responders to ensure our critical services to the country continue to be delivered.

Even though the full impact of this unfolding crisis will not be obvious for some time still, certain lessons are already clear to us in our particular business context. We need to have strong response systems in place to ensure business continuity, which includes having the flexibility to execute work processes remotely. Among other things, this means taking full advantage of the technology available in all our functional areas.

OPEC developments are dealing a simultaneous blow to energy markets on top of COVID-related disruptions. This has underscored the importance of having a varied portfolio of investments that can buffer against income



*Mark Loquan, President, NGC*

losses in any one sector. This holds true for both the NGC Group and the wider national economy.

Importantly, we have also learnt the value of collaboration, and the opportunities we have to grow as a country if we take this spirit of co-operation into the future. Recognising how different segments of our economy intersect – how one can impact another – can help us appreciate the value of strengthening alternative economic sectors that we might otherwise take for granted.

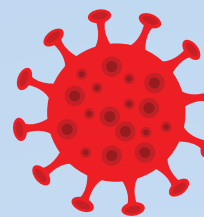
In this issue of *GASCO News*, we will highlight some of the ways we are responding as a Group to these important lessons. We are investing to grow our business, we are investing to grow national jurisdictional competitiveness, we are investing to grow alternative industries.

Whatever the future that lies beyond COVID-19 has in store, we will meet it with courage, conviction in our purpose and an indomitable spirit. ■

**Mark Loquan, President**



Business in a New Age



# **Braving COVID-19:**

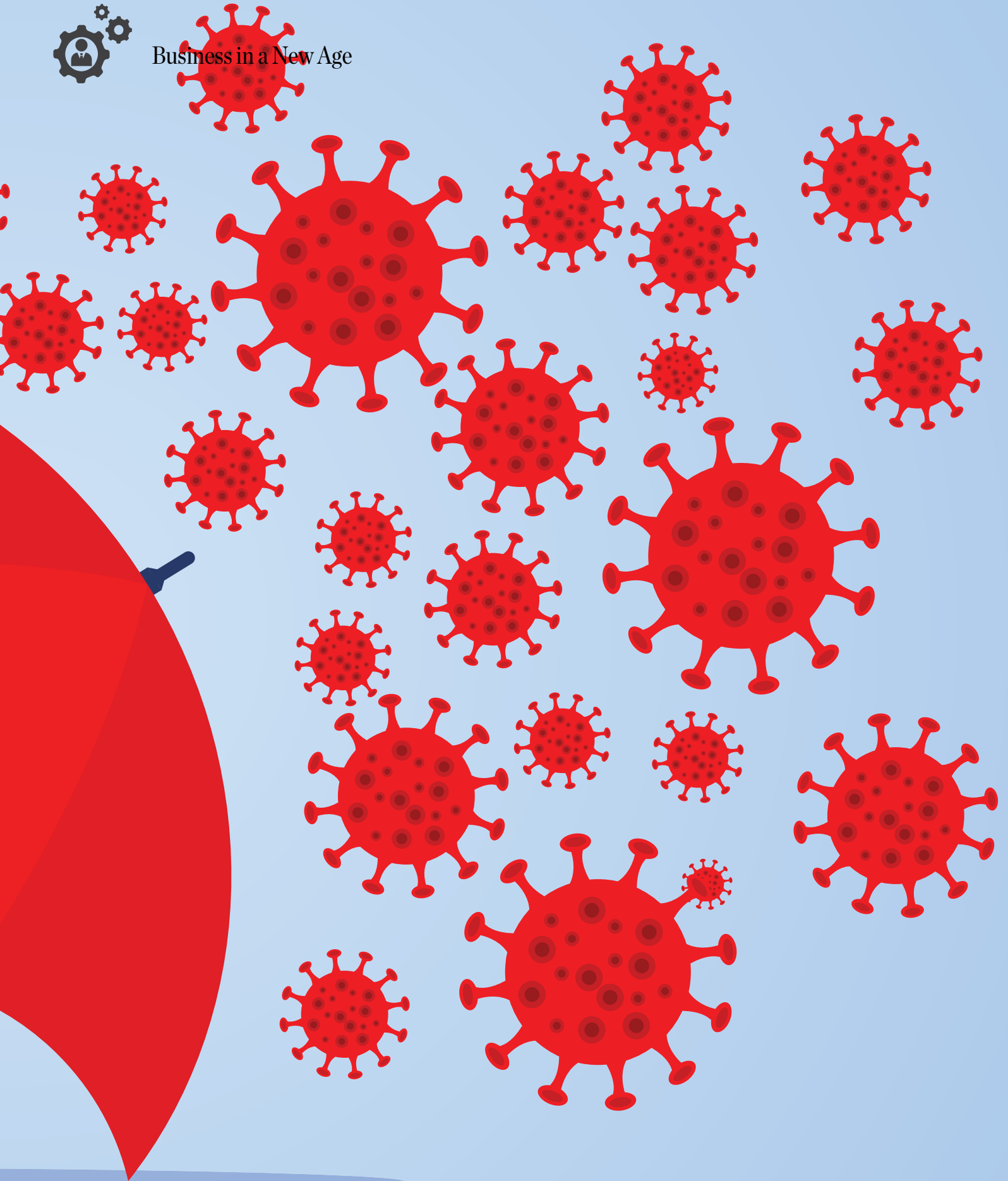
## **NGC's Business Continuity Plan in action**







## Business in a New Age





*NGC began temperature screening at all its facilities.*

In late 2019, China reported early cases of infection by a coronavirus hitherto unknown to medicine. This virus presented as an innocuous flu in some patients but caused fatal symptoms in others.

Within a few months of its earliest detection, the virus, now called COVID-19, was carried from country to country on the back of globally interconnected travel and trade. At the time of writing, COVID-19 – a declared pandemic – has infected more than 3.5 million persons and killed over 247,000 from across every settled continent. The result has been unprecedented upheaval as countries around the world try to isolate their publics from the virus.

#### **NGC MOBILISES**

Needless to say, in a world economy that succeeds on the premise of interconnection, COVID-19 and responses thereto can have crippling consequences beyond the sphere of health. As a major player in the energy



## Braving COVID-19: NGC's Business Continuity Plan in Action | CONTINUED



*Frontline workers practise social distancing*

industry, which is impacted in different ways, the NGC Group of Companies has been assessing the fallout of this pandemic and taking necessary action to protect its people and business.

### **Safety first**

Even before it became a named pandemic, COVID-19 was on NGC's radar as a potential health emergency that required pre-emptive action. Starting in January, the Business Continuity Plan (BCP) was activated. Banners and other print media were installed at office locations to inform employees of symptoms to watch for, and to remind them of protective personal hygiene practices. Multiple new sanitising stations were also installed and regular communications issued to staff, tracking the progression of the virus outside of Trinidad and Tobago. As a precautionary measure, business travel was restricted.

In March 2020, when the country recorded its first positive COVID-19 case, the Company's response protocols were immediately escalated. The Incident Management Team (IMT) was mobilised to manage the implementation of NGC's BCP. Temperature screening at site entrances commenced, gatherings for events and meetings were reduced and discouraged, and travel was suspended. On March 18th, the Company initiated a work-from-home policy for non-essential staff.

As the national situation developed, NGC has made important adjustments to its workflows and processes, all aimed at keeping employees, contractors and other stakeholders safe, while maintaining operational efficiency (see page 6).

## **KEEPING THE BUSINESS GOING**

### **Operations**

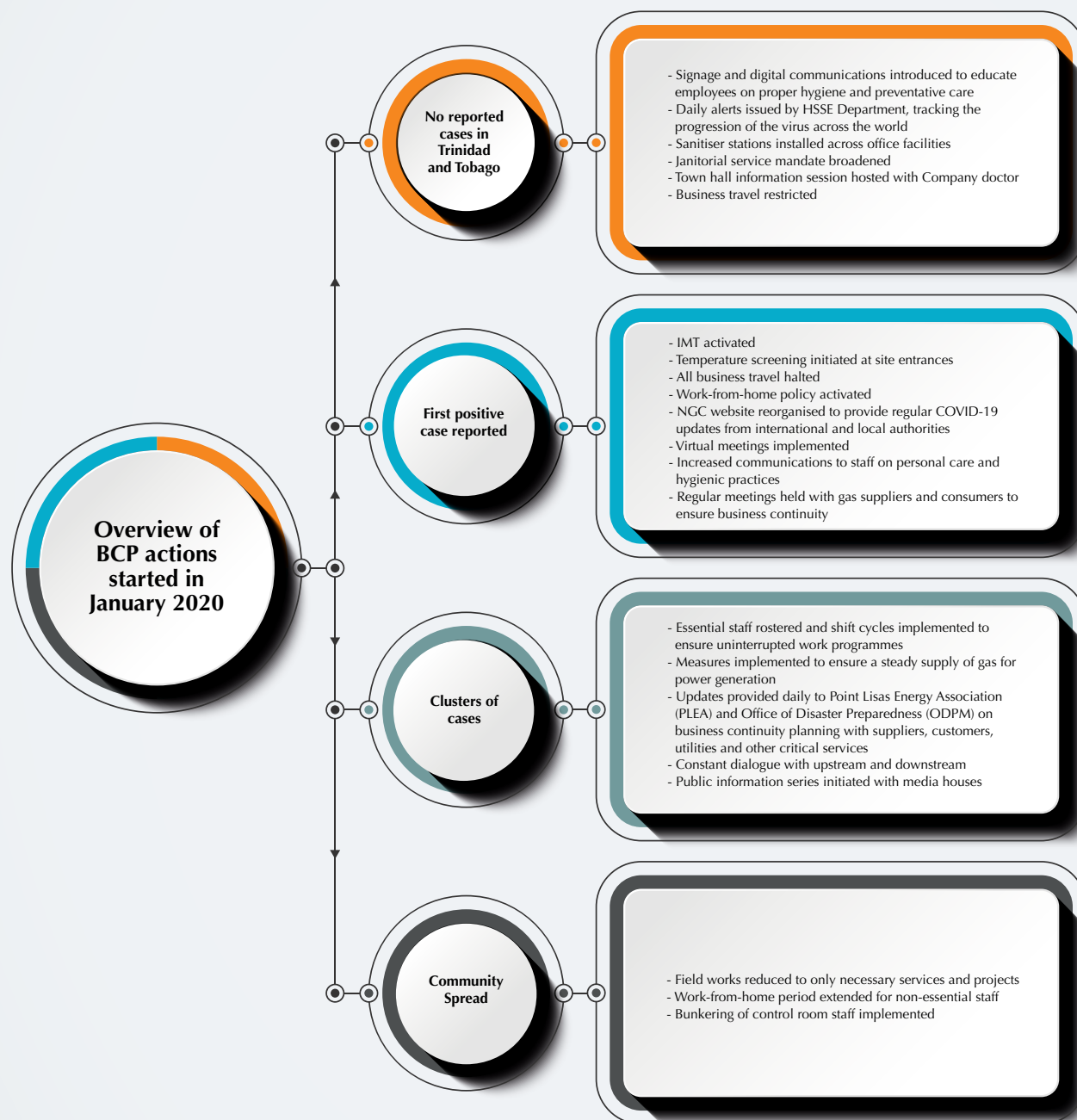
Under ordinary circumstances, the work of the NGC Group is of critical importance to Trinidad and Tobago, both directly through its revenue generation and indirectly through its support of other sectors, including services such as power generation. Through its subsidiary Phoenix Park Gas Processors Limited (PPGPL), the Group supplies Liquefied Petroleum Gas (LPG) to National Petroleum, ensuring that cooking gas is available to restaurants, hotels and the wider population. Another subsidiary NGC CNG supplies a low-cost alternative fuel to the motoring public.

