THE NGC GROUP OF COMPANIES CORPORATE QUARTERLY JOURNAL

GASCO news

VOLUME 31 | NO. 2 | JUNE 2021

the next normal

PRODUCED BY
The National Gas Company of Trinidad and Tobago Limited (NGC)
Orinoco Drive
Point Lisas Industrial Estate, Couva
Republic of Trinidad and Tobago
West Indies

MANAGING EDITOR
Nicola J. Ghouralal
Head, Communications and Brand

SUB-EDITOR
Nadine Ramharack
Public Relations Officer I
Communications and Brand

CONTRIBUTORS
Nadine Ramharack
NGC Bocas Lit Fest

PHOTOGRAPHY
NGC Archives
Logging Tape Media Ltd.

DESIGN
Lonsdale Saatchi and Saatchi Advertising Limited

PRINTING
SCRIP-J

Please address all correspondence to GASCO NEWS
c/o NGC Communications and Brand Department
NGC Head Office, Orinoco Drive,
Point Lisas Industrial Estate
Tel: (868) 636-4662,4680
Fax: (868) 679-2384
Email: info@ngc.co.tt
Website: www.ngc.co.tt

PRESIDENT'S MESSAGE

Preparing for the next normal | 01

ON THE GREEN AGENDA

Introducing CariGreen — A Research Hub on Caribbean Clean Energy | 02

Digging Deeper — NGC Investigates Below-Ground Carbon Sequestration | 07

Carbon Negative Oil? Using CO_2 for Enhanced Oil Recovery | 12

REFLECTION AND RECALIBRATION

Work in the Time of COVID — Learning from Today to Prepare for Tomorrow | 18

NGC Bocas Lit Fest: Celebrating a Decade of Achievement | 25

PRESIDENT'S MESSAGE

Preparing for the next normal

Almost a year and a half later, we still find ourselves grappling with the COVID-19 pandemic. If we had any doubts before, we can say now with certainty — the old ways of working are stories of the past; we have stepped across the threshold into a 'new normal'.

But who can say how long this 'normal' will last? The World Economic Forum's Global Risks Report for 2021 listed many plausible new threats on the horizon, ranging from new waves of infectious diseases, to catastrophic weather events, to massive breakdowns in the technological infrastructure that we have come to rely upon.

A new disaster could strike at any moment, and we need to be prepared for whatever future might follow it — the next normal. This means understanding the risks, planning for the possibilities, and sharpening one's reflexes to respond to change. We at NGC and our subsidiary companies understand the importance of being flexible and open to change, and having one eye trained on the future. Our industry, much like the world around it, is in a state of flux. What we accept as normal today may not be the case tomorrow. However, the direction of change is clear, so we are doing what we must to prepare for our industry's next normal.

The future of business

Flexibility has proven to be key to business resilience in the current pandemic. Businesses that have demonstrated an ability to manoeuvre and adapt have had far greater success surviving the past year than those with rigid systems.

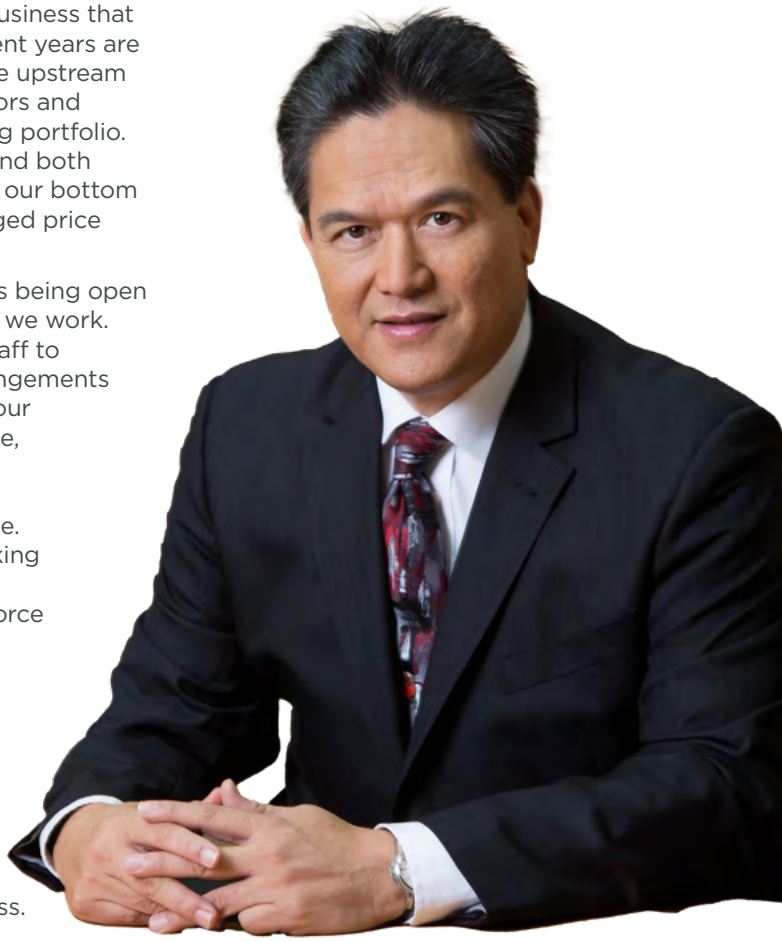
For us at NGC, flexibility comes from having a diverse portfolio of investments and income streams — sharing our eggs across multiple baskets.

Among the areas of business that we have grown in recent years are our participation in the upstream and downstream sectors and our commodity trading portfolio. Both are connected, and both have been supporting our bottom line in today's challenged price environment.

Flexibility also involves being open to changes in the way we work. Having transitioned staff to work-from-home arrangements without disruption in our service delivery to date, we recognise that a blended work model can be an effective one. We are therefore thinking carefully about our post-pandemic workforce distribution, among other future-of-work considerations.

The green agenda

Even before the onset of COVID-19, we have been preparing for radical changes in our business.



Mark Loquan, President, NGC

The climate fight is intensifying, as it should, accelerating the adoption of clean energy technologies across the world. NGC and subsidiary work programmes have accordingly prioritised many green agenda projects, to transition the companies into the business of sustainable energy, and to support global climate goals.

Managing methane emissions has of course been one of the foremost priorities, and we have reported widely on our campaign to track and reduce methane output from our operations through satellite monitoring, infrared visualisation and global collaboration. However, in addition to avoiding emissions, the Company has been involved in carbon capture projects. These include an extension of our carbon sequestration study to assess the below-ground carbon stock at NGC's reforested sites, and participation on a national Steering Committee to explore the utilisation of carbon dioxide for Enhanced Oil Recovery.

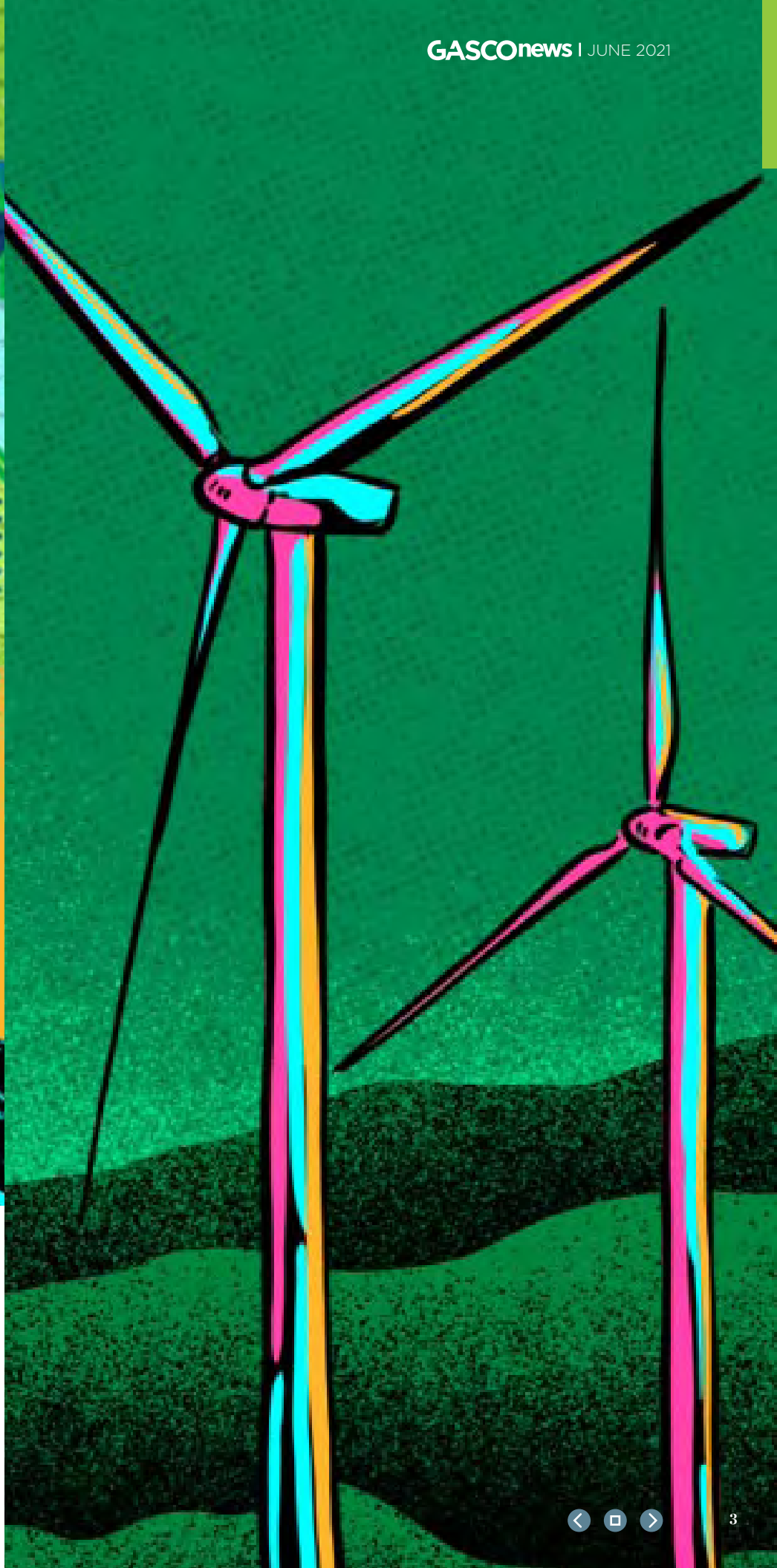
In this issue of *GASCO News*, we open a window to some of this important work that we are doing to prepare for the next normal. ■

Mark Loquan
President

ON THE GREEN AGENDA

INTRODUCING CariGreen

a research hub on Caribbean clean energy



ON THE GREEN AGENDA

THE NATIONAL GAS COMPANY OF TRINIDAD AND TOBAGO LIMITED | CariGreen

> In June 2021, NGC and its subsidiaries launched a digital information hub called *CariGreen*, which aims to bring learning resources about Caribbean energy into one platform.

Among the many active projects on NGC's green agenda, education and knowledge-sharing initiatives are some of the most critical to achieving global climate and energy goals. The Company believes that connecting people with information is half the battle won, as it equips them with tools needed to take action.

This is the philosophy that underpins the Company's latest knowledge-sharing initiative. In June 2021, NGC and its subsidiaries launched a digital information hub called *CariGreen*, which aims to bring learning resources about Caribbean energy into one platform.

Project genesis

Many people would remember library research as a painstaking process - wandering through shelves to find just the right books, sorting through different viewpoints to find the most relevant, combing through page after page for that one elusive piece of data.

In the digital age, despite increased accessibility and navigability of learning resources, the process of research can be just as daunting. In fact, it can be even more overwhelming due to the incredible volume of information available online, the dubious credibility of some sources, and the pace at which content is generated.

Someone attempting research on clean energy in the Caribbean would find no shortage of information, but piecing together a comprehensive story of the region's plans and progress would require some effort. Valuable data and insights are tucked away inside articles, journals, research papers, news stories, blogs and statistical databases. In many instances, the most instructive information is hidden behind paywalls, for subscribers' eyes only.

Easy access to credible and updated information is critical to academic and market research.

Introducing CariGreen — a research hub on Caribbean clean energy | CONTINUED

The answers to the questions that researchers might have, can drive innovation and investment in the regional clean energy space. For example, these questions can include: Where is there utility and policy infrastructure to support connection of solar energy to the grid? Which agencies offer funding for new projects? Which renewable technologies show the most promise in the regional context?

In the course of its own research for commercial opportunities in the region, NGC recognised the challenges that would face potential innovators and investors who were trying to extract useful information from so many fractured sources. The Company and its subsidiaries therefore decided it would benefit the green agenda to create a single platform to act as a repository for trustworthy and up-to-date information on Caribbean energy. This was the genesis of *CariGreen*.

Site overview

Through *CariGreen*, NGC and its subsidiaries aim to:

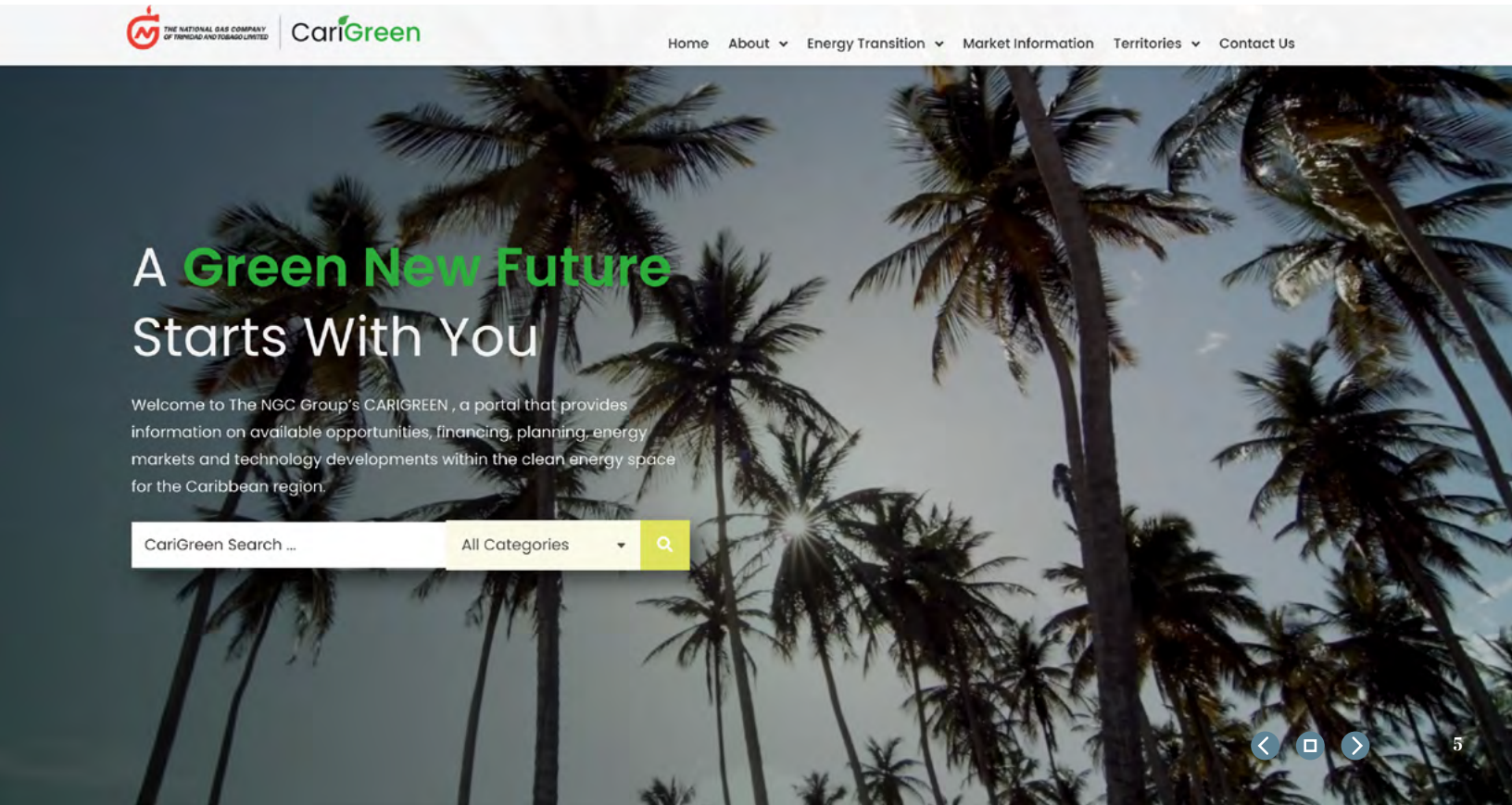
- Provide a platform that will bring together datasets, information products, economic data and climate change strategies from different sources into one central location to provide users with complete, timely and trusted information;
- Drive engagement, collaboration and conversation with stakeholders, through integration of social media tools and development of energy reports; and
- Build the necessary relationships within the Caribbean and with international energy information organisations, to sensitise and inform citizens on matters related to green energy.

The content on the site is drawn from a variety of authoritative sources or Hub Partners. These include, but are not limited to:

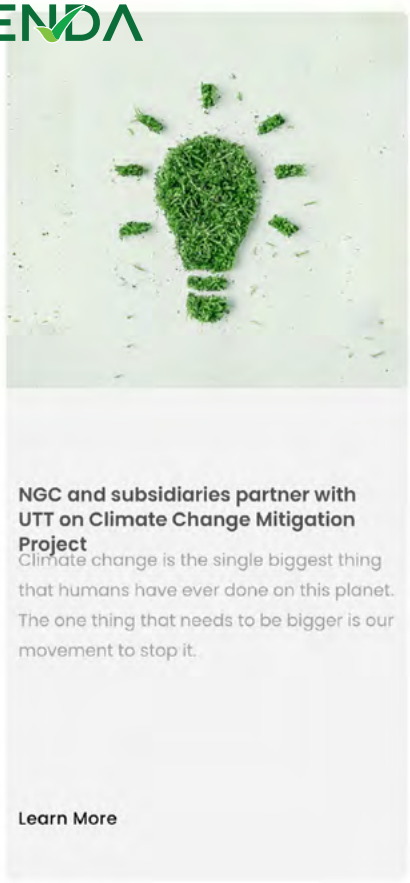
- UN ECLAC: Economic Commission for Latin America & the Caribbean
- CCREEE: Caribbean Centre for Renewal Energy & Energy Efficiency
- IDB: Inter-American Development Bank
- Ministry of Planning
- IMA: Institute of Marine Affairs

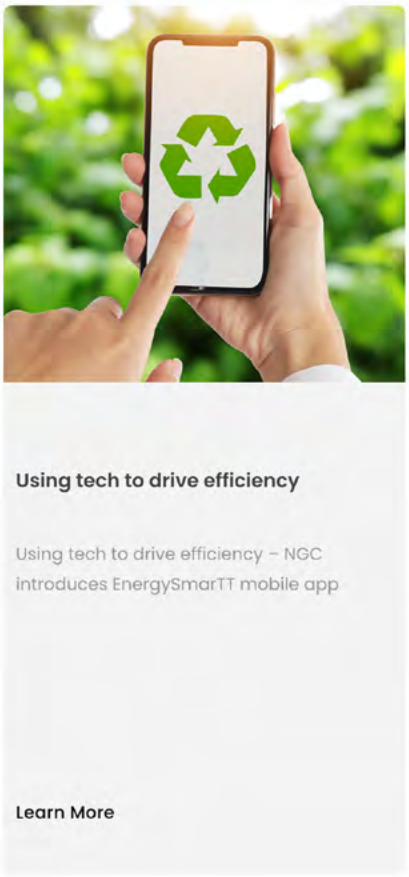
The site's management team, which comprises representatives from NGC and its member companies, will be responsible for curating content from Hub Partner publications and databases, to be shared on the *CariGreen* platform through links. Internally-generated content such as articles and media around NGC Group green agenda initiatives will also be uploaded.