In the grip of COVID-19, the country is relying even more on the Group's services. For instance, NGC is the sole provider of natural gas to all of Trinidad and Tobago's power producers. With the larger part of the population asked to stay at home and conduct business remotely, as far as practicable, digital connections and transactions have become the only means by which many businesses can continue operations. To sustain this new modus operandi, a stable power supply is essential.

NGC also supplies the local manufacturing sector, which produces critical goods such as food, beverages and household consumables. With global supply chains and trade interrupted, local manufacturers must have the necessary support to cover import gaps and continue producing for domestic consumption. Accordingly, NGC has had to implement measures that would ensure uninterrupted supply to these sectors, even within the context of nationwide restrictions.



## Overview of BCP actions started in January 2020







## Braving COVID-19: NGC's Business Continuity Plan in Action | CONTINUED

### ***Managing people and risk***

The foremost consideration for NGC has been managing its essential staff in the Operations function – the men and women on the frontline of the effort to keep business going. With their safety of paramount importance, rosters and shift work were introduced to reduce the periods of exposure on the field. Activities and projects were scaled back to leave only those operations which are necessary to maintain gas supply. In that regard, assessment and management of network and infrastructure risks have assumed new importance, as these processes inform which works should take priority in task scheduling.

Additionally, the Operations leadership team has implemented mechanisms for systematic and real-time sharing of information to both employees and external stakeholders with regard to business developments and emerging risks. Such communication facilitates proper planning, resource mobilisation and most importantly, the safety of field personnel.

### ***Network reliability***

To ensure the constant availability of NGC's network even in the event of crisis escalation, the Pipeline Operations team has proposed backup measures for all facilities. Among these, an operator bunkering plan was developed for activation if stricter shelter-in-place protocols are mandated.

The Pipeline Maintenance team continues field activities to manage risk along the pipeline Right-of-Way corridors, making full use of technology to minimise risk to personnel, such as using drone surveillance in place of physical walk-throughs. Critical pipeline pigging activities also continue to be executed to ensure network reliability is sustained beyond 99%.

The relevant Operations teams also continue to maintain safety-critical equipment (SCEs) to ensure that barriers are in place and uncompromised. Meanwhile, the focus on Asset Integrity Management (AIM) remains sharp, with technology allowing AIM work to be executed remotely via collaborative digital tools. The Field Engineering team is simultaneously progressing the preparation of critical maintenance projects, reassessing these projects from a risk perspective and developing mitigation plans.

In the background of all this work, the Operations team continues to drive key value creation initiatives and improve molecular efficiency.

### ***Supporting the value chain***

NGC appreciates that it operates within an interdependent network of suppliers, energy service companies and consumers. For NGC to continue delivering on its own



***Drone surveillance is reducing risk in the field***

services, the entire gas value chain must work as a unit. To do its part in keeping the chain strong, NGC has proactively led structured co-ordination meetings with upstream, midstream and downstream energy companies. These allow stakeholders to share status updates, co-ordinate responses and share best practices to help manage operations safely and successfully throughout this period. In the vein of knowledge-sharing, NGC also initiated the development and publication of a monograph with the Centre for Chemical Process Safety (CCPS), providing guidelines for energy companies to manage risks during the COVID-19 pandemic.

NGC's Operations team is also proactively liaising with all the critical support services, utilities and port operations that the member companies of the Point Lisas Energy Association (PLEA) depend on to sustain their own operations. NGC has provided daily updates to PLEA members on any status changes that could affect those ancillary services. This channelling of communication helps PLEA operators plan for and sidestep changes that could interrupt their business. This, in turn, allows upstream producers and NGC in the midstream to keep their respective operations running.

### ***Commercial***

Domestic supply and distribution constitute just one aspect of NGC's business portfolio. The Company's



## Braving COVID-19: NGC's Business Continuity Plan in Action | CONTINUED

***LNG demand has fallen along with other fuels***

Commercial Division manages investments in upstream exploration and production, canvasses for new investment opportunities locally and abroad, independently markets crude and LNG cargoes from NGC's investments, and manages the Company's domestic purchase and supply contracts.

Where the restrictions on movement and stay-at-home directives have been a major challenge for the Operations side of the business, the Commercial team has encountered different obstacles on account of COVID-19, due to its work in international energy markets.

***Energy impacted***

Around the world, countries have imposed restrictions on air travel, idled factories, closed or triaged businesses, and enforced varying degrees of quarantine among the general population. These efforts to curb the spread of the virus have resulted in reduced fuel demand in transportation and industry. Lower demand depresses energy prices, not just of oil, but of other fuels such as methanol and LNG.

Although the NGC Group is taking active measures to

buffer its business against this pandemic, to the extent that the Group participates in international markets, some impact is to be expected.

For instance, through its Commodity Trading desk, NGC exports crude and LNG cargoes from its interests in the upstream sector and Atlantic to customers in Asia, Europe and the Americas. As prices of both these commodities have fallen with demand, margins from cargo sales will be reduced until markets are stabilised

Of course, it may still be too soon to predict the full impact of the pandemic on business given the advance of the virus, its uncertain trajectory as well as geopolitical developments. However, fiscal and regulatory reprieves being granted both locally and internationally will provide a measure of protection against some of the potential fallouts.

***Commercial BCP***

At the same time, NGC's Commercial team is actively continuing to scan international markets for investment opportunities that may arise despite, or perhaps because of, prevailing circumstances.



## Braving COVID-19: NGC's Business Continuity Plan in Action | CONTINUED

The need for a diverse portfolio of investments is even clearer now that traditional sources of income are challenged.

COVID-19 has also forced ongoing contract negotiations into virtual meeting rooms, but the team continues to push these toward closure, to help secure supply and customer business. Alongside this important work, existing contracts continue to be administered and all obligations met, supported by the Operations team. Digital platforms are being used to liaise frequently with consumers and suppliers to maintain open lines of communication and understand individual circumstances and needs.

Another important function of the Commercial team has been providing market intelligence data and scenario planning to influence key business decisions. As NGC and the wider Group navigate these uncertain times, live information about market trends and projections around the future of the industry are crucial inputs into strategic and business continuity planning. The Company must have sight of the potential trajectories of its business and make decisions on an informed basis. The Commercial team is, therefore, playing a pivotal role in securing the future of NGC.

### **Supply Chain**

In order for NGC's essential staff to continue serving on the frontline, certain backend support is needed. For one, critical supplies such as protective gear must be made available to them. Working hard to ensure staff is properly equipped is the Procurement Division.

As worldwide production has slowed, businesses have closed and many supply chains have been disrupted, the team has had to explore different avenues to meet internal customer needs. Sourcing stocks of in-demand items such as hand sanitisers, Personal Protective Equipment (PPE) and infrared thermometers has been especially difficult, with supply being tight and price gouging a real concern. However, the team has partnered with suppliers around the world to source products – with particular assistance from China – and has been shipping via air freight to expedite delivery.

In addition to purchasing goods, the Procurement Division has also been attending to the needs of other functional areas that have contracted products and services from domestic providers. The routine work of supply chain management continues with the team making full use of digital tools to invite and receive tenders, issue authorisations and manage payments. Importantly, the team is also working with a degree of flexibility to accommodate and support suppliers who face challenges in their own businesses.

### **Port Operations**

The procurement of essential goods for NGC and indeed, the entire country, is heavily dependent on smooth port operations. NGC Group subsidiary National Energy has therefore implemented its own BCP controls to ensure it can keep delivering vital logistical support to the country through the ports and maritime services in its charge. Thermal scanning has been introduced for all persons entering pier and dock facilities, and non-nationals are not allowed to disembark incoming vessels. Ship scheduling and marine co-ordination are still being facilitated using technology. Tugs, workboats and launches continue to work and are available for use, except during downtime for ongoing maintenance and repairs, and arrangements have been put in place to secure fuel for their operations. With regard to personnel, all vessels are still being manned and all essential shore-based staff is rostered for duty. Contractors have been enlisted to procure provisions and emergency goods and services, and other vessel support facilities are being secured.

### **National Outreach**

Corporate Social Responsibility is a major element of NGC's business portfolio. While national stay-at-home directives have put many scheduled initiatives and events on hold, the Company has sought different means of outreach to continue delivering support to communities. One of these has been the provision of assistance to senior citizen homes across the country to purchase items such as food, medical and sanitation supplies. One of the Group's subsidiaries provided support to hospitals in the form of donations of blankets. For the broader national community stuck indoors, NGC partnered with several media houses to promote awareness of safety and proper hygiene to reinforce positive behaviours during this period of pandemic restrictions. The Company also partnered with the trinidad+tobago film festival (ttff) for its #watchafilmonus campaign. Other outreach initiatives have been activated in our fenceline communities, and NGC is also partnering on a special project with The University of the West Indies.

### **HOPE FOR THE FUTURE**

NGC continues to monitor the progression of COVID-19 with optimism that the pandemic can be contained and overcome. Whatever the future holds, NGC and the wider NGC Group remain committed to delivering value for Trinidad and Tobago, and are agile enough to emerge stronger from these challenges. ■





Business in a New Age

# A radical change to work





**T**HE COVID-19 pandemic has affected all aspects of life around the world. As the virus spreads, starting in China at the end of 2019, businesses worldwide have been keeping an eye on the impact that this virus has on their operations. Of paramount importance are the health and safety of people. Accordingly, companies have sought ways to keep essential services and business operational while minimising risk.

NGC is no different, operationalising a COVID-19 Business Continuity Team in January, and monitoring the situation frequently. The Information and Communication Technology (ICT) team has been a part of this effort from its inception, keeping abreast of the Company's plans and contributing and shaping the ongoing responses. When the decision was taken to move to a Work From Home (WFH) scenario to protect the well-being of NGC staff, the ICT team was already mobilised to support.

#### **A Solution that Scales for Mobile Users**

Rapid and reliable deployment in a situation such as this is key. Throughout the years, ICT has provided various ways to work remotely to external parties such as consultants, and certain members of staff that required access while away from their office. The traditional solution is robust but required manual deployment and assistance from a member of the ICT team.

In 2019, leveraging a close relationship with Microsoft, and always with an eye to facilitating the business in modern ways of working, the ICT team started work on deploying a Windows 10 Feature called Always On VPN. This required significant infrastructural changes in how the environment handled security – an exercise that took several months. However, in December 2019, Always On VPN was in limited testing outside of ICT.

With the looming threat of the pandemic in January, additional time was dedicated to wrapping up the project while balancing routine requests. With a push on the weekend of March 14th, Always On VPN was completed. This was deployed to all users on March 16th with excellent success. Of the over 250 laptops to which it was auto-deployed, only two experienced unrecoverable issues.