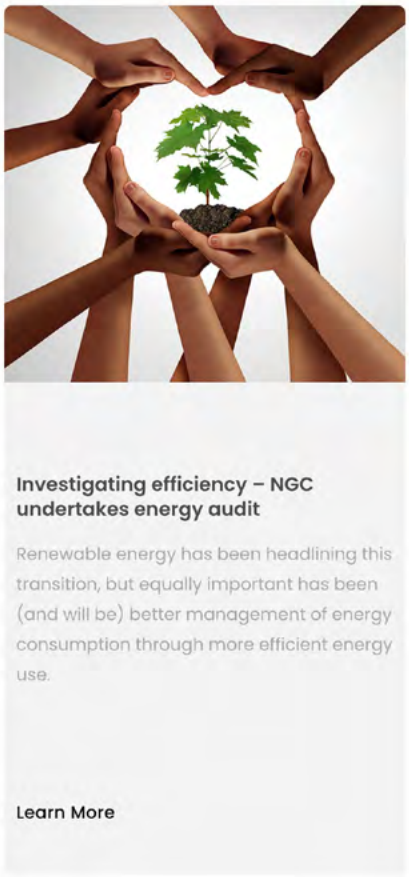
The idea is to create a central portal or library through which anyone seeking information on Caribbean clean energy can simultaneously access multiple resources, without the page-hopping that would come with research across several disjointed sites.



ON THE GREEN AGENDA







Content is currently divided into these main categories:

- Project background and partner information
- Energy transition topics: renewable energy, energy efficiency, alternative fuels, carbon capture and sequestration
- Market information: research reports, funding agencies/ mechanisms
- Caribbean territories: country-specific data from CARICOM and non-CARICOM members, around energy transition projects and strategies

As the site evolves and as more data comes to hand (eg. CO_2 emissions statistics), content categories will be expanded. Engagement with stakeholders will also inform content — the repository should meet the needs and demands of researchers, investors, and even the average citizen with an interest in learning more about clean energy.

Project outcomes

This platform will streamline the process of conducting research into Caribbean energy. It will save time and take the burden of source verification off researchers. To the extent that research informs investment decisions and project development, this hub should help expedite both.

From an NGC standpoint, it is envisioned that management and curation of information for this platform will help develop in-house competency and institutional knowledge across the gamut of clean energy topics. Refinement of expertise will reinforce the reputation of NGC and its subsidiaries as leaders in the regional clean energy space. It will also build the brand's and country's positioning as a sustainable energy powerhouse and potential supplier of related services.

From another angle, this research hub will allow the Company to cultivate and strengthen relationships with key regional stakeholders, which can in turn open opportunities for collaboration on other projects, including regionally-significant commercial undertakings.

Of course, one of the ultimate goals of *CariGreen* is to deliver on its conceptual vision of raising awareness and understanding around regional clean energy by connecting people and businesses with information. Having more informed investors, citizens and stakeholders will be a most important outcome, as it will bolster efforts to build regional sustainability. ■

The site can be accessed at www.carigreen.ngc.co.tt and feedback through the site's channels is welcomed.

ON THE GREEN AGENDA

DIGGING DEEPER

NGC investigates below-ground carbon sequestration

ON THE GREEN AGENDA

IMAGES OF TREE SELECTION, SITE PREPARATION AND ROOT BIOMASS BEING WEIGHED

> Trees are widely recognised as important carbon sinks, with a big role to play in the carbon mitigation strategies of the future.

Earlier this year tech giant Elon Musk launched a competition with a US$100 million cash prize, to be awarded to the inventors of the best scalable carbon capture technology. Of the hundreds who reacted to his announcement on Twitter, many offered up the same million-dollar idea as one user who declared: "I have invented a concept called planting trees. Where do I send my bank details?"[1]

Trees are widely recognised as important carbon sinks, with a big role to play in the carbon mitigation strategies of the future. However, the climate fight is in many ways a numbers game — balancing carbon outputs and offsets, to slow the net rise in greenhouse gas (GHG) levels, and the pace of global warming. This means that we need accurate assessments of both our emissions and the mass of carbon we subtract through capture and sequestration.

We know that trees store carbon, and we have good estimates of how much they sequester, but those figures vary according to species, age, climate, soil and geography. In light of this, there is merit in conducting region-specific studies to determine how much carbon is sequestered by trees in a particular area. This can not only help countries more accurately gauge how much of their carbon footprint is offset by trees, but it can guide them as to which species might work best for future carbon capture in their local context.

In 2018, NGC partnered with The University of the West Indies (The UWI) on a project with those goals in mind. After planting 315 hectares of trees in the NGC Reforestation Programme, the Company decided to investigate the carbon impact of the exercise, looking initially at above-ground biomass at project sites. In 2020, The UWI was engaged once more to quantify the carbon stored below ground at those sites, and generate a more holistic picture of the programme's impact.

[1] https://twitter.com/elonmusk/status/1352392678177034242

Programme background
In 2005, NGC launched a reforestation exercise to replant an area of forest equivalent to the acreage cleared for construction of the Cross-Island Pipeline, Beachfield Upstream Development and Union Industrial Estate. This project was aligned to the Company's policy of achieving 'no net loss' from business operations. With the guidance of the Forestry Division, the project was executed in seven (7) phases across sites in the south-west and south-east forest conservancies: Rousillac, Guapo-Parrylands, Moruga, Rio Claro and Mayaro. Over 100,000 saplings were planted, including 17 different species of fruit and tropical hardwood trees.

At the close of the seventh project phase in 2018, a team from The UWI, led by Professor John Agard, was contracted to calculate the tonnage of carbon sequestered by the trees planted since the start of the programme. They were also asked to estimate the tonnage that would be sequestered by the year 2030, and the value of that carbon at prevailing market prices.

The scope of the 2018 study was limited to the carbon held in the above-ground biomass (AGB). Height and diameter of trees were measured in sample plots, and wood core samples were taken for lab analysis to determine the carbon-to-biomass ratio for each species. This data was combined with a remote sensing technique called Light Detection and Ranging (LiDAR), with which the heights of all trees at the project sites could be very accurately determined. The plot-level carbon data and the LiDAR tree height data were then used to develop mathematical models which estimated the carbon stored in the AGB of the trees planted.

Below-ground study
According to The UWI, existing scientific literature indicates that tree-root biomass is around 0.26 times that of shoot biomass. If roots account for one-fifth of a tree's total biomass, then a considerable quantity of carbon is sequestered underground.

NGC recognised that the above-ground carbon estimates from its initial study did not tell the whole story, so in 2020 the UWI team was asked to quantify the volume of carbon held below ground at NGC's reforested sites. This was the first study of its kind ever conducted in the Caribbean.

Despite having a formula for calculating below-ground biomass (BGB) from AGB, the team needed to verify that the ratio held true in the domestic context. A licence was obtained from the Forestry Division for a small sample of seven (7) trees to be felled to enable root excavation and weighing. This also allowed for sampling of root biomass to determine the carbon density. The felled trees were subsequently earmarked for donation to an NGC CSR partner organisation for woodworking projects.

The field measurements and lab analysis confirmed the ratio documented in previous studies. Accordingly, the team was able to calculate the BGB using the AGB data from the above-ground study, and thereafter revise the carbon estimates for NGC's Reforestation Programme to include the underground stores.

The results of the study are summarised in the table below.

TABLE 1. TOTAL CARBON ESTIMATE IN 2020 FROM TREES PLANTED BY NGC

SAMPLE PLOT LOCATION	CARBON ESTIMATES FROM NGC-PLANTED TREES		
	Above-Ground Carbon estimate (kg)	**Below-Ground Carbon estimate (kg)**	**Total Carbon estimate (kg)**
Rousillac	1,785,891	464,330	**2,250,222**
Moruga	339,953	88,388	**428,342**
Mayaro	164,029	42,648	**206,677**
Rio Claro	125	33	**158**
TOTAL	**2,289,998**	**595,366**	**2,885,399 or 2885 Metric Tonnes**

ON THE GREEN AGENDA

Per the scope of the study, the team also projected how much carbon would be stored up to the year 2030, as the trees continue to grow and mature. The tonnage of carbon was converted to its carbon dioxide equivalent, and a market value given.

The study revealed that as at 2020, NGC's trees had sequestered approximately 2,885 metric tons of pure carbon, or 10,589 metric tons of carbon dioxide. At a market price of €39.28 per metric ton, that CO_2 was valued at €415,946 (just under TTD$3.5 million). Estimating conservatively into the future, those numbers increase more than sixteen-fold by 2030.

Study implications
NGC's carbon sequestration study is a ground-breaking effort by a local company to quantify the carbon impact of one of its interventions. When the above-ground results were first shared in 2019, they attracted attention from as far afield as Fiji.

The Inter-American Development Bank and the National Aeronautics and Space Administration (NASA) even made contact with The UWI team to discuss lessons learned as they try to develop a project along similar lines to measure blue carbon (i.e., coastal mangrove sequestration) in the Caribbean. With the results now expanded to include below-ground carbon stores, this has become an even more valuable benchmark study to guide regional and international projects.

Implications for national forests
According to the World Bank, around 44% or 226,000 hectares of Trinidad and Tobago's land space lie under forest.[2] NGC's reforestation project sites represent just 0.1% of that area.

[2] https://tradingeconomics.com/trinidad-and-tobago/forest-area-percent-of-land-area-wb-data.html

NGC's data cannot be extrapolated to calculate the carbon stock held in national forests because the age and species of trees affects how much carbon they sequester. However, there is no doubt that the national forest carbon stock is hundreds of times greater than that of NGC's planted trees. As our country works to bring emissions down by 2030 in line with Paris Agreement commitments, it should be evident that sequestration by natural forest is a major offset to consider in our carbon accounting. That said, we will need to know what the real numbers are. NGC's study demonstrates the value of conducting similar investigations at the broader national level, and gives a template for how it can be done. It also provides evidence to justify investment in national reforestation programmes.

Contribution to future research
A key takeaway from this study for researchers who might wish to replicate it in the future, is that the quantum of carbon stored in tree biomass can be determined using technology and scientific formulas.

Before the sample trees were felled for this study, The UWI team used side-scan laser technology to capture them in three dimensions to scale. The above-ground volume was then calculated and converted to weight using special software.

After they were cut, the trees were weighed using conventional equipment, and the results compared against the computer-generated figure. The computer-estimated weights were close enough to the actual weights to support the conclusion that laser scanning can reliably estimate tree weights. The study also confirmed the root-to-shoot biomass ratio of 0.26 which was cited in previous research. These findings effectively eliminate the need to fell trees in future investigations of above and below-ground carbon stores.

Value of young trees
Another takeaway from this research is that younger trees sequester carbon at a faster rate. Looking at the numbers for the Rio Claro sites, planted between 2014 and 2017, versus Rousillac sites which have

YOUNGER TREES ARE PROJECTED TO STORE MORE THAN **70,000 TIMES** THE CARBON THEY DO TODAY BY THE YEAR **2030**, COMPARED TO A SIX-FOLD INCREASE FOR THE OLDER TREES.