#### **A Quick Solution for Deskbound Users**

While the Always On VPN deployment worked well for already mobile users, almost half of NGC's client fleet are desktops. The ability to support desktop users from home was needed. The ICT team discussed a number of solutions, including the option of carrying desktops home. This option was not ideal due to the fact that desktops are not intended to be mobile, often cannot connect to home networks and are not insured for mobility.



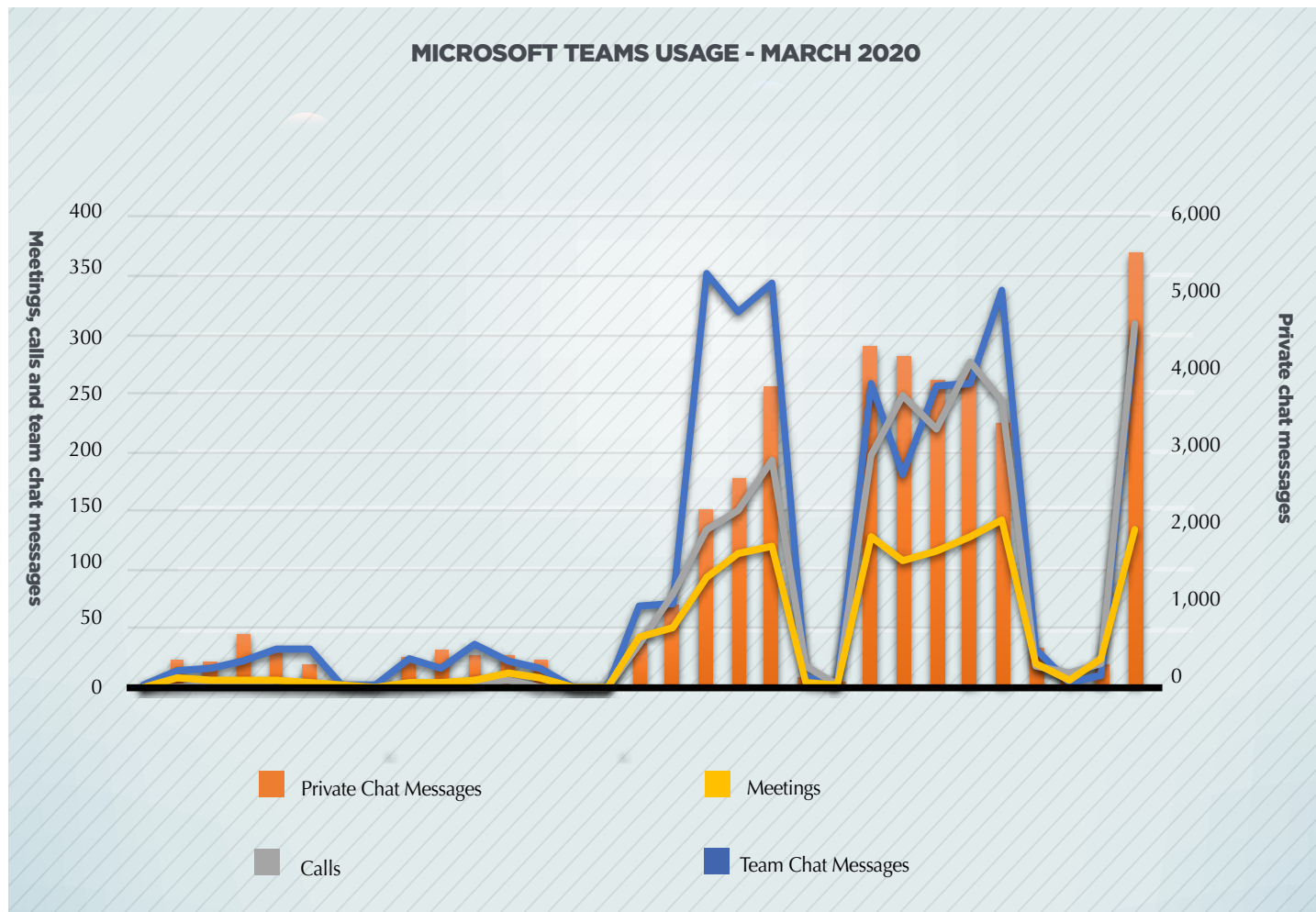
What was tested in quick stead was a solution called Chrome Remote Desktop. This solution had two requirements:

1. The user needed a PC at home to use
2. The user needed a Gmail account

The issue with this solution is that it was very manual to deploy. Unlike the Always On VPN, this did not scale. The approach, therefore, was to develop clear, detailed, yet easy to follow instructions and circulate to users. This approach worked with great success.

#### **Keeping in Contact**

Even though users now had access to computer resources from their homes – either through Always On VPN for laptop users, or Chrome Remote Desktop for desktop users – this new remote work scenario has put the Company in uncharted waters in terms of office culture. The ICT team turned again to the Company's investment in Microsoft technologies and began giving tips and guidance on using Microsoft Teams to facilitate remote meetings and to keep in touch one-on-one with colleagues. Many online collaboration platforms such as Zoom, WebEx and even Microsoft offered free licenses for a limited period at the start of this pandemic. Fortunately, NGC already had Microsoft Teams licenses for all users and has been making use of the platform for a few years in limited ways.



*Online collaboration increased following WFH implementation*

With the advent of WFH, the adoption of various Teams features has increased immensely, with meetings, calls and chats more than quadrupling over the last month.

### Supporting It All

Through it all, the ICT Helpdesk has also been adapting. As the first point of contact with the ICT Division, the Helpdesk receives a constant flow of requests daily. During the period of transition to WFH, these requests continued, as people adjusted to their new work environment.

With the loss of the office phone extension, the Helpdesk mobilised to serve employees through Microsoft Teams. The initial push to get Chrome Remote Desktop from a manual to a scalable process was directed and driven from the Helpdesk. The effort to 'emergency reload' as many workable laptops as possible was also owned

and completed by the Helpdesk, as well as a number of additional user requests.

Through it all, the Helpdesk has been adapting and delivering, with support from other teams within ICT, and support from NGC's Security Department.

### What the Future Holds

At this point in Trinidad and Tobago, with the stay-at-home order firmly in place, even more departments have opted to reduce their on-site rostered staff and move their users to WFH. While there have been hiccups along the way, the dedication of the entire NGC team to continue to deliver its essential service to the nation, the proactive leadership of executives and the delivery of enabling solutions will continue to keep NGC operating through this pandemic and into this radical new way of working. ■



Business in a New Age

# Managing operational risk amid disruption:

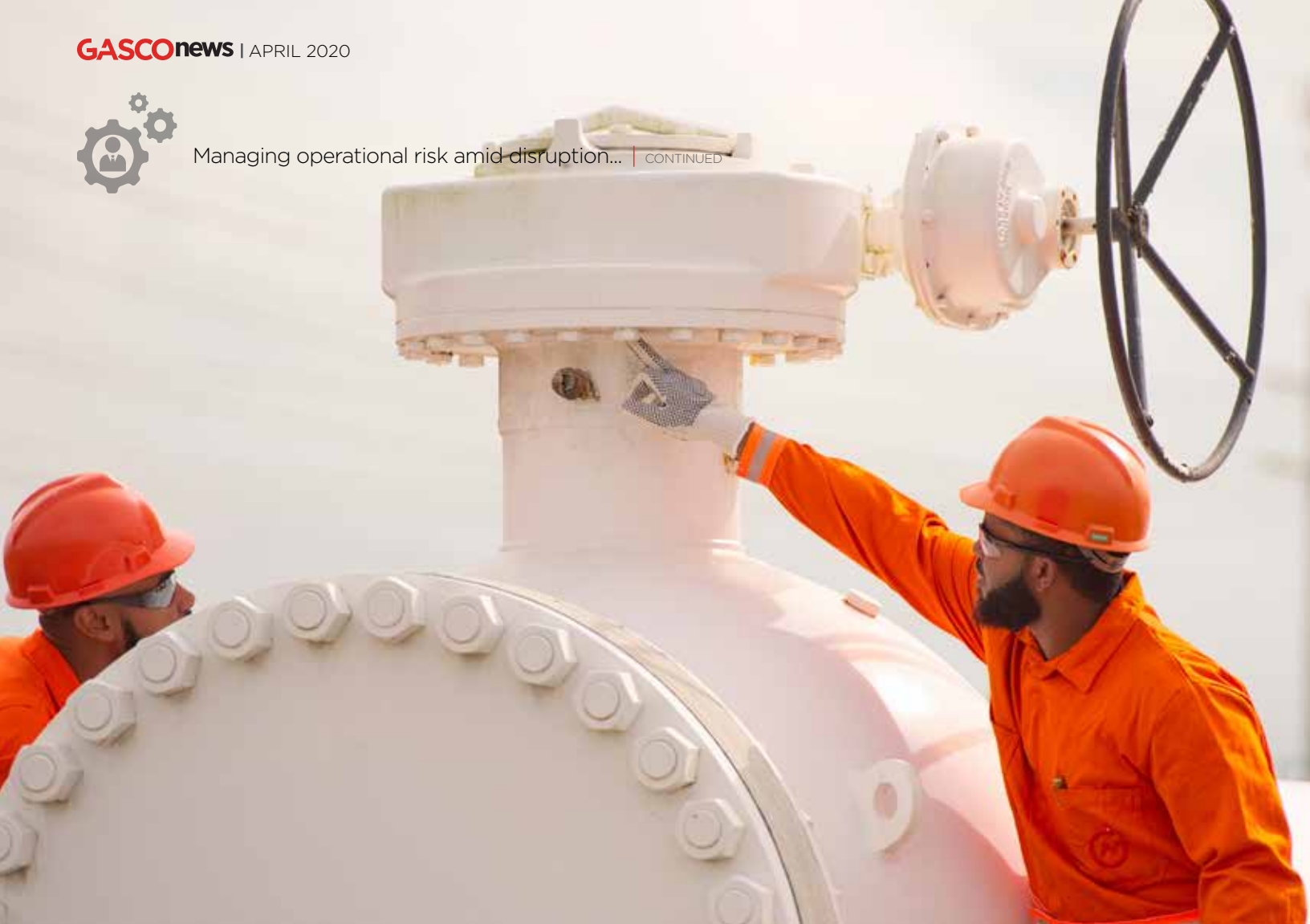
NGC partners on Process Safety monograph with the Centre for Chemical Process Safety (CCPS)







Managing operational risk amid disruption... | CONTINUED



*Risk management is critical to ensuring employee safety*

Across all economic sectors and species of industry, one major principle has connected businesses in the reign of COVID-19 – regard for the health and safety of people. Various precautions are being taken to reduce employee and stakeholder exposure and the risk of contagion.

For essential workers on the frontlines of the energy sector and industries handling hazardous materials, safety must be approached from two directions. On the one hand, the threat to health and life on account of COVID-19 must be addressed with proper protective gear and operational protocols. On the other hand, companies must ensure through management of organisational change (MOOC) that new manning configurations, procedural changes and unavailability of key resources during this period do not introduce further and more immediate risks to employees and process safety assurance. In this context, Risk-Based Process Safety Management (RBPSM) becomes especially critical.

In the usual course of operations, RBPS guidelines are used by energy and chemical companies to manage and mitigate the risk of process safety incidents due to failures of technology, human errors, weaknesses in

management systems, external circumstances or natural events. With COVID-19 disrupting routines, reducing manpower and forcing companies to manoeuvre in a restricted operating environment, risk management must now factor in a host of new conditions and constraints.

Recognising the importance of sustaining the energy sector and the need for process safety measures that respond specifically to the new COVID-impacted reality, NGC's Vice President of Operations, Ramesh Harrylal, proposed that the Company partner with the Centre for Chemical Process Safety (CCPS) to produce response guidelines and insights that can help companies across the world manage new risks and continue operating safely.

This proposal was met with the full support of the CCPS. In April 2020, Mr. Harrylal and Dr. Anil Gokhale – Director, CCPS Projects – mobilised a team of CCPS and international contributors. Within one week, they collaborated to produce and disseminate a monograph entitled 'Risk-Based Process Safety During Disruptive Times' for use by industry professionals worldwide.





## Managing operational risk amid disruption... | CONTINUED

Table 1: Summary of RBPS insights for disruptive times<sup>1</sup>

Pillar	Element	Synopsis of recommended actions
<b>Commit to Process Safety</b>  	<b>Process Safety Culture</b>	<ul style="list-style-type: none"> <li>• Lead the crisis response</li> <li>• Communicate often</li> <li>• Compensate for impacts on human performance</li> <li>• Build trust</li> <li>• Maintain a sense of vulnerability amid the crisis</li> </ul>
	<b>Compliance with Standards</b>	<ul style="list-style-type: none"> <li>• Manage deferrals</li> <li>• Continue to follow standards</li> </ul>
	<b>Process Safety Competency</b>	<ul style="list-style-type: none"> <li>• Optimise online training</li> <li>• Consider on-the-job learning opportunities</li> <li>• Identify key resources</li> </ul>
	<b>Workforce Involvement</b>	<ul style="list-style-type: none"> <li>• Engage creatively</li> <li>• Minimise paper documentation</li> </ul>
	<b>Stakeholder Outreach</b>	<ul style="list-style-type: none"> <li>• Communicate</li> <li>• Recognise support functions</li> </ul>
<b>Understand Hazards and Risk</b>  	Process Knowledge Management	<ul style="list-style-type: none"> <li>• Make information accessible</li> </ul>
	Hazard Identification and Risk Analysis (HIRA)	<ul style="list-style-type: none"> <li>• Be flexible with HIRA</li> <li>• Maintain control of risk decisions</li> <li>• Evaluate effect of reduced staffing</li> <li>• Manage increased cybersecurity risks</li> </ul>
<b>Manage Risk</b>  	<b>Operating procedures</b>	<ul style="list-style-type: none"> <li>• Maintain procedures</li> </ul>
	<b>Safe Work Practices</b>	<ul style="list-style-type: none"> <li>• Actively manage maintenance work</li> <li>• Address new safety concerns</li> <li>• Ensure smart devices are safe to use</li> </ul>
	<b>Asset Integrity and Reliability</b>	<ul style="list-style-type: none"> <li>• Use risk-based assessment</li> <li>• Continue inspection, testing and preventative maintenance</li> </ul>
	<b>Contractor Management</b>	<ul style="list-style-type: none"> <li>• Collaborate with contractors and integrate response plans</li> </ul>
	<b>Training and Performance Assurance</b>	<ul style="list-style-type: none"> <li>• Continue basic safety training</li> </ul>
	<b>Management of Change</b>	<ul style="list-style-type: none"> <li>• Continue to manage change</li> <li>• Recognise organisational change is key</li> <li>• Anticipate organisational change</li> </ul>
	<b>Operational Readiness</b>	<ul style="list-style-type: none"> <li>• Make sure you are ready to operate</li> </ul>
	<b>Conduct of Operations</b>	<ul style="list-style-type: none"> <li>• Maintain a sense of vulnerability</li> <li>• Manage fatigue</li> <li>• Focus on specific operational communications</li> </ul>
	<b>Emergency Management</b>	<ul style="list-style-type: none"> <li>• Enact crisis management plans</li> <li>• Maintain emergency response capability</li> </ul>
	<b>Incident Investigation</b>	<ul style="list-style-type: none"> <li>• Continue learning from incidents</li> <li>• Conduct learning reviews</li> </ul>
<b>Learn from Experience</b>  	<b>Measurement and Metrics</b>	<ul style="list-style-type: none"> <li>• Consider metrics specific to the crisis</li> </ul>
	<b>Auditing</b>	<ul style="list-style-type: none"> <li>• Review audit schedule</li> <li>• Consider remote audit capabilities</li> </ul>
	<b>Management Review and Continuous Improvement</b>	<ul style="list-style-type: none"> <li>• Engage management</li> </ul>

<sup>1</sup> <https://www.aiche.org/sites/default/files/html/544906/RBPS-during-COVID-19-and-Similar-Disruptive-times.html>



## Managing operational risk amid disruption... | CONTINUED

### RBPS During Disruptive Times

The COVID-19 crisis has presented several challenges to operations and process safety managers. Global shutdowns and border closures have interrupted supply chains, forced persons indoors and limited the availability of key subject matter experts and resources. Production has slowed and businesses are losing money. Frontline workers who are required to physically report for duty are grappling with novel anxieties, pressures and adjustment to new ways of working.

What this means is that existing risks must now be re-evaluated, and new emerging risks assessed and managed with capital and human resource limitations. Companies may have less access to money for PSM; tools and materials to execute preventative maintenance work may be unavailable; personnel may be forced to isolate at home, reducing employee numbers and increasing the burden of work on a few; heightened stress levels may increase the likelihood of human error.

The new CCPS monograph considers all these factors and proposes specific actions that can help companies mitigate the associated risks during this and similar crises. It is built around the Pillars and Elements of CCPS' original RBPS guidelines and includes insights from the experiences of several contributing companies, including NGC.

### Applying RBPSM today

At NGC, and among the wider NGC Group of Companies, these guidelines have been used to ensure business continuity and operational safety amid current challenges. For example:

- Work from home measures have been enforced with employee safety at the forefront;
- Core staff have been rostered and work on a shift basis to reduce field exposure and risk of burnout;
- Work programmes have been prioritised so that critical maintenance work continues while non-critical work has been deferred;
- COVID-specific personal protective equipment has been procured and deployed to field crews;
- Risks assessments are being conducted on deferred activities with identified response actions to manage the changing risks;
- Real-time co-ordination with upstream, midstream and downstream companies, the Trinidad and Tobago Emergency Mutual Aid Scheme (TTEMAS) and Point Lisas Energy Association (PLEA) CEOs was established;

- Communication around risks and new developments is constant and comprehensive, both internally and between NGC and other stakeholders in the sector, so that collective informed decisions can be made.

### Collaborating for global process safety assurance

To the credit of the task force behind its publication, the CCPS monograph is now a foundational resource for times of crisis. It was created by a sub-committee of CCPS members. In addition to Mr. Harrylal and Dr. Gokhale, it included Mr. Jerry Forest of Celanese; Mr. Elliot Wolf of Chemours; Ms. Jennifer Bitz of the CCPS; and Ms. Cheryl Grounds of the CCPS. The monograph is now published in four (4) languages (English, Chinese, Spanish and Portuguese) as part of the international outreach to share these guidelines and insights.

Commenting on the genesis and importance of this project, Mr. Harrylal noted:

"Process safety assurance is critical for all companies involved in managing highly hazardous facilities. It was recognised early by NGC that COVID-19 could have an impact on process safety and all energy sector stakeholders during this global pandemic, as changes are being made to resourcing strategies and operations. NGC, therefore, saw an opportunity for knowledge-sharing and collaboration in this critical area. We are happy to have been able to contribute in a meaningful way and help companies around the world operate safely in times of challenge."

For NGC, the seminal role of Mr. Harrylal in the production of this document, and the support received from Senior Managers (HSSE – Mr. Himalaya Boodoosingh; Projects – Mr. Winston Mohammed; and Treasury and Risk – Mr. Ricardo Lewis), reflect the capacity of the Company to shape thought and practice at the level of the international industry. It is indicative of the initiative, collaborative spirit and expertise resident in the Company. Importantly, it is also an achievement that moves the Company further along on its journey to become a global leader in energy.

To read the full monograph, visit: <https://www.aiche.org/sites/default/files/html/544906/RBPS-during-COVID-19-and-Similar-Disruptive-times.html> ■





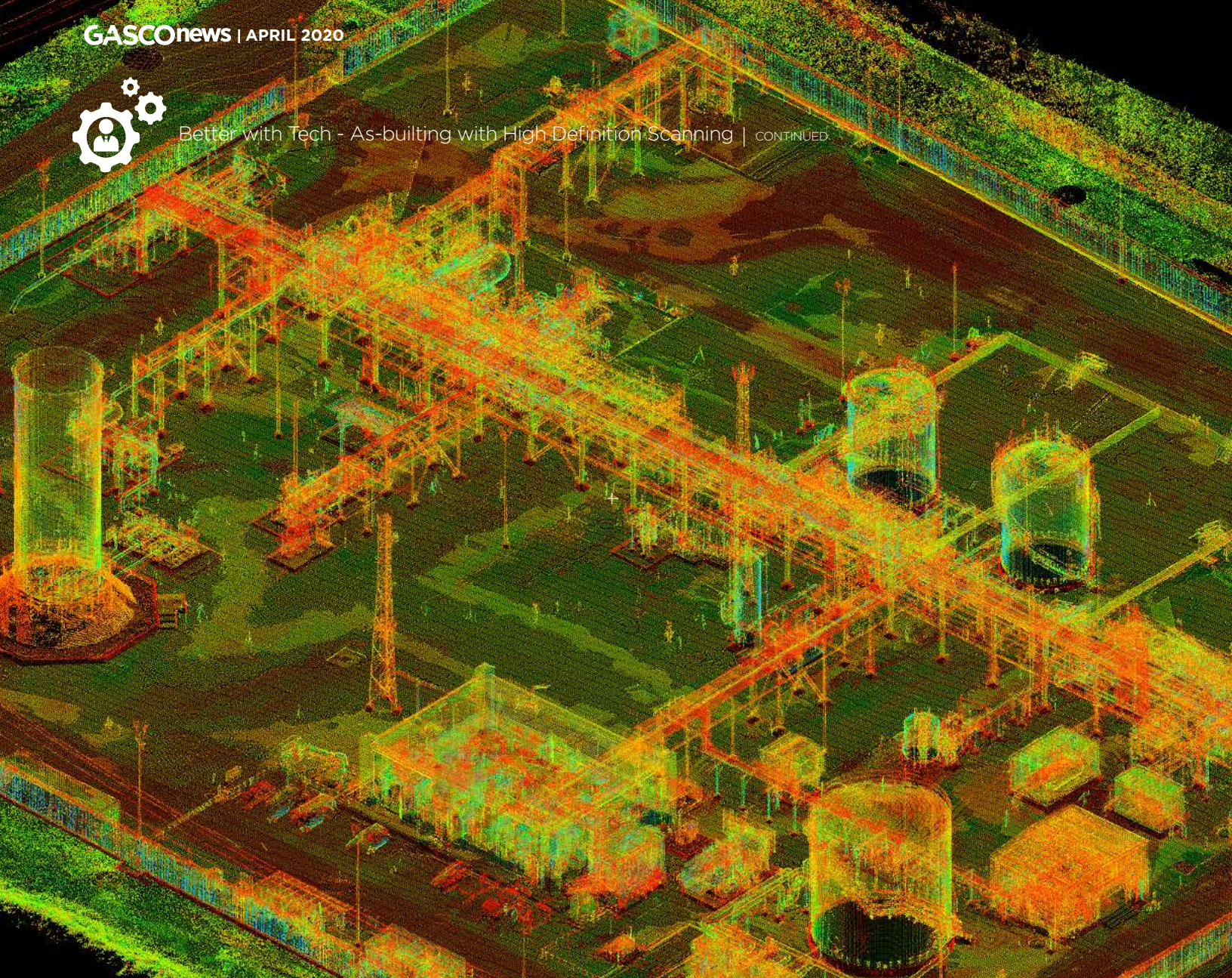
Business in a New Age

# BETTER WITH TECH -

## As-building with High-Definition Scanning

*Employee Ashley Ramadhar  
imaging one of NGC's facilities*





Cove, Tobago

SO you've bought a new refrigerator for your spouse – a birthday surprise. To avoid suspicious tape-measuring, you've checked your house plan to ensure the recess designed to accommodate this appliance would fit the bigger (very expensive) model you've just purchased. Out with the old and almost in with the new, you've encountered a problem. The brick recess tapers slightly towards the back, denying passage to the refrigerator past a certain point. To make it fit, you may now have to remodel your kitchen. (Surprise!).