Digging Deeper — NGC investigates below-ground carbon sequestration | CONTINUED

TABLE 2: PROJECTED ABOVE & BELOW GROUND CARBON THAT WILL BE SEQUESTERED BY TREES PLANTED BY NGC AT ROUSILLAC, MORUGA, MAYARO AND RIO CLARO

ESTIMATED TOTAL CARBON SEQUESTERED

REFORESTATION SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Rousillac (Grant Trace, Guapo Parrylands, Morne L'Enfer)	2,251	3,401	4,551	5,701	6,852	8,002	9,153	10,303	11,453	12,604	13,754
Moruga (Edward Trace)	428.3	1,579	2,729	3,879	5,030	6,180	7,331	8,481	9,631	10,782	11,932
Mayaro	206.7	1,357	2,507	3,658	4,808	5,959	7,109	8,259	9,410	10,560	11,711
Rio Claro	0.158	1,151	2,300	3,451	4,602	5,752	6,902	8,053	9,203	10,354	11,504
TOTAL carbon sequestered (metric tons)	2,885.4	7,488	12,087	16,689	21,292	25,893	30,495	35,096	39,697	44,300	48,901
Total CO_2 = Total Carbon x 3.67	10,589.2	27,481	44,359	61,249	78,141	95,027	111,917	128,802	145,688	162,581	174,467
Approximate value at EUA spot price39.28 (€) per Tonne CO_2	415,946	1,079,454	1,742,422	2,405,861	3,069,378	3,732,661	4,396,100	5,059,343	5,722,625	6,340,659	6,853,064

trees over 14 years old, we see that the younger trees are projected to store more than 70,000 times the carbon they do today by the year 2030, compared to a six-fold increase for the older trees.

Since carbon is stored in biomass, trees tend to accumulate more carbon during the growing phase. This supports the widely-held belief that planting trees is a good way for our time-pressed planet to remove carbon from the atmosphere. NGC's carbon sequestration study now forms part of an extended programme called 'Beyond 315', through which the Company is looking to expand its initial reforestation project. Among the objectives of this programme will be knowledge-sharing to encourage other entities to invest in tree-planting exercises on an equal or even larger scale. It will also include training and empowerment of members of the site communities to develop entrepreneurial ventures based on sustainable forest management.

Natural technology

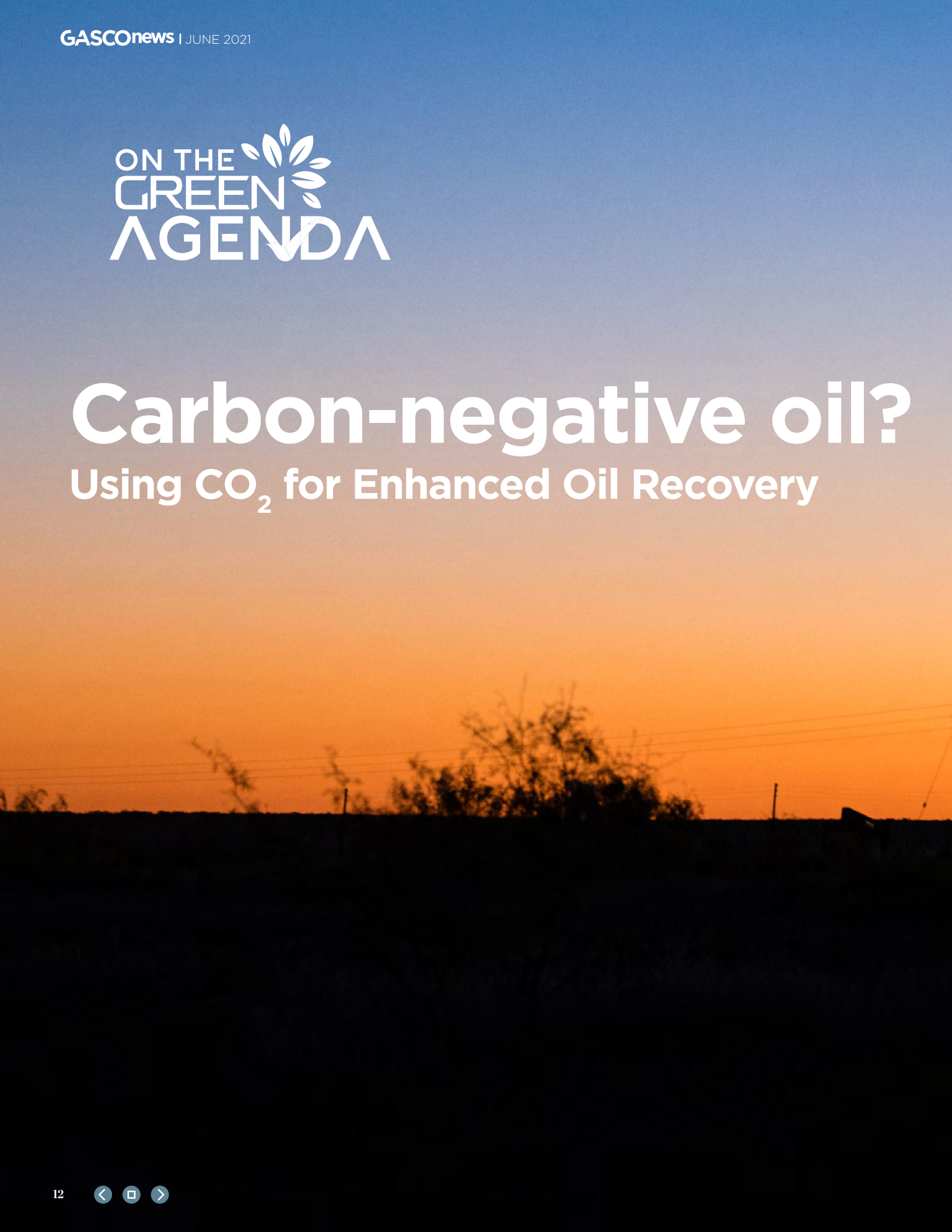
NGC continues to demonstrate its deep commitment to sustainability and climate action with a variety of carbon mitigation projects. In recent months, the Company began to leverage infrared and satellite technology to track methane emissions from its infrastructure; entered into a partnership with the University of Trinidad and Tobago for the execution of a Climate Change Mitigation Project; entered the green hydrogen and solar energy space with subsidiary National Energy; launched a consumer-targeted app Energy SmarTT to raise awareness around energy efficiency; and introduced drone technology and smart reporting to reduce the carbon footprint of field operations.

The NGC Reforestation Programme and pioneering carbon sequestration study are part of this broad and impactful portfolio of initiatives. As NGC has shown, while it may not be cutting-edge technology, reforestation is a proven-effective carbon capture solution we can readily mobilise and scale up. The humble tree belongs on the frontline of the climate fight, and we need as many of them as we can get. ■

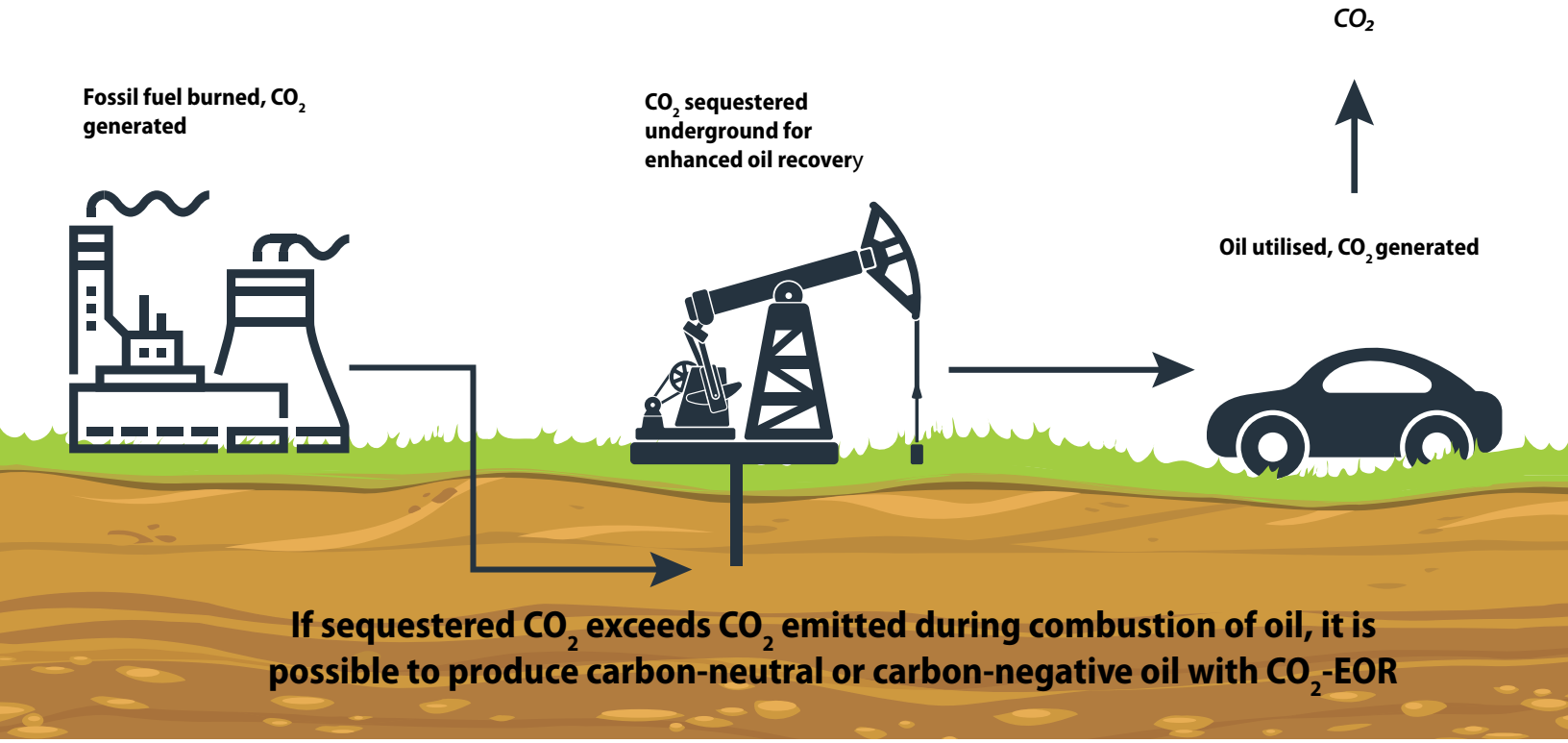
ON THE GREEN AGENDA

Carbon-negative oil?

Using CO_2 for Enhanced Oil Recovery



ON THE GREEN AGENDA



> Of all the captured CO_2 currently utilised around the world, approximately one third goes into Enhanced Oil Recovery (EOR)

Every roadmap to a net-zero carbon future assigns a key role to carbon capture, utilisation and storage (CCUS) technologies. CCUS has both environmental and economic merit, since captured CO_2 can be traded as a commodity or put to productive industrial use.

Of all the captured CO_2 currently utilised around the world, approximately one third goes into Enhanced Oil Recovery (EOR).[1] This end-use of CO_2, known as CO_2-EOR, can be quite valuable to the global energy transition, as it enables some last-lap oil production while simultaneously sequestering CO_2 permanently underground. In certain enabling environments, this strategy could even support production of carbon-negative oil.

The Government of Trinidad and Tobago has identified CO_2-EOR as a strategy for boosting oil revenue while reducing CO_2 emissions.[2]

In February 2021, Cabinet appointed a special Steering Committee, charged with managing the implementation of a local large-scale CO_2-EOR project for Heritage Petroleum's onshore fields. Named among the Committee members was NGC's Senior Manager HSSE, Himalaya Boodoosingh, who shared some insight into the process of CO_2-EOR and its utility in the context of the green agenda.

Understanding EOR

When an oil well is drilled successfully, the crude surfaces with ease at first, due to the pressure of overlying rock. Think of those on-screen scenarios, where early prospectors stumbled across oil in surface pools, or black geysers pitched from wells, launching oil-slicked tycoons-to-be into jubilant celebration. In these depictions, oil rushes naturally to the surface once a reservoir is breached.

As oil leaves the reservoir, however, the internal pressure begins to fall. Before long, specialised equipment and techniques are needed to support continued extraction.

[1] https://www.iea.org/reports/putting-co2-to-use

[2] https://w e-co2-enhanced-oil-recovery-steering-committee-established/

Carbon Negative Oil? Using CO_2 for Enhanced Oil Recovery | CONTINUED

These are called Enhanced Oil Recovery (EOR) mechanisms. Pump jacks are a familiar example of EOR technology - hammer-headed contraptions whose seesaw motion helps lift oil from underground wells. Less visible to us would be offshore EOR methods, which include injection of gas, water or steam into wells to displace oil, boost well pressure, or heat the oil to get it moving.

While EOR is typically considered a strategy to help maximise production and profit from oil, today it represents an avenue to address one of the biggest problems of our time - greenhouse gas (GHG) mitigation. This is because one form of EOR involves injection of carbon dioxide into wells (CO_2-EOR), which in effect sequesters the gas underground. Today, it is widely used across the world, with the International Energy Agency (IEA) reporting that 20% of all oil produced using EOR - some 500,000 barrels a day - is produced using carbon dioxide injection.[3]

Of course, there is an apparent contradiction in the claim that CO_2-EOR can help with GHG mitigation, when it is used to produce oil - a major contributor to global GHG emissions. However, under the right conditions, CO_2-EOR, can in fact, enable production of net carbon-neutral or even carbon-negative oil. Lining up these conditions in the Trinidad and Tobago context is the challenge that has been put to the Cabinet-appointed Steering Committee.

Committee Members

- Chairman - **Mrs. Penelope Bradshaw-Niles,** Permanent Secretary (Ag.), Ministry of Energy and Energy Industries
- **Ms. Arlene Chow** - Chief Executive Officer, Heritage Petroleum Limited
- **Professor Andrew Jupiter** - Head of Department of Petroleum Engineering, The University of the West Indies
- **Mr. Kishan Kumarsingh** - Head Multilateral Agreements Unit, Ministry of Planning and Development
- **Mr Himalaya Boodoosingh** - Senior Manager HSSE, NGC

Why do we want more oil anyway?
One might wonder why our country should invest effort and capital in pumping more oil out of the ground at a time when more and more countries are announcing plans to wean certain productive sectors off oil in the near future. However, it is precisely because of the downward trajectory of oil consumption that Government is pushing to increase production in the short-term.

On an energy equivalency basis, oil is more expensive than natural gas. Based on an average oil price of USD$60 per barrel of oil and USD$3 per mmBTU of gas, the energy contained in a barrel of oil is more than triple the price of the same quantum of gas-derived energy.[4] Even though oil is a higher-priced energy commodity, there are many sectors still reliant on this energy source - for example, the transportation sector. This means that demand is still strong, and an oil producer like Trinidad and Tobago can still earn relatively more from oil than gas per unit of energy.

[3] https://www.iea.org/commentaries/can-co2-eor-really-provide-carbon-negative-oil

[4] Assuming one barrel of oil = 5.8 mmBTU, per reference: https://www.investopedia.com/terms/b/barrelofoilequivalent.asp

Based on an average oil price of **US$60** PER BARREL OF OIL + **US$3** PER MMBTU OF GAS, the energy contained in a barrel of oil is more than triple the price of the same quantum of gas-derived energy.

ON THE GREEN AGENDA

AT PRESENT, THE LNG BUSINESS IS ONE OF THE BIGGEST LOCAL CONTRIBUTORS TO CO_2, RELEASING OVER **5 MILLION TONNES OF CARBON DIOXIDE** IN 2019 ALONE.

So, if we have the oil, and it is still worth a lot, it makes economic sense to extract and market it.

That said, the window of opportunity to do so is closing, as environmental pressures are moving markets away from fossil fuels which produce high GHG emissions. Oil-based sectors are seeking to decarbonise, which means switching to cleaner energy sources. When demand falls, so will prices. To maximise the price we can get for our oil, we need to sell it quickly.

Enter CO_2-EOR

Trinidad and Tobago has been producing oil for more than a century, and basins are mature. The lighter crude has been depleted, but there are still considerable quantities of heavier crude that we can extract. The higher density however means more effort - or EOR - is required to get it out of the ground.

Of course, the increasing urgency of bringing GHG emissions down means that additional oil production cannot be undertaken without consideration of its environmental impact. CO_2-EOR is the best available option to produce oil with minimal net output of carbon dioxide. This type of EOR is, however, quite costly, and if Trinidad and Tobago's state oil company is to make use of the technique, it would need to apply for funding from external agencies. The problem is that funding is more readily disbursed to projects that are seeking to reduce GHG emissions, rather than projects that will ultimately increase emissions. In order to secure funding for CO_2-EOR, the country therefore needs to prove that the output would be net carbon-neutral or carbon-negative oil. That is, it must demonstrate that the production of oil using CO_2 injection would result in minimal or zero increase in atmospheric GHG levels. Ideally, it should ***reduce*** levels by sequestering more CO_2 than would be emitted through combustion of the oil produced in the CO_2-EOR process. This is where the Cabinet-appointed Steering Committee comes in.

The task of the Steering Committee

The initial role of the Committee is to help identify Heritage fields in the Point Fortin central area that would be suitable for CO_2-EOR, and help conceptualise a carbon-neutral/negative project to capture CO_2 and transport it to the fields for well injection. To do so, the Committee must answer certain questions.

For instance, where will the required CO_2 input come from? At present, the LNG business is one of the biggest local contributors to CO_2, releasing over 5 million tonnes of carbon dioxide in 2019 alone.[5] Past CO_2-EOR projects in Trinidad — executed in the Forest Reserve and Oropouche fields between 1975 and 2000 – lifted 4 million barrels of oil using approximately 1.26 million tonnes of CO_2.[6] Extrapolating from this data, 16 million barrels of oil could theoretically be lifted using CO_2 from the LNG business alone (although factors such as reservoir age, capacity and oil viscosity would ultimately impact that figure).

Here's the catch. The CO_2 emitted from combustion during LNG production requires special equipment and processing to capture and make it fit-for-use in CO_2-EOR applications. It would also require investment in compression and transportation infrastructure. Nevertheless, the option remains a viable one if the economics favour progression.

[5] Atlantic Sustainability Report 2019: https://issuu.com/iugodigital/docs/atlantic_sustainability_report_2019_for_web

[6] https://www.energy.gov.tt/carbon-capture-utilization-and-storage-ccus/

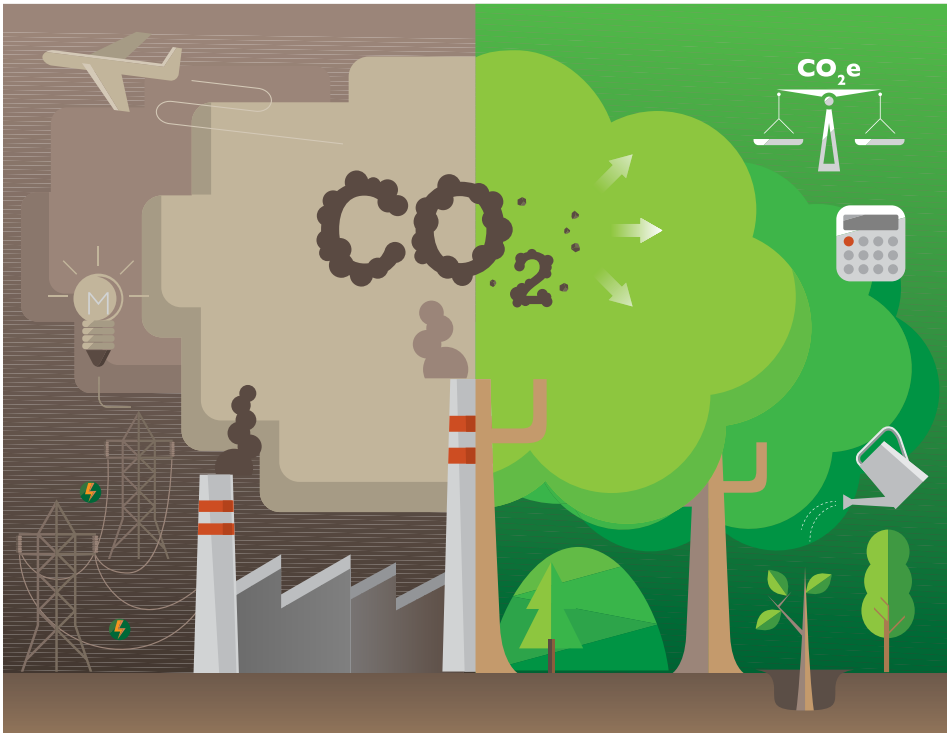
Carbon Negative Oil? Using CO_2 for Enhanced Oil Recovery | CONTINUED

Looking elsewhere, an output of the chemical reactions involved in ammonia production on the Point Lisas Industrial Estate is CO_2. Much of this is vented to the atmosphere, but some is piped to neighbouring plants for use in methanol production. If the same technology used to capture pure CO_2 for sale to methanol producers were to be leveraged to retain what is currently vented, we could have a readily available, fit-for-use gas stream with some preliminary pipeline infrastructure already in place. This option is therefore the first one being explored by the Committee.