#### THE IMPORTANCE OF AS-BUILT DRAWINGS

Any homeowner or contractor ever led wrong by a blueprint can appreciate the value of as-built drawings. As-built drawings are schematics of completed builds, which capture any deviations from original design plans. In the course of construction, certain specifications such as dimensions, elevations, shapes and materials can depart from what was designed, due to human error (that recess mason) or deliberate responses to site or budget imperatives. For future works, it is useful to have an accurate picture of the final product as it was built.

In complex industrial environments with many structural components, as-built drawings are extremely important. Even marginal variations between blueprint and actual specifications can result in costly or dangerous errors when maintenance, modifications, updates or retrofits are needed. For a company like NGC, which manages and maintains complex gas facilities, accurate as-built imaging of completed assets is crucial to planning, procurement, maintenance and process safety management.





## Better with Tech: As-building with High Definition Scanning | CONTINUED

Accordingly, one of the priority deliverables of NGC's Geospatial Information Services Department (GISD) has been updating the Company's as-built records.

### HDS TECHNOLOGY

For domestic projects, determining final specifications can be a fairly straightforward task for a contractor and measuring tape. In industrial settings where builds are far more complex and the stakes of precision much higher, the as-building process is much more involved and more essential.

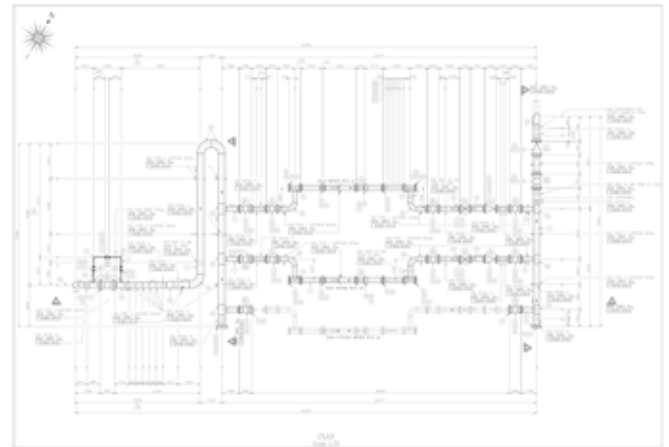
In the past, as-built drawing was a labour and time-intensive undertaking using manual measurement tools such as measuring tape, plumb bobs, spirit levels and piano wire. Measurements would then be used to produce two-dimensional technical drawings. One could well imagine the painstaking effort required to accurately as-built industrial facilities with miles of convoluted pipes, fittings and equipment, each of which needed to be precisely positioned and scaled in the output as-built drawing.

Fortunately, technology has come a long way. Today, industries make use of special laser scanners with a range of information-capture capabilities. These generate photorealistic and intricately detailed 3D point clouds of facilities that provide users with intelligent data.

Starting in 2016, NGC contracted High-Definition Surveying (HDS) services from external suppliers for imaging of four of its facilities. The high cost of outsourcing these services led the Company to explore the possibility of in-house delivery. In 2019, the Company acquired its own HDS equipment, and earlier this year, funded associated training for eight members of the GISD. Since then, within a short window, two employees – Jesse Rajoo and Ashley Ramadhar – have completed scans of two additional facilities, saving the Company hundreds of thousands in contractor costs. In line with GISD's theme for its 2020-2022 strategy (improving data reliability), the team is now preparing to take on as-building on a larger scale for NGC and other Group subsidiaries. In the future, it could even extend its services to other companies in the sector.

### HOW IT WORKS

Only slightly bigger than an oversized coffee mug, and lighter than your laptop, NGC's HDS laser scanner is nevertheless a powerful tool. The scanner has a rotating component that swings about its vertical axis and sweeps a laser beam over the area to be scanned. When the beam encounters a surface, it is reflected back to the scanner which records the surface's co-ordinates relative to its (the scanner's) own position. The entire scanner itself also rotates about a horizontal axis so that the laser



*Beachfield Interconnect: 3D scan (above) vs 2D drawing (below)*

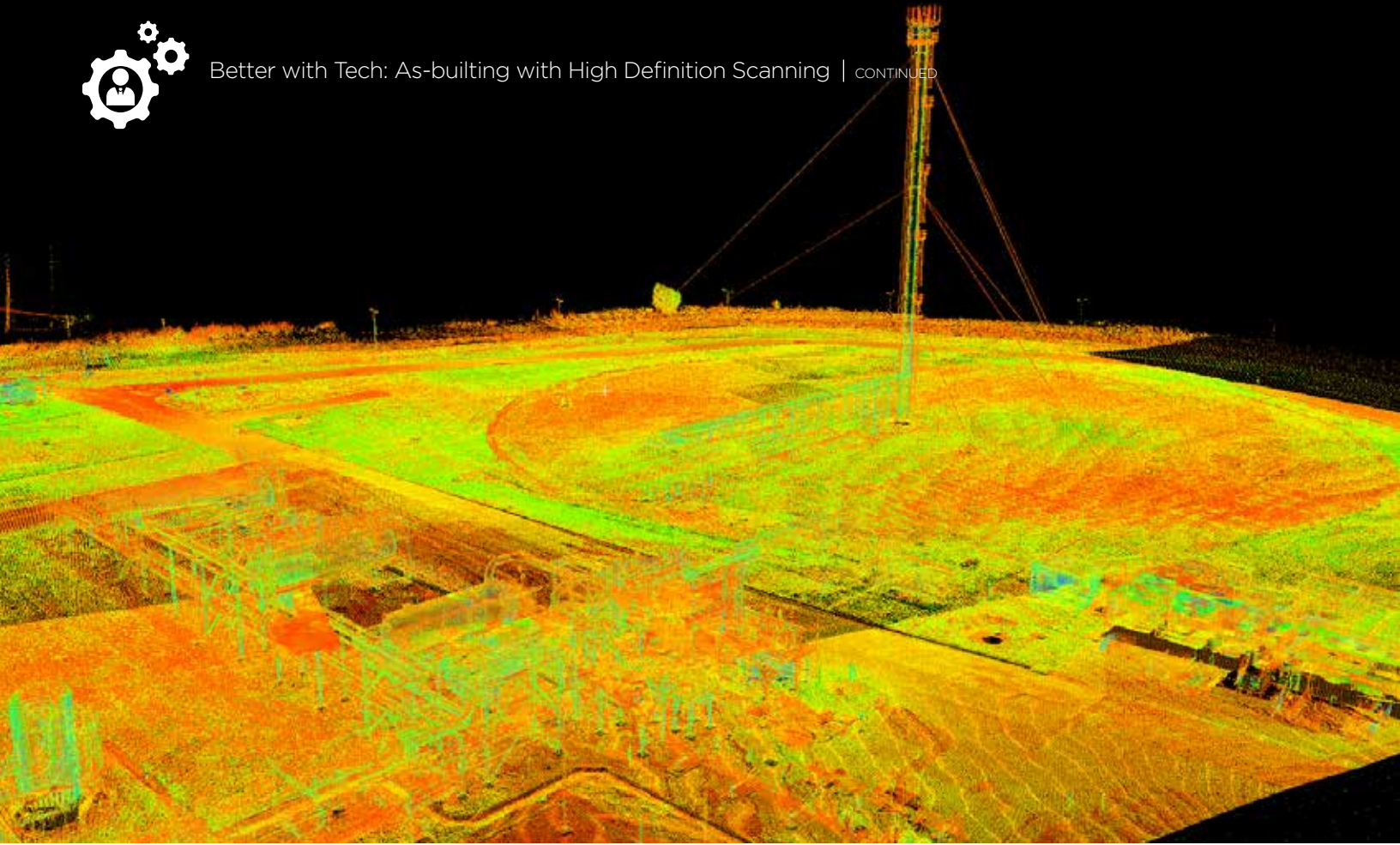
beam is swept across 360 degrees in both planes. The resulting dataset provides co-ordinates for every point on every object encountered within the complete sphere traced by the scanner's moving beam. The scanner can be moved to different vantage points to ensure all areas of the facility are captured. Special software is then used to stitch the millions of individual co-ordinates or spatial measurements together to generate a 3D point cloud picture of the scanned area, from which dimensional, locational and other categories of data can be extracted.

### BENEFITS OF LASER SCANNING

HDS technology has enabled significant process improvements which have pushed NGC to invest in the requisite resources.

#### Logistics and safety

The most obvious advantages are logistical. A laser scanner can perform the task of imaging a space with

*Phoenix Park Valve Station*

far greater speed and precision than humans and manual measures could. A facility that might ordinarily have taken a technician or team weeks to render as line drawings can be scanned and imaged in days. Time shaved means money saved, so HDS costs can be amortised quickly.

Reducing the man-hours required to capture field data for as-built drawings also has positive implications from a health and safety perspective. Many industrial plants, including NGC's facilities, are high-risk environments with areas of restricted access. Some mechanical parts may be dangerous to approach or may be impossible to access for manual measurements. With laser scanners, surveys are no longer tactile undertakings and can be executed in short time frames, facts which both significantly reduce human exposure to environmental hazards and risks.

### Data quality

Then there is the fact that laser scans produce superior as-built drawings compared to traditional survey methods. Depending on the instruments used and the experience (and eyesight) of the technicians involved, manual measurement processes can have wide margins of error. Though not infallible, laser scans offer greater precision. Moreover, since they produce 3D point cloud data, laser scans capture environmental features such as trees and surrounding topography that traditional

surveys may not. In this way, the scans are more holistic representations of facilities than line drawings.