The next big question is how do we ensure net carbon neutrality? The IEA estimates that a barrel of oil generates around 500kg of CO_2 with production, processing, transportation and combustion all being factored in.[7] By this math, the 4 million barrels of oil extracted using CO_2-EOR in Trinidad and Tobago pre-2000 would have generated 2 million tonnes of CO_2 — a net positive GHG contribution since only 1.26 million tonnes were sequestered to produce it.

As mentioned before, Trinidad and Tobago would need to conceptualise a net carbon-neutral or negative project to access funding for CO_2-EOR. Part of the Committee's role would therefore be to work with relevant academics and industry stakeholders to determine which wells would be able to store more — or at least equivalent — volumes of carbon dioxide relative to what would result from production of that oil. Other techniques to offset emissions could be added to tilt the scale towards net negative CO_2 output, such as reforestation or afforestation initiatives.

Daunting mathematics aside, carbon-negative oil production is possible, and has been



BALANCING THE EQUATION: PRODUCTION OF CARBON-NEUTRAL OR NEGATIVE OIL MAY REQUIRE SUPPORTING CARBON OFFSET MECHANISMS SUCH AS REFORESTATION OR AFFORESTATION PROJECTS

demonstrated elsewhere in the world. The Steering Committee will be working with US university experts who have the data, and is currently evaluating proposals from both local and international entities seeking joint-venture partnerships to bring the project to fruition.

Where does NGC fit in?

The Steering Committee is expected to present a report to Government within a few months. The hope is that a viable solution can be conceptualised and implemented, to enable the ground-breaking local achievement of carbon-negative oil.

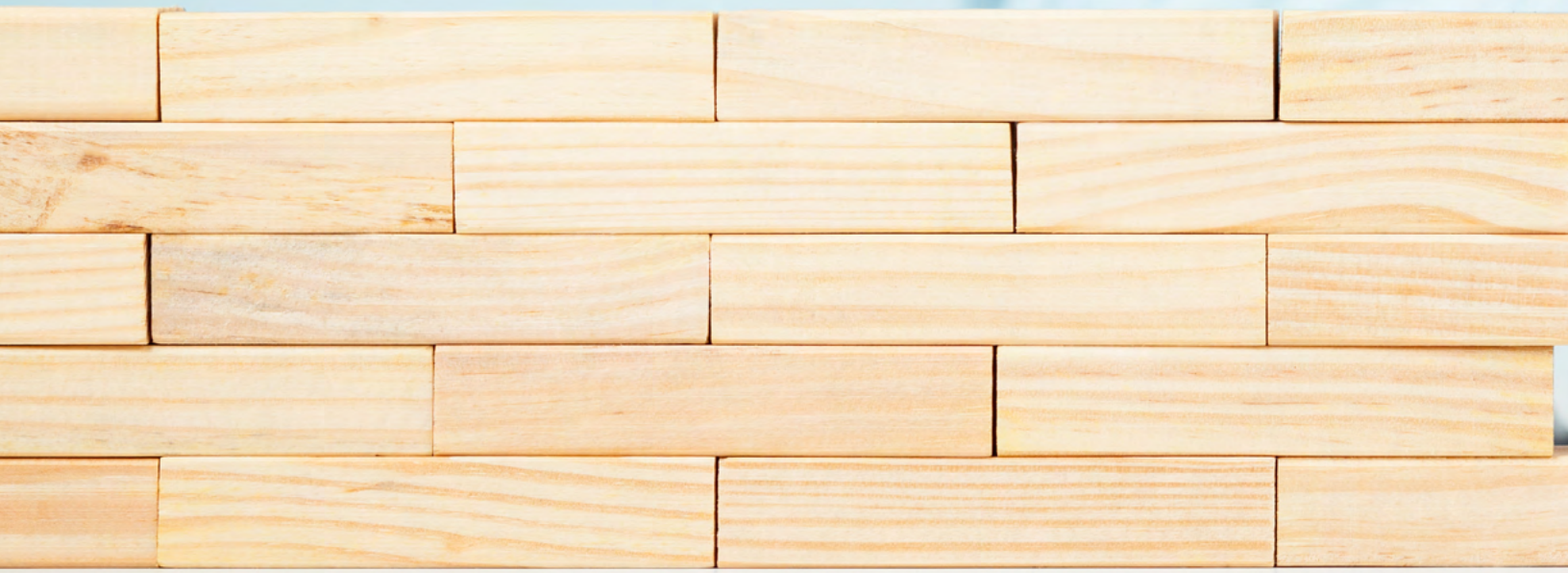
NGC's representation on the Steering Committee makes sense when we consider both the likely source of CO_2 for injection and the mechanism of transportation. NGC will not only bring the perspective of the downstream producer to the conversation, but will also provide expert guidance regarding pipeline construction and operating costs. In addition, participation in this Committee allows NGC to strengthen its contribution to national decarbonisation efforts. This is one of the Company's core strategic objectives moving into the new energy future.

Asked about the importance of the Committee's work, NGC's Senior Manager HSSE, Himalaya Boodoosingh commented: "This exercise underscores the efforts being made by Trinidad and Tobago in support of the UN Sustainable Development Goals. Importantly, it allows us to showcase our ability to tackle complex world problems using local talent and expertise." ■

[7] https://www.iea.org/commentaries/can-co2-eor-really-provide-carbon-negative-oil

REFLECTION AND RECALIBRATION

Work in the time of COVID: learning from today to prepare for tomorrow




POST-COVID-19

REFLECTION AND RECALIBRATION

> With the virus projected to linger in some incarnation for years to come, the reality is we may never be able to recoup pre-COVID 'normalcy'. These will be our future's formative years.

A year and a half ago, few could have foreseen that a localised outbreak of an unknown virus in one corner of the world would snowball into a raging global pandemic within weeks. Today, the deadly SARS-CoV-2 virus continues to travel, infect and kill, ravaging lives and livelihoods in equal measure. It has already crippled economic sectors and forced radical changes to the way we work, study, conduct business and interact socially. With the virus projected to linger in some incarnation for years to come, the reality is we may never be able to recoup pre-COVID 'normalcy'. These will be our future's formative years.

Faced with that prospect, companies have had to think hard about growth and survival strategies. Extrapolating from what we see today, NGC has asked: what will the future look like for our business and employees? How can we prepare for whatever 'normal' materialises when the dust settles?

THE FUTURE OF WORK

The role of technology

Across the world, COVID-19 has accelerated the Fourth Industrial Revolution, and there is no turning back. Technologies and digital applications that enabled businesses to keep operations going during the pandemic will move from being innovative stopgaps to baseline resources. This means that companies still behind the curve in terms of digitisation risk becoming uncompetitive or even obsolete if they do not adapt. It also means that the bar of excellence now sits

higher, and companies wanting to distinguish themselves must do more.

Before the onset of COVID-19, NGC and its subsidiaries formalised a comprehensive Technology Strategy, which maps technology milestones for the organisation to achieve on its way to becoming a global energy brand. Some of those milestones — such as the introduction of drones and extended reality technology — had already been crossed prior to 2020. Deployment of other tools was accelerated during the pandemic, including smart forms and data dashboards, digital project and portfolio management, and platforms for electronic invoicing and tendering.

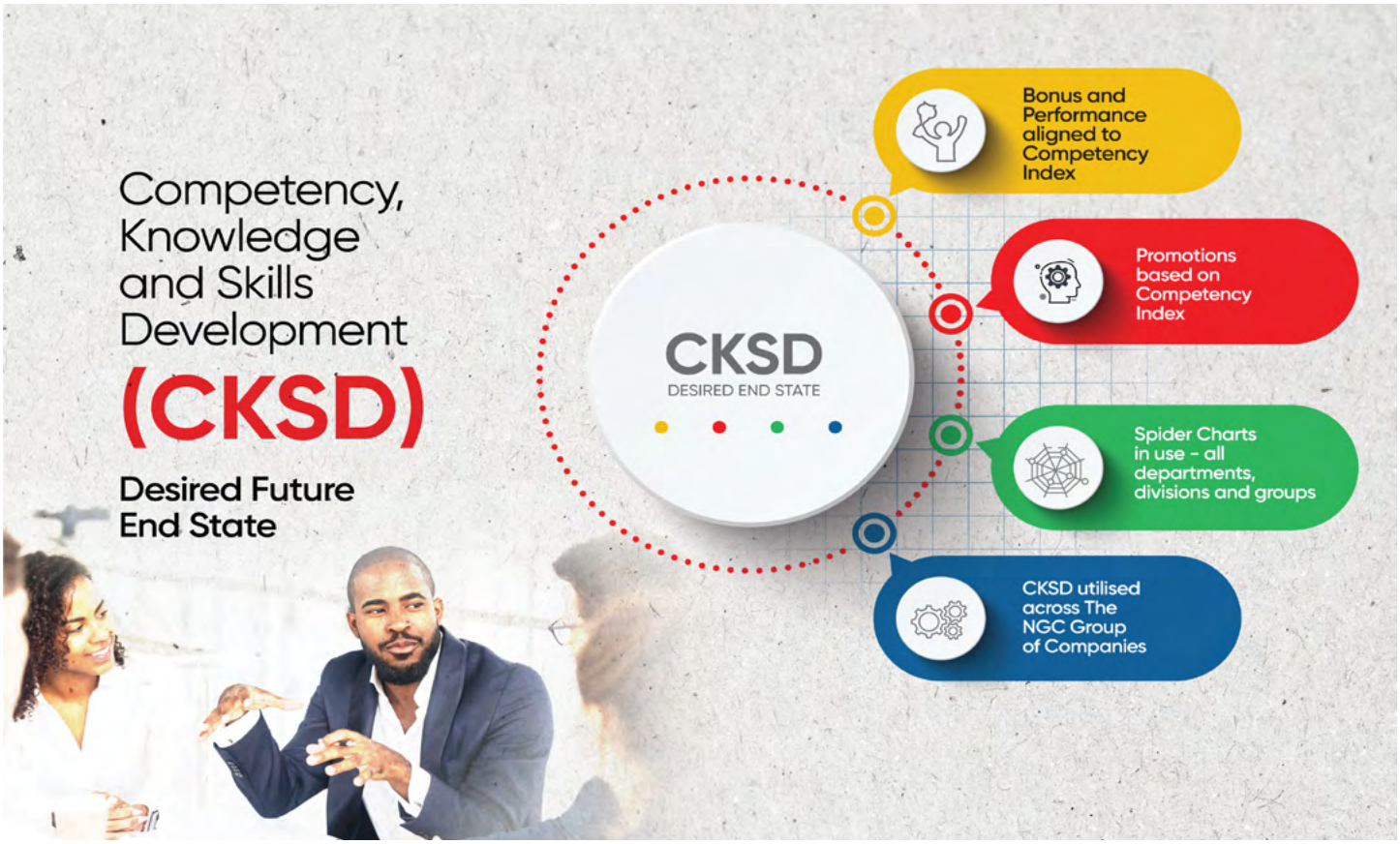
However, while the Company was able to leverage technology to navigate change over the past year, the rapidity of that change was alarming. It highlighted the need to expedite rollout of other key items on the technology roadmap — 'nice-to-haves' in today's industry — which could become vital to survival tomorrow. For example, another paradigm-shifting event could necessitate use of the industrial Internet of Things, robotics, 3D printing of parts and spares, cryptocurrency or even artificial intelligence applications to maintain competitiveness. Anticipatory investment can provide a buffer against such disruption.