### Applications

For end-users, the real benefits of HDS technology lie in the intelligent interface of the point cloud images that it is used to generate. Traditional 2D schematics are static and can carry limited data. Conversely, special software allows massive quantities of data to be overlaid on 3D scans, such as equipment specifications and maintenance records. With a click, a user could learn the model number of a specific component in a system, its cost and even where it was last purchased – as long as this information has been input by the technician. Because data is digitally archived, it can be hidden from view until needed, leaving the images uncluttered but still rich in information.

When paired with other software and technology, laser scan data sets can be even more useful. CAD designs of new infrastructure or equipment could be fitted into scans to see how they would work in a real-world setting. Since point cloud data is navigable, an engineer would be able to assess clearances from all angles to determine whether the new equipment or build would conflict with surrounding structures. This can eliminate the need for site visits and allow contractors to purchase with confidence.





## Better with Tech: As-building with High Definition Scanning | CONTINUED

In NGC's experience with laser scans, the fact that they allow for remote planning of site works has been particularly beneficial. NGC's Beachfield facility at Guayaguayare is far removed from the Company's base operations in Point Lisas. Planning for a recent construction project at the facility would ordinarily have required teams to commute long hours over multiple days to assess the site, but having updated 3D as-builts allowed for the bulk of preparation to occur in office.

An even timelier example of their value – restrictions imposed by the government in response to the pandemic COVID-19, have forced employees across many functions to telecommute since March 18th 2020. This development could have been disruptive for ongoing project planning. However, since Point cloud data sets serve as reasonable proxies for site access, work can progress in spite of restrictions.

It is noteworthy here that point clouds are not only useful for brownfield projects but can also be deployed to gather site data ahead of new builds. In instances where modules for projects are prefabricated, having a precise picture of the build site allows for remote design and procurement, with positive implications for project cost and delivery time.

NGC could also make use of another feature of the HDS technology. Scanners can not only capture spatial and geometrical characteristics of a site – they can further be used for thermal imaging. For maintenance purposes, scans could be taken of a facility to determine whether components are overheating or if energy is being used efficiently. A recent energy audit conducted at NGC's Head Office revealed inconsistent cooling across the facility. This meant the cooling system had to work harder and consume more energy. To treat with the issue, thermal scans can help pinpoint bottlenecks in the ventilation network that prevent cool air from reaching certain areas.

### IN WITH THE NEW

While HDS may look like the future, technology is constantly pushing the limits of what's possible. Companies are already merging HDS and LiDAR technology to yield even more accurate and holistic imaging. Besides as-building applications, HDS can be combined with extended reality functionality to produce virtual tours for industry, commerce, real estate and even tourism. NGC's GISD will, therefore, continue to explore innovative ways to integrate this and other technology into operations as seamlessly as possible. Out with the old and in with the new – the GISD is making it fit. ■



HDS of NGC's Warehouse Complex



Business in a New Age

# PPGPL achieves a milestone in international business development







## Business in a New Age

Phoenix Park Gas Processors Limited (PPGPL) began operation in 1991 to extract NGLs from the country's gas and allow NGC to supply a high-quality gas feedstock to its downstream customers at Point Lisas.

From the mid-1990s, PPGPL went on to become the selected partner with Atlantic, providing NGL fractionation, storage, terminal, and export services to Atlantic. By 2008, PPGPL had developed a local butane splitting facility for supply of purity isobutane to Petrotrin for fuel blending.

Fast forward to 2015, ConocoPhillips had divested its 39% interest to TTNGL, a subsidiary of NGC which was then the subject of the first local IPO in the energy sector. Pan West Engineers and Constructors, a 10% shareholder, had changed hands from GE to a local consortium of the National

Insurance Board (NIB), National Enterprises Ltd (NEL) and the Trinidad and Tobago Unit Trust Corporation (UTC). PPGPL became fully locally owned, state-controlled and a member of The NGC Group of Companies.

By 2016, PPGPL shared a vision with members of The NGC Group: "To be a recognised global leader in the development of sustainable energy-related businesses". Four strategic pillars were developed, one of which is to "Grow locally and internationally".





## PPGPL Achieves A Milestone In International Business Development | CONTINUED

Since 2016, PPGPL and in particular, the Business Development department, led by Alvin Dookie, Vice President, Business Development, has been guided by the vision of The NGC Group, and has taken a collaborative approach to business development with members of the Group. PPGPL collaborated with NGC in pursuing business in Africa and joined forces with National Energy to target opportunities in Guyana. Today, The NGC Group, through National Energy, has an exploratory office in Georgetown. PPGPL also took a structured approach in expanding along the NGL value chain, both regionally and internationally.

Access to international growth opportunities came from a wide array of sources. Local and international networks were activated with customers, bankers, and stakeholders both in the private sector and the government in selected territories. Through general scanning activities, PPGPL submitted offers to acquisition targets in four regional territories and submitted JV proposals in two others. Some of these offers have not been accepted and yet others remain the subject of further discussions.

By 2018, the need was identified for a more deliberate programme for growth. In two cases, the services of advisory firms with deep technical expertise and well-developed networks in the target territories were retained. One such engagement was initiated in Q1, 2019 with FTI Capital Advisors. FTI was retained for a six-month period to focus on the US midstream NGL sector and to identify and screen acquisition opportunities for PPGPL within a set of agreed criteria. FTI's scope also included collaboration with the PPGPL team to submit Non-Binding Offers (NBOs) for the targets which passed the first level of screening by the team, and which were supported and approved by the Board.

By September 2019, two such NBOs were submitted. The first is still being considered by the seller. The second offer was for the purchase of the assets of Twin Eagle Liquids Marketing Company LLC which was closed on February 1, 2020.

The submission of two NBOs was the result of an intensive six-month exercise between PPGPL Business Development and FTI. Weekly calls were held and on each of these calls, 10-15 new opportunities in the US midstream were brought by FTI for consideration by the team. These items were put through PPGPL's initial screening process. Periodic updates were provided to the Finance and Investment Committee of the Board and in mid-September 2019, PPGPL submitted its NBO for purchase of the assets of Twin Eagle Liquids Marketing LLC.

Submission of PPGPL's NBO to Twin Eagle was received along with one competing offer and was met with a prompt and favorable response. PPGPL's offer was accepted and a 60 – 90-day exclusivity period was offered for PPGPL to complete detailed due diligence and to submit a binding offer.

This was a major turning point for PPGPL's growth agenda. This project expanded from being a business development matter into being a PPGPL corporate initiative requiring the efforts of a wide functional cross-section if it were to be successful.

Several critical questions emerged, including the following four significant items:

1. Closing of this transaction required a comprehensive legal instrument – later to be called the APA (Asset Purchase Agreement) – This is where Corporate Attorney Ms. Florence Mulchansingh stepped forward to take ownership of this work product right up to signing and closing of the transaction.
2. Determining how this project was to be funded, what the optimal tax was, and what financial and governance structures were to be employed – VP, Finance and IT, Ms. Dawn Callendar managed the process of tax structuring, financial diligence and oversaw every financial detail culminating in the wire transfers, without which there would be no closing. Ms. Callendar is also leading critical elements of the integration process.
3. Identifying what expertise was required to achieve comprehensive due diligence and successful closing – The PPGPL team recognised early that specialist expertise was critical to its success. In accordance with established procurement process, external services were retained: EY for tax structuring and financial diligence, Shearman and Sterling as expert counsel, FTI Capital as buy-side advisor. On an as-needed basis, HR and other external advisory services were retained.
4. Ascertaining whether diligence activities, including internal and government approvals, could be completed within the exclusivity period.

By December 19, 2019, day 90 of the exclusivity period, PPGPL had secured all internal approvals required to close this acquisition. During January 2020, many details in the APA were resolved and an effective closing date of February 1, 2020 was agreed.

PPGPL has acquired the assets of Twin Eagle Liquids Marketing LLC and these assets are now held in two new companies established over the past few months: Phoenix Park Energy Marketing LLC (PPEM) and Phoenix Park (Canada) Energy Marketing. In addition, Phoenix Park Global Holdings LLC has been incorporated for the provision of shared services to PPEM and to hold future acquisitions currently in development.

PPEM will be involved in the origination of liquid hydrocarbon products across North America and transporting and supplying these products into the US and Mexico. Complementary opportunities exist for using the expertise of the newly acquired Houston and Calgary-based front office teams to source products for waterborne export into PPGPL's established markets in the Caribbean and Central America. These opportunities are also currently in development. ■



Preparing for Tomorrow

**GASCO**news | APRIL 2020

**tt** | Engage

**ttEngage is live**





**T**HE ttEngage Online Investor Platform is now live! Potential investors can now submit project ideas, access pertinent information and be guided through the approval process in real time from anywhere in the world. At the Go Live event held on Monday 27 January 2020, President of National Energy, Dr. Vernon Paltoo explained that ttEngage is part of the company's broader strategic programme geared towards the deeper integration of technology into all aspects of the business. Initiatives currently underway include:

1. E-Procurement – a project implemented across The NGC Group which uses cloud-based technology to enhance Supply Chain Management processes, such as E-auctioning, Prequalification and Requests for Quotations/Information.
2. Electronic Document Management System – a comprehensive project to standardise and centralise management of the company's records in 2018.
3. Digitisation and Automation of Processes for Marine Asset Management – Building upon the SAP C-4 Hana platform, the processes, from order-to-payment for use of National Energy's tugs, ports and piers will be fully digitised.

### What is ttEngage?

ttEngage Investor Platform is a fully digital solution for business development in the energy-based downstream sector in Trinidad and Tobago. The Platform will be used to:

- Manage all aspects of the business development process including project conceptualisation, promotion, development and approvals
- Collaborate between National Energy and investors
- Collaborate among state sector agencies and investors to provide for streamlining of processes and clear communication of requirements
- Provide transparency and visibility of project information among all stakeholders
- Provide 24/7 access to information for international investors

### How does ttEngage work?

ttEngage represents a new model of stakeholder engagement across the energy sector. ttEngage is built upon enhanced communication and collaboration among stakeholders in the energy investment process. This will enable the streamlining of processes to reduce inefficiencies and redundancies in the system. The expected impact will be reduced time taken to obtain approvals, cost savings and an overall improved investor experience in Trinidad and Tobago's downstream energy sector.



*Chairman of National Energy and NGC, Mr. Conrad Enill, delivers feature address at Go Live event*



*Some members of the National Energy and NGC ICT team who worked on developing the ttEngage Online Investor Platform*

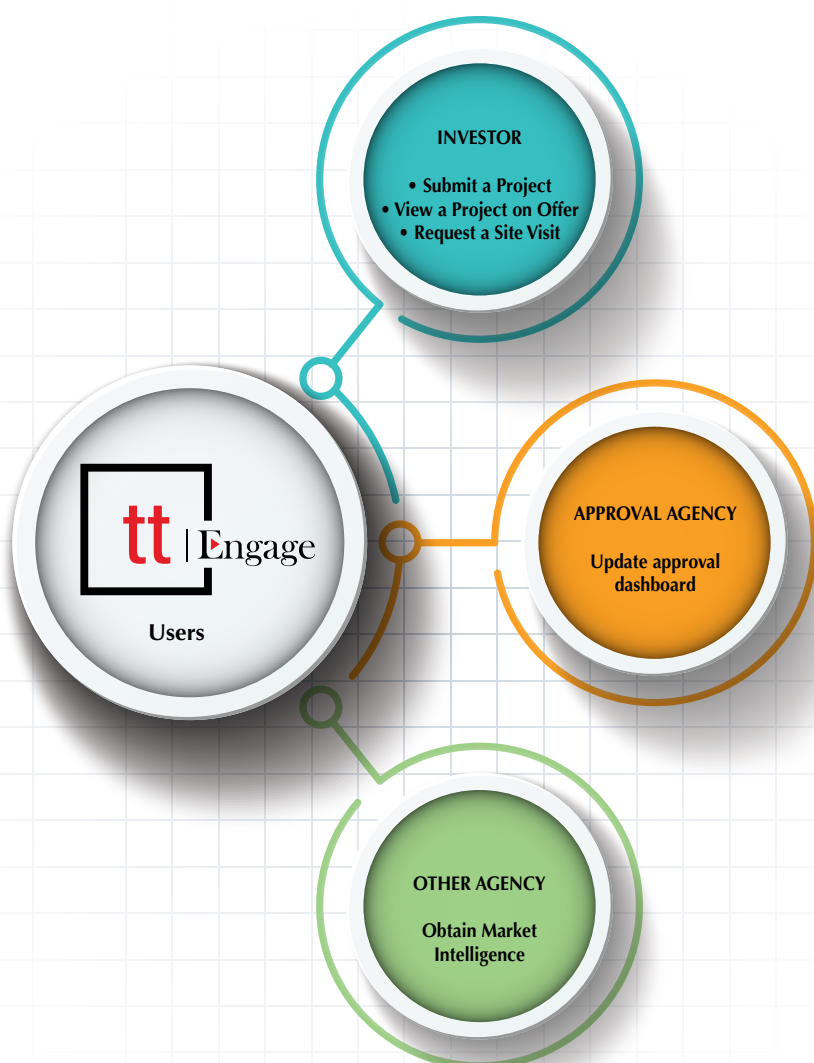
The system will function similarly to the Sri Lankan Single Window Investment Facilitation Task Force (SWIFT) with the goal of increasing Foreign Direct Investment, generating new economic activity and thereby creating jobs.



ttEngage is Live | CONTINUED



## A National Effort for Investment Facilitation



### Who is ttEngage's target audience?

Phase 1 of the ttEngage Investor Platform has been designed primarily with three (3) types of users in mind:

1. Investors who are interested in implementing energy-based and sustainable energy projects
2. Agencies required for approval of downstream energy projects
3. Other agencies who are not involved in the approval process, but have an interest in other aspects of the Platform, e.g. obtaining market intelligence

### ttEngage Online Investor Platform – Target Users

In the further stages of development of this Platform, it is proposed that National Energy would co-operate with State agency stakeholders to integrate the ttEngage Platform with other complementary State investment facilitation tools such as TTBizLink and DevelopTT, with the overall aim of contributing to improving the ease of doing business in Trinidad and Tobago.

### What are some of the features of the ttEngage Online Investor Platform?

The Investor Platform comprises several interactive features for dissemination and receipt of information. Users to the site can respond to Projects on Offer or submit their own energy project idea. Market intelligence and Industrial Sites and Infrastructure information are also available to support energy-based and downstream projects.















Approval Roadmap					
<div><div>● Approved</div><div>● Applied</div><div>● Not applied</div></div>					
Administrative Approvals					
Company Registry Incorporation of Company					
Essential Contracts					
MoF Foreign Investment Licence	National Energy Post Arrangements	TTEC Application for Electricity Supply	WASA Application for Water Supply	EMA Certificate of Environmental Clearance	TCPD Requests for Outline Planning Permission
Pre Construction Approvals					
TTFs Approval for Fire Preventing System	MOWT Drainage Approvals	TTEC Approval for Electricity	WASA Approval for Water	EMA Registration as a Noise Polluter	
Pre Commissioning Approvals					
SRC Regional Corporation Completion Certificate					

## Approval Roadmap

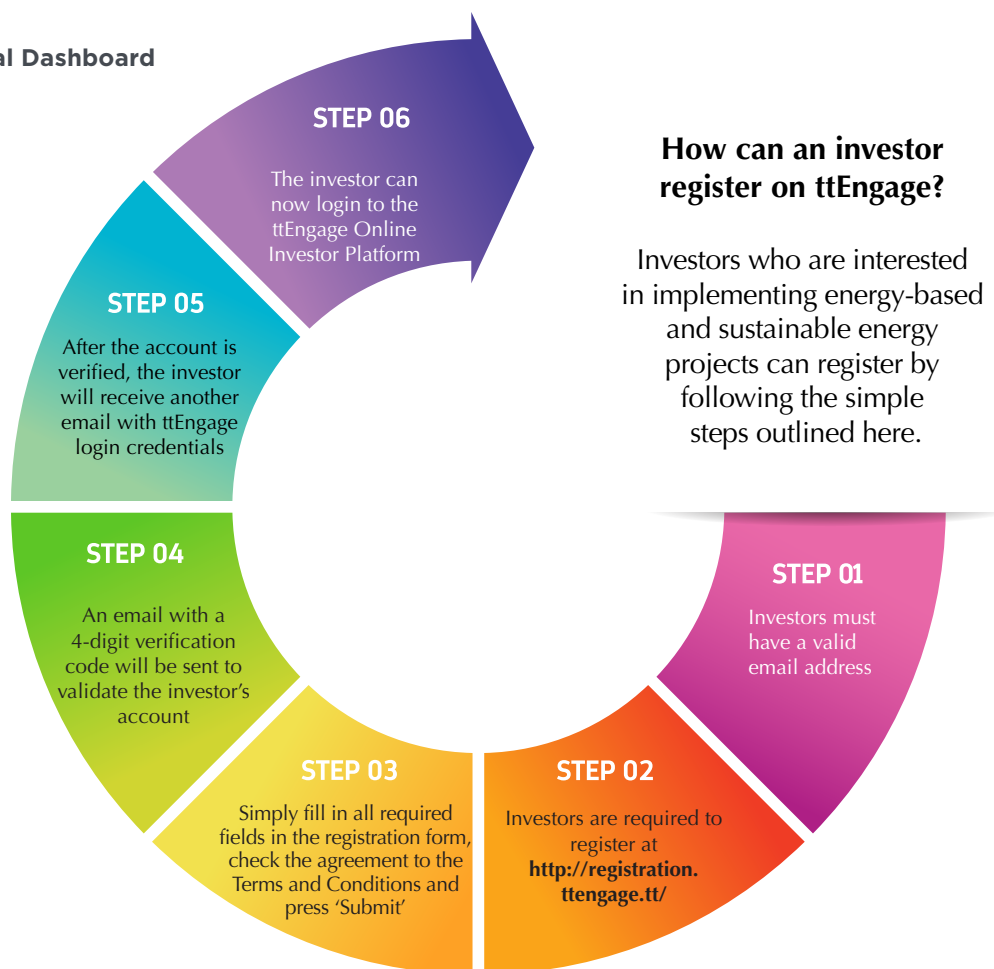
The Project concepts submitted by potential investors will be screened by National Energy and if the project is deemed suitable for further development, the project will be accepted for facilitation, a Project Space will be created on ttEngage Platform and a National Energy Liaison will be assigned to work with the investor. In the Project Space, the investor can collaborate on documents, raise issues, start discussions, request site visits and arrange meetings with their Liaison.

One of the exciting features of the Platform is the Approval Dashboard and Roadmap. For an investment that advances through project development, a unique approval path is created. It will outline the specific approvals required for the investment and will be updated throughout the process, as approvals are obtained. The Dashboard and Roadmap will also indicate the different stages of approval. The diagrams above and below illustrate an example of the Approval Dashboard and Roadmap for a project. The Approval Roadmap will vary depending on the requirements for a particular project.



Approvals						
Administrative Approvals		Essential Contracts	Pre-Construction		Pre-Commissioning	
Actions	Approval Name	Agency Responsible	Applied On	Approved On	Approval Status	Timeline (Days)
 	Approval Electricity	Trinidad and Tobago Electricity Commission			Application Not Submitted	
 	Approval Water	Water and Sewerage Authority	03/03/2020	10/03/2020	Application Approved	7 days
 	Approval for Fire Prevention System	Trinidad and Tobago Fire Services			Application Not Submitted	
 	Registration as a Noise Polluter	Environmental Management Agency			Application Not Submitted	
 	Drainage Approval	Ministry of Works and Transport			Application Not Submitted	