NGC and its subsidiaries are accordingly cementing technology as a cornerstone of growth strategy. This not only means procuring the hardware and software tools to digitise functions, data and workflows, but investing in the training of employees to leverage those tools for maximum benefit and productivity. Organisational culture is also being adjusted to encourage their use, especially where technologies disrupt 'comfortable' tools and systems of work.

Evolving risk landscape

At the same time, the level of integration with technology should not be so high that a technology-based crisis event compromises essential services or assets (physical or digital).

REFLECTION AND RECALIBRATION



NGC'S CKSD INITIATIVE IS PLAYING AN INTEGRAL ROLE IN THE COMPANY'S HUMAN RESOURCE DEVELOPMENT PROGRAMME

According to the World Economic Forum (WEF) Global Risks Report 2021, technology-related risk is forecast to become a critical threat to the world within the next five (5) years.[1]

This is where scenario modelling and business continuity planning become especially important. As the world moves forward from COVID-19, new risks can emerge that could destabilise business sectors and even society — for example, a major cybersecurity incident or crippling telecommunications failure. It is critical that companies study the risk landscape and implement the necessary barriers to protect against possible and probable threats.

NGC and its member companies have an active Business Continuity Planning (BCP) team that continues to meet weekly to assess and address risks and imminent threats. This team has been instrumental in manoeuvring the business through the pandemic and its work will remain critical to future-proofing the organisation.

Human resource development

One of the risks that companies will have to confront is the obsolescence of skillsets within the workforce, particularly as more functions are digitised. Adapting to change during the COVID-19 pandemic has exposed functions in all businesses that could soon become obsolete or redundant, because companies realised they can survive without them.

Investment in upskilling and retooling employees will therefore be imperative. Deloitte reports that the half-life of a learned business competency has fallen below five (5) years,[2] meaning constant training will be necessary for employees to stay relevant in the evolving, increasingly automated workplace. The responsibility for continuous learning and professional development could also fall to employees themselves, as they face competition from young entrants into the workforce who are increasingly equipped with fresh and in-demand skills.

NGC is in the midst of a Competency, Knowledge and Skills Development (CKSD) exercise to map the skill profile of the organisation, to identify gaps that need to be filled. The exercise is seeking to determine where employees are falling short of skill

[1] https://www.weforum.org/reports/the-global-risks-report-2021

[2] https://www2.deloitte.com/za/en/pages/human-capital/topics/future-of-work.html

demands, where there are hidden competencies that can be leveraged, and where new hires are needed. Upon completion, the CKSD exercise will inform a comprehensive training and recruitment strategy to assist in building a workforce that is equipped to operate in the 'new normal'.

Hybrid workplace

During the pandemic, telecommuting became normalised as companies across the world moved 'non-essential' staff into work-from-home (WFH) arrangements. The WFH scenario proved effective for many employees, but others found the experience difficult due to lack of resources or domestic matters competing for their attention.

REMOTE WORK ARRANGEMENTS PROVED SUCCESSFUL FOR MANY COMPANIES DURING THE PANDEMIC AND COULD BECOME NORMALISED IN THE FUTURE

In terms of future workforce distribution, questions around the merits of teleworking will need to be answered on an individual company basis. NGC and its subsidiaries are in the process of determining what the future of work will look like for the organisation, particularly as it relates to the location of workers, based on the pandemic experience and forecasts about what lies ahead. A survey has been issued to staff to get feedback on workplace preferences — whether people prefer working from home, the office, or a hybrid of both. This survey is expected to inform strategic planning going forward.

That said, it cannot be denied that remote working over the past year, and the migration of services across industries to digital platforms, has had a positive environmental impact.

As industrial production stalled, and demand for transportation fuel fell, the world witnessed the largest-ever decline in energy-related emissions since World War II — some 5.8% in 2020, according to the IEA.[3] Impressive though this is, the WEF posited that the 9% decline witnessed in the first *half* of 2020, during the initial phase of the pandemic, is the level that must be sustained over the next decade to limit global warming to 1.5 degrees.[4] In this context, the future of work should not be decided on the sole basis of what is best for an organisation, but what might be necessary for the planet. NGC and its subsidiaries are leading green agenda conversations and projects, so the environmental implications of telework will be an important factor in discussions around future workforce distribution.

Safety first

Should telework become the norm, what of health and safety? HSSE protocols were integral to operating successfully during the pandemic. Even with the support of technology, work could not be delivered without people, and good health is imperative for optimal performance and productivity.

As the WFH arrangement continues for most NGC and subsidiary staff, ensuring employees have access to ergonomic workspaces is a top priority. Homebound staff members have access to funding to purchase ergonomic office furniture, and all employees are required to routinely complete ergonomic inspections and checklists while working from home.

The dimension of mental health is also standing out on the risk radar. Anecdotal evidence across industries and countries paints a picture of an increasingly burnt out and stressed workforce, working longer hours for the same pay. Fatigue and stress can lead to errors — from minor blunders of little consequence to poor decisions with major impact — not to mention the toll they take on physical wellbeing. Going forward, HSSE will need to bring mental health to the front burner.

NGC has several channels in place to reach out to staff. The Company regularly provides business updates through employee forums and weekly newsletters, hosts 'knowledge cafes' and virtual celebrations, and gives opportunities for virtual social interaction through contests and wellness activities.

[3] https://www.iea.org/articles/global-energy-review-co2-emissions-in-2020

[4] https://www.weforum.org/reports/the-global-risks-report-2021

REFLECTION AND RECALIBRATION

NGC has also organised several virtual information sessions with medical professionals specifically centred on health, including COVID-19 and vaccination awareness presentations.

For staff in need of more emotional support, the Employee Assistance Programme (EAP) offers access to counselling services with Families In Action.

Areas of challenge

The future of work in many areas has a clear trajectory, based on successful adaptations made during the pandemic. However, there are areas that were not as successful in transitioning.

For example, NGC had several open engineering and construction projects in 2020. Restrictions on movement and commercial activities during phases of the national lockdown led to work suspension or delays on many projects. Resource mobilisation to restart work after some restrictions were eased cost additional time and money.

In addition, supply chain disruptions both locally and abroad meant raw materials and other inputs into projects became scarce or more expensive. In Trinidad and Tobago for example, when cement production was temporarily halted in May 2021, retailers began charging double the standard price for dwindling supplies of stockpiled cement.[5] Burdened logistics services and Customs clearance bottlenecks have compounded delays in those projects relying on imported materials and inputs.

On top of these issues, force majeure contract clauses built to exempt parties from penalties due to extraordinary circumstances could in the long run increase overall project costs for the Company.

[5] https://newsday.co.tt/2021/05/19/trade-minister-to-investigate-rush-for-cement-price-gouging/

MENTAL HEALTH ISSUES ARE RISING ON THE RISK RADAR AND REQUIRE HSSE ATTENTION

There are several takeaways from the experience that will need to inform project planning going forward, particularly as it relates to procurement of inputs, contingencies, and contract formulation. The deeper integration of technology into project planning and execution phases can also help buffer against disruption.

Project construction was not the only area to experience setbacks. NGC's Corporate Social Responsibility (CSR) portfolio comprises many initiatives whose effectiveness relies on a degree of face-to-face interaction, or which cannot be properly executed under lockdown conditions.

Some, like the NGC Bocas Lit Fest, were able to pivot to virtual platforms. Others, such as training activities for Police Youth Club members, could not migrate as successfully, due to inconsistent participant access to the requisite devices and internet connection, as well as competing demands on their time and attention.

Programmes requiring fieldwork such as NGC Right on Track could not be facilitated at all as currently designed.

The Company therefore took the opportunity to reconsider its CSR approach. It has been working on a new strategy to address CSR partner needs in the new environment, and treat with emerging risks that could impact youth and community development in the near future. Ensuring the long-term sustainability of supported groups - particularly in the context of disruptive social and economic change - is the ultimate goal of this new approach.

A whole new world

Despite worldwide vaccination programmes currently underway, the COVID-19 pandemic rages on. With new variants emerging, there is no telling how long the virus will remain with us. The one thing we can say with certainty is that this pandemic will be remembered in history for its disruption of major organisational and behavioural patterns of human society — how we work, how we study, how we play. Where we go from here is left to be seen, but the world we build will be unmistakeably shaped by our response to the SARS-CoV-2 virus. ■

REFLECTION AND RECALIBRATION

the bocas LitFest

MORE THAN A LITERARY FESTIVAL

Celebrating a decade of achievement

WWW.BOCASLITFEST.COM

REFLECTION AND RECALIBRATION

10 Years of Achievement

We've always been writing in the Caribbean but before Bocas, no one had really created a space — at home — with the power to put regional writers on a pathway to the international publishing industry.