### Approval Dashboard





## Preparing for Tomorrow



NGC Couva Joylanders take the stage at Panorama 2020

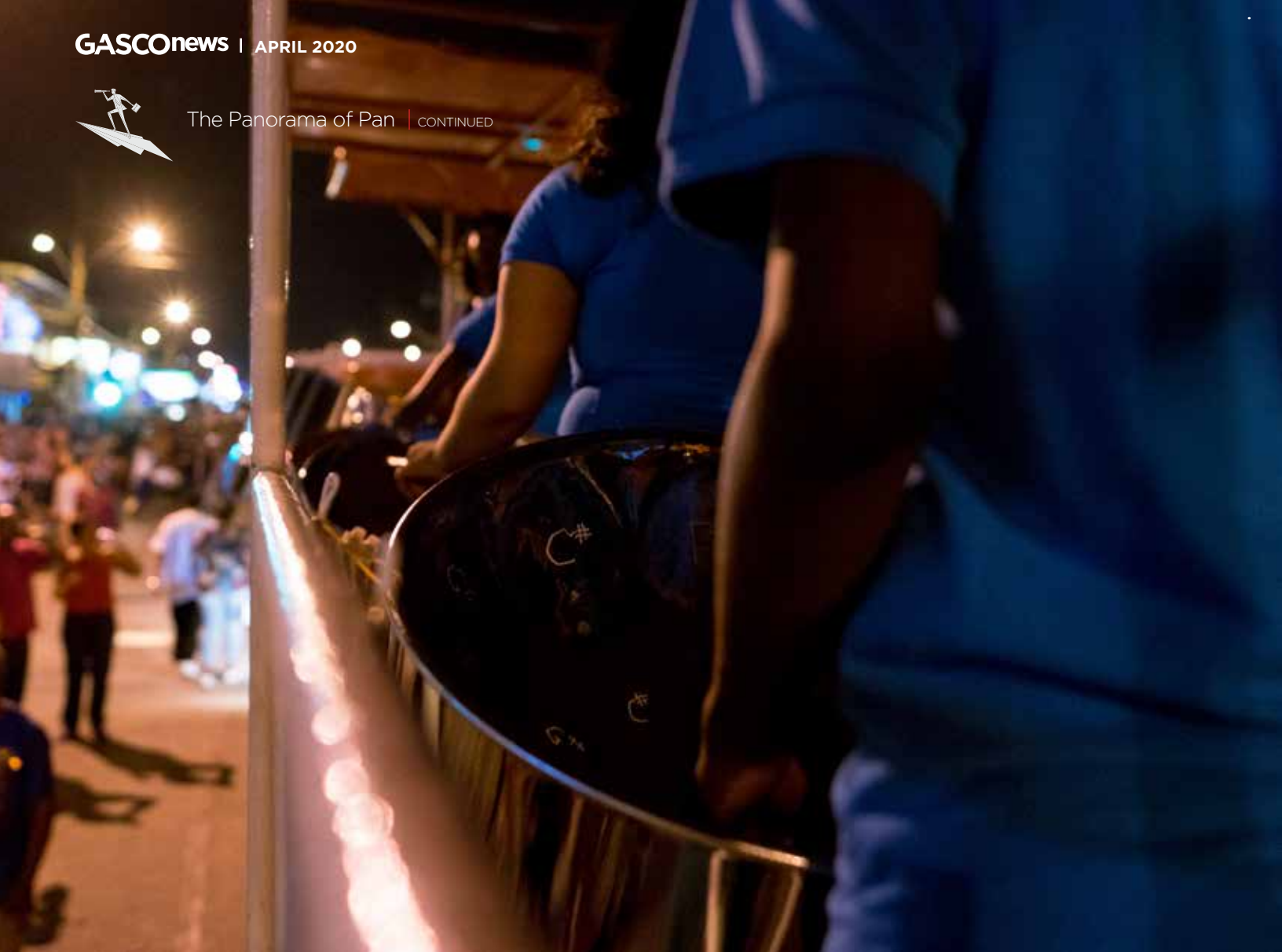




Preparing for Tomorrow



**The panorama of pan  
- NGC invests in the  
industry's big picture**



Imagine for a moment that steelpan music lived a full life outside of Trinidad Carnival. Imagine year-round concerts by acclaimed bands, featuring chart-topping collaborations with leading vocalists. Music-literate children learn pan and pan history in schools and join pan camps and clubs in their free time. Panmakers abound, with many brands and storefronts competing and driving innovation, and tuners are in ready supply. In that place, pan is a thriving industry of artisans, musicians, teachers and entrepreneurs, collectively producing for a healthy market.

For NGC, there is no reason why this cannot become the reality of pan in Trinidad and Tobago. For one, as the birthplace and authority on the instrument, the country has the intellectual and creative capital to build an industry around it.

Moreover, the national public is instinctively protective of pan's heritage and future. Just under two decades ago, when Trinidad and Tobago learned that a patent had been filed in the US for 'Production of a Caribbean

Steelpan', the news triggered national outrage. The public challenged the idea that someone far removed from the history of this instrument could stake a claim on its future.

If the passion and skill sets are there, then the right investment attention should catalyse the development of this industry. This is certainly NGC's conviction. The Company has therefore been working hard to secure the future of pan, injecting over \$14 million into the industry since 1999.

#### NGC AND PAN

At the heart of NGC's campaign of support lies a question – how do we grow pan into a viable, profitable industry? Two considerations have underwritten NGC's investment to that end.

Firstly, from its experience in energy, NGC recognised the need for a strong value chain.





If steelpan music is a product that Trinidad and Tobago wants to bring to market, due investment is needed in the raw materials and processes involved in its creation.

Secondly, after initial investments are made, the industry should be able to stand on its own. That is, it must be a generative industry that can exist without the need for corporate support. It must be able to maintain its own viability with positive feedback loops that stimulate continual growth. In other words, it must be sustainable. Marrying both these criteria, NGC has tailored its investments to help build pan's value chain in such a way that the industry can independently sustain growth into the future.

### ***Talent development***

One of the primary inputs into the pan industry is talent – there must be players capable of producing music. NGC's investment in talent began with its support of unsponsored steelbands over two decades ago. Without a corporate sponsor, these bands would not have been able to fund their activities, which would in turn have

meant their players would not have had the opportunity to practise and develop their talents.

This support eventually evolved into more structured partnerships with bands in the Company's fenceline communities – NGC Couva Joylanders, NGC La Brea Nightingales, NGC Steel Xplosion from Tobago and the Gonzales Sheikers.

To participate more actively in player development, NGC began funding music literacy training for band members. Traditionally, songs are learnt by rote in panyards, with students mechanically copying what the band leader would play.

This method of practical instruction would be used as most members cannot read sheet music. However, if pan music is to be competitive at an international level, its players must be professional musicians capable of reading and writing music.

Literate pannists could study and practise independently, expanding the scope of music they could produce. They would also be able to write their own original music or record the music of others. Development of this skill set







can create niche markets for composers and arrangers, as well as scorers and transcribers, who could generate income from material they produce.

Thanks to NGC's music literacy programmes, many band members now sit music exams and receive certifications that can allow them to further their training and build their marketability as musicians.

Of course, building a future in pan music requires a level of commitment to practice and engagement with the bands and their activities. To give a push in this regard, NGC directed funding for incentives and rewards for dedicated players who have met certain criteria of performance, attitude and involvement. In the past, this stipend was used to finance player participation in regional and international events.

### ***Business competitiveness***

Recognising that player success is correlated to the exposure and performance of the bands with which they play, NGC has also invested in building the capacity of band administrators. The intent is to ensure the leaders have the necessary training to manage the bands as businesses. To be successful, bands must actively promote and seek engagements; they must have income to cover instrument tuning and repair, pay salaried members, and offset costs associated with participation in competitions; they must be able to advertise their product and stimulate demand for their music. Bands with solid reputations are able to retain talent and attract new members who can add value. Accounting, marketing, brand management and managerial skills are therefore valuable assets for band leaders.

Over the years, NGC's capacity-building training has exposed leaders from across its sponsored bands to fundamental coaching around the administration of their bands as businesses. This training will help raise the standard and profitability of these bands and increase their competitiveness.

In addition to focusing on administrative skill sets, NGC has also allocated funding to assist bands with wealth generation projects. These are special internally run initiatives that bands can use to earn their own income, such as annual concerts or the sale of branded items. NGC's contribution to these projects is essentially seed capital. The idea is to help ensure the bands' survival and sustainability well into the future, beyond the term of NGC's support.

### ***Infrastructure***

A major factor in the success and growth of any band is having an adequately outfitted space for practice,

with proper acoustics and sufficient square footage to accommodate pans and members. A dedicated band facility can also serve as an epicentre for community events, academic instruction and wealth generation activities.

For these reasons, NGC has sought to help its sponsored bands meet their infrastructural needs. So far, the Company assisted with the renovation of the NGC Couva Joylanders' facility, House of S.T.E.E.L, located in the band's hometown of Couva. This facility consists of a multistorey building with classrooms, office space, courtyard space for practice, an indoor hall, a bar/concession area and toilet facilities. It is currently adequate for the needs of the band and is utilised to host both band and community activities.

NGC is actively working with stakeholders to secure similar spaces for its other sponsored bands, NGC La Brea Nightingales and NGC Steel Xplosion, who do not own dedicated facilities.

### ***Supporting pan trades***

In the early days of the steelpan industry, the pioneers of the instrument trialled various iterations before arriving at the schematics for the pans we use today. The body of knowledge they collectively developed was passed down through successive generations of panmakers and tuners, and today, they remain the proprietors of that knowledge.

If the local pan industry is to grow, there must be sufficient specialist panmakers and tuners to service greater demand. Unfortunately, induction and training in the craft did not keep pace with demand for the instrument, and there is a dwindling number of skilled craftsmen in the industry today.

To help address this growing market gap, NGC partnered with the MIC Institute of Technology in 2018 to deliver a customised pan manufacturing programme to members of its supported bands. In this three-year programme, participants are learning to sink, groove and tune pans. This will augment the pool of pan artisans in Trinidad and Tobago and ensure the country can preserve the authenticity of these crafts.

This training will also allow bands to save significantly on tuning – a skill which usually costs tens of thousands to outsource. For NGC Steel Xplosion in Tobago, the value of having in-house tuners would be even more pronounced, as the band is currently dependent on a tuner from Trinidad.

In addition to manufacture and tuning, band members are being taught basic welding and machine shop skills so they can build pan stands, repair broken instruments,



*Digital Music Scores were launched for free public access on NGC's website on March 6th, 2020*

or customise tools. They are further being trained in sound engineering, music technology and computer applications used in the industry. There is consequently scope for a diversity of pan-related career paths to grow out of this training programme.

### **Learning resources**

For any industry to iterate its activity, there must be a constant stream of practitioners mobilised to keep it going. This demands prior education in the fundamentals of the relevant discipline.

When it comes to pan, NGC has not only invested in skills development for band members, but it has most recently sought to build the repository of instructional material available to teachers and students, in the form of music scores for pan. Insofar as there can be no future for pan without requisite learning, this project lays important groundwork for the industry.

In 2019, NGC approached The University of the West Indies (The UWI) to record and transcribe music performed by

its sponsored bands over two Panorama seasons. For a few weeks, a team of postgraduate students visited the panyards and captured their songs. Using the music notation system SIBELIUS, these recordings were converted into music files and edited for three proficiency levels – Primary School, Secondary School and Masters. The resulting scores were then compiled into digital publications which were launched for free public access on NGC's website on March 6th, 2020.

NGC foresaw several important benefits of this project, all centred on sustainability of the industry. Having music scores customised for steelpan makes instruction possible outside the panyard, accessible for classroom education and available to a wider public. Anyone who can read sheet music could potentially learn to play, even independently, and this could encourage more musicians to take up the instrument, adding to the pool of players.

On top of these important outcomes, scored music targets sustainability on another level. Many pannists learn to play music by ear, relying on oral instruction from their leaders. However, the fraternity risks losing pan compositions as



*2020 Medium Band Panorama Champions, NGC Couva Joylanders*

tutors age or pass away unless there is a deliberate path to preservation for posterity. The industry cannot build without a foundation. Scored music is therefore just as much historical record as it is instructional material.

It is also noteworthy that in the course of the scoring exercise, students from The UWI gained experience in how to record and transcribe music, which builds capacity in a field that may well rise to prominence if the campaign to grow pan is successful.

### **Competition**

Alongside all the foundational work that NGC has funded in the pan industry, a core area of support continues to be equipping its bands for competitions, the biggest of which is the national Panorama event. Competitions give exposure on a national stage, allowing bands to connect with audiences who appreciate their music and potentially grow their fan base. The stakes of competition also push bands to produce at high quality and work at constant improvement.

NGC funding helps bands offset expenditure associated with preparing for competitions, particularly Panorama. These costs include pan tuning, purchase of custom uniforms and transportation costs.

In 2020, NGC's decades-long investment in pan was rewarded with a Panorama win by one of its sponsored bands, the NGC Couva Joylanders. The young band from NGC's home community earned top honours in the Medium Band Category, after an exceptional performance in the finals. The win was doubly momentous for NGC as the event was held for the first time in Tobago – an indication in itself that the industry is expanding its footprint.

### **GROWING THE FUTURE**

Pan is an industry with many moving parts, all of which must be properly attended for the industry to perform and grow. Understanding the components and mutually reinforcing relationships in the value chain is crucial to directing investment where it is needed. By taking a panoramic view of the pan industry, NGC has been able to incubate growth across the value chain and set the instrument on course for a full life outside of Panorama. ■





**TO REFLECT WITH GRATITUDE**

*Applause for frontline workers battling COVID-19. Photo by Robert Taylor*



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THE NGC GROUP OF COMPANIES

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