– MARINA SALANDY-BROWN

Reflections on the 10-year journey

In 2021, the NGC Bocas Lit Fest celebrated a decade of outstanding service and achievement in the sphere of literature and the literary arts.

As title sponsors of the NGC Bocas Lit Fest, we at NGC look upon the journey of the past ten years with great pride and a deep sense of accomplishment. This has been one of our flagship CSR investments, and we are happy to celebrate this milestone anniversary with the Bocas team.

Today, we at NGC are looking to deepen our impact beyond energy, supporting the UN Sustainable Development Goals through our green agenda and more future-focused CSR investments. The work of the NGC Bocas Lit Fest fully aligns with our new purpose, as it supports UN targets in education, arts and culture, empowerment and economic development, among others. This alignment strengthens our commitment to this festival, as well as our conviction that with the Bocas team, we stand in good company to build a better tomorrow for our country and the wider region.

In this issue of *Gasco News*, we are pleased to feature extracts from the Bocas Lit Fest 2020 Annual Report, which reflects on highlight achievements from the festival's history and gives insight into its current structure and future plans.

A DECADE OF OCM BOCAS PRIZE-WINNING BOOKS (2011 - 2020)

A Decade of Impact

Hosted **13** events outside of T&T, taking our writers to the world

Delivered **72** different workshops and master classes for emerging and advanced writers hosted in Trinidad, Tobago, Jamaica, Guyana and St. Lucia

Awarded **TT$1.42M** in prize money and long-listed **136** books in **4** literary prizes administered by the BLF and funded by our sponsors

Published and distributed **9** fully illustrated children's storytelling books featuring **155** stories

831 different events

750 writers - readings, discussions, debates, performances, film screenings, book launches, poetry slams; adult storytelling and more

First Citizens National Poetry Slam

934 poets auditioned (2013-2020)
258 semi-finalists (2014-2020)
83 finalists (2014-2020)
27 winners (1st - 3rd places)

TT$400,000 in prize money
51 Slam events to-date

From 2013, engaged with over **150,000** students in **250+** secondary schools as part of an annual nationwide spoken word tour in collaboration with the 2Cents Movement

17 NGC Bocas Lit Fests:

9 in PoS,
1 in South/Central
3 in South
4 in Tobago

The Lit Fest has significantly elevated the NGC brand both locally & internationally having achieved **TOP 20** status

REFLECTION AND RECALIBRATION

What We Do

Annual Literary Festival

The annual NGC Bocas Lit Fest, due to the COVID-19 pandemic, became two virtual festivals. The original dates of 1-3 May became our first attempt at an online festival. It included the announcement of the winners of the current BLF-founded prizes, a tribute to the late Kamau Brathwaite, readings, book launches and Pavement Poets. A second, seamless, online festival followed from 18-20 September, live-streamed on the BLF website, via YouTube and on Facebook. It comprised 18 events over 23 hours, featured 80 new and star authors, prizewinning books, readings, discussions, Extempo, poetry, storytelling, Stand and Deliver, the important New Talent Showcase, as well as other entertaining and informative elements.

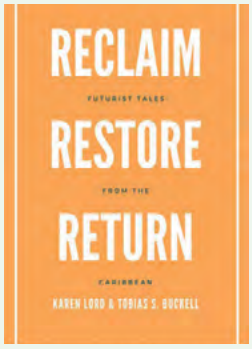
Prizes

Richard Georges, a Trinidadian-born poet living in the Virgin Islands won the 10th coveted OCM Bocas Prize and Amanda Choo Quan of T&T was victorious in the second year of the emerging writers prize, the Johson and Amoy Achong Caribbean Writers Prize (JAWWCP) for non-fiction.

Our prizes award, promote and have advanced the careers of both established and new Caribbean writers. The late Kamau Brathwaite was the recipient of the Bocas Henry Swanzy prize for Distinguished Service to Caribbean Literature.

RICHARD GEORGES

AMANDA CHOO QUAN



Publishing

In 2020 the Bocas Lit Fest collaborated with the Caribbean Futures Institute to publish *Reclaim, Restore, Return: Futurist Tales from the Caribbean,* a free e-book for the 2020 NGC Bocas Lit Fest that received fine reviews. A special Peekash Press anthology, marking the 10th anniversary of the NGC Bocas Lit Fest, *Always Coming Home: Caribbean Writers* and *Their Journeys Through the World,* features all ten overall OCM Bocas Prize winners and some of the leading Caribbean writers who participated in the festival since 2011.

Peekash Press, our publishing imprint, will explore e-books as a publishing model for this region, along with audiobooks and print on demand facilities, in partnership with other Caribbean territories.

What We Do (continued)

Children's Festival

The Children's Festival also celebrated 10 years in 2020. The much loved Storytelling Caravan (targeted to children under 12), evolved into Dragonzilla's Storytime, a series of 18 films of the children's own stories taken from the BLF annual illustrated colouring book, read by well-known storytellers.

The videos were broadcast repeatedly on TV6 and during the September festival. Work has also begun on animating some of the other children's stories created over the last decade.

A Shortstory Writing Challenge invited children to create their own stories. The authors of the top ten then made them into videos. The prize-giving event took place at the National Library and was attended by the Minister of Education, Dr Nyan Gadsby-Dolly, who was very fulsome in her praise for the work of the Bocas Lit Fest over the last decade.

Youth Programming (ages 12 - 18)

A highlight of our Youth Programming is the popular and lucrative First Citizens National Poetry Slam. In 2020 it was presented as a TV production in partnership with TV6. Youth programming also included the commencement of the Write Away! project sponsored by Scotiabank Foundation, which replaced the Burt Award Young Adult Author Tour.

The project facilitated the development of new digital material for a series of virtual, creative writing workshops presented by Lisa Allen Agostini for secondary schools, in consultation with the Ministry of Education. As part of the Write Away! project, books were distributed to selected, under resourced school libraries, with the objective of providing young people with adequate and appropriate reading material that contribute to their emotional, intellectual and social development.

THE WRITERS CENTRE

The Writers Centre

Home of the Bocas Lit Fest and the 2 Cents Movement, The Writers Centre (TWC) is a space dedicated to writers and literary programmes in Trinidad, one that will help affirm the city's growing reputation as the literary capital of the Anglophone Caribbean. The Writers Centre is an arts-friendly, collaborative, entrepreneurial enterprise ready to serve members of our dynamic community of creative self-starters.

REFLECTION AND RECALIBRATION

Year-Round Programming

DURING **2020** WE CREATED MANY NEW OFFERINGS AND PRODUCED AN AVERAGE OF **2.5** VIRTUAL EVENTS WEEKLY INCLUDING:

Bios and Bookmarks, the new Sunday one-hour long chat with leading Caribbean authors living everywhere about their newest work.

Bring your Own Book and Bottle (BOYBB) a monthly digital international chat-in about books with our book network.

Writing workshops — topics included poetry at all levels, getting published and one-and-one masterclasses with prizewinning writers and seminars, including the series Lit's Be Real.

Survival Kit — A series of monthly art, music and literature offerings intended to help deal with the depths of the lockdown.

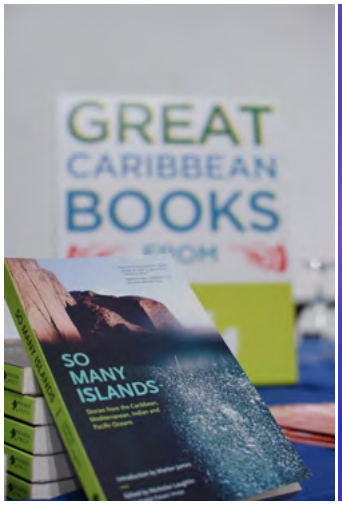
The Bocas Book Bulletin — A monthly news roundup of new Caribbean books and writers, prizes and events, published every first Sunday in the Express.

The 100 Books That Made Us — This is a long-term project launched in 2020 to establish a definitive popular canon of Caribbean literature.

Publishing Consultancy — Offering individuals advice in editing and publishing their books commercially.

Special Events — These included a series of hard-hitting panel discussions and film and video productions:

- *Remembering the 1990 Coup*
- *Kamau Brathwaite Birthday; Indian Arrival Day*
- *The Case for Reparations*
- *The filmed PoS literary walking tour, presented by Wendell Manwarren will be launched at the 2021 festival*
- *The 10-year anniversary Peekash publication of the new generation of regional writers will also be launched at the 2021 festival*
- *A Question of Leadership*
- *The Treachery in Every Poem: Celebrating the poetry of Colin Robinson*



Bocas Lit Fest: Celebrating a Decade of Achievement | CONTINUED

Anniversary 10 Years

2020 Achievements

700%

MORE PEOPLE SAW THE 2020 FIRST CITIZENS POETRY SLAM!

As the pandemic caused a global pivot, the annual Poetry Slam achieved a **700%** increase in audience numbers from **150** in person at the Old Fire Station in 2013 to **3,500** online views in 2020, plus a undisclosed number of TV views of **5** hours of programming

REACH OF OUR 2020 PROGRAMMING

19,256 Facebook views

55,265 You tube views

12,945 views of **23** posts on IG

133 children aged 12 and under participated in the first Dragonzlla Storytelling Challenge

98,226 people were reached by the various elements of the 2020 NGC Bocas Lit Fest Children's Festival. This included World Read Aloud Day, Dragonzilla's Storytime videos, Dragonzilla's Writing Challenge, colouring book mailouts and **3** animated video

33% of our demographic is now represented by **women** between the ages of **25 to 34 years**

Outlook 2021

A virtual festival in late April with a series of year-round events

The continuation of workshops to guide novice writers along the pathway to commercial and critical success

The launch of a new prize that recognises and assists writers of Caribbean stories for children that reflect our cultures and traditions, sponsored by UTC

The launch of **Friends of the Bocas Lit Fest** through which local, regional and international supporters can directly contribute to the sustainability of the NGO

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

In 2020, NGC partnered with Logging Tape Media to bring breathtaking images of our islands to homebound citizens. Captured here is the stunning beauty of Grande Riviere.