

THE NGC GROUP OF COMPANIES CORPORATE QUARTERLY JOURNAL

GASCO news

Vol 35. No 1. March 2025



UNLOCKING POTENTIAL



PRESIDENT'S MESSAGE

Unlocking potential

01

Deepwater – a new frontier for energy production

02

AI, emissions and energy – the impact of AI in a warming world

09

Unlocking new possibilities with aerial LiDAR technology

15

LABIDCO turns 30

18

NGC Group quarterly highlight reel

23

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

Joselle G. Sirju
Head, Communications and Brand (Ag)

SUB-EDITOR

Nadine Ramharack
Public Relations Officer II
Communications and Brand

CONTRIBUTORS

Nadine Ramharack
Naieem Mohammed/ Nicholas Mookram/
Marcus Jackson
Khadija St. Louis

PHOTOGRAPHY

NGC Archives

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 Orinoco House (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

©2025 Material in this publication, with the exception of photography, may be reproduced once credit is given to **GASCO NEWS**



Unlocking potential

IN A FEW MONTHS' TIME, NGC WILL BE CELEBRATING ITS GOLDEN ANNIVERSARY — 50 YEARS IN THE BUSINESS OF AGGREGATING, PURCHASING, TRANSPORTING AND SELLING NATURAL GAS IN TRINIDAD AND TOBAGO.

As we entered 2025, we started planning our year with this milestone in mind, and naturally began reflecting on the years gone by, and those to come. What has been our legacy to date, and what will our future look like? With our current Strategic Plan expiring this year, the answers to those questions will also help inform and shape our new five-year roadmap for growth.

Unlocking potential

Throughout our history, one of the things we have done expertly as a business has been unlocking potential. Before the incorporation of NGC, natural gas was an underutilised resource — wealth waiting to be tapped. Over the course of five decades, we have transformed that potential energy into the motor of our economy.

Despite the maturity of our basins, there are still vast reserves lying in wait in our offshore deepwater acreage that we can help bring to market — a lot more potential



to unlock. This is therefore one of the areas we will be focusing on in the coming years. How can we help extract maximum value from our country's natural gas resources — fully realise its potential — in a sustainable, minimally impactful way? Partnership, we know, will be critical, as will a keen eye on markets, geopolitics and technological advancements.

Technology is itself a major focal point for our business, given that it is both a tool we need to leverage as we seek to mine our resource potential, and a possible disruptor to which we must respond and adapt. As an example, we have seen the many ways in which artificial intelligence is rewriting the rules for businesses. The widespread integration of AI across the entire gamut of industrial and commercial activity allows for increased

efficiency and innovation, but it also introduces new kinds of risk. Any company planning for the future must take AI into account, and indeed, should constantly scan the landscape of technology for emergent opportunities and threats.

Of course, the potential that NGC has helped unlock and aims to unlock in future is not just hydrocarbon-based. Our economy is not only fueled by fossil energy, but also the talent and enterprise of our people. Through our extensive Corporate Social Responsibility portfolio, we have supported thousands of citizens through partnership with various organisations, to help our people realise their own innate potential in diverse spheres of endeavour. We have been extremely gratified over the years to see the impact of our support.

In this issue

This issue of *GASCO News* will feature stories that explore the theme of 'Unlocking Potential' — from opportunities in deepwater gas production, to the possibilities and impacts of AI.

We hope you find these stories insightful, and we welcome your feedback.



Edmund Subryan
President (Ag)

DEEPWATER – A NEW FRONTIER FOR ENERGY PRODUCTION

Estimated read time:





KEY TAKEAWAYS

In the energy industry, 'deepwater' generally refers to water depths from 1,000 to 5,000 feet below sea level, while 'ultra-deepwater' designates everything beyond that threshold.

There are significant logistical and economic challenges associated with developing deepwater fields.

Production from deepwater reserves is nevertheless expected to increase significantly in the coming years due to technological advancement and high resource potential.



By the UN's tally, the population of our planet is expected to close in on 10 billion within the next three decades.¹ With that demographic growth will come a similar surge in energy demand. Even with the landscape of energy changing to

accommodate alternative fuels, it is projected that oil and gas will have a life for some time yet, to help meet those burgeoning energy needs. Since modern oil and gas production has been ongoing for well over a century, easier-to-access onshore

and nearshore reserves have been considerably depleted. As a result, producers have increasingly been looking to develop offshore deepwater and ultra-deepwater acreage as options to offset historical production declines.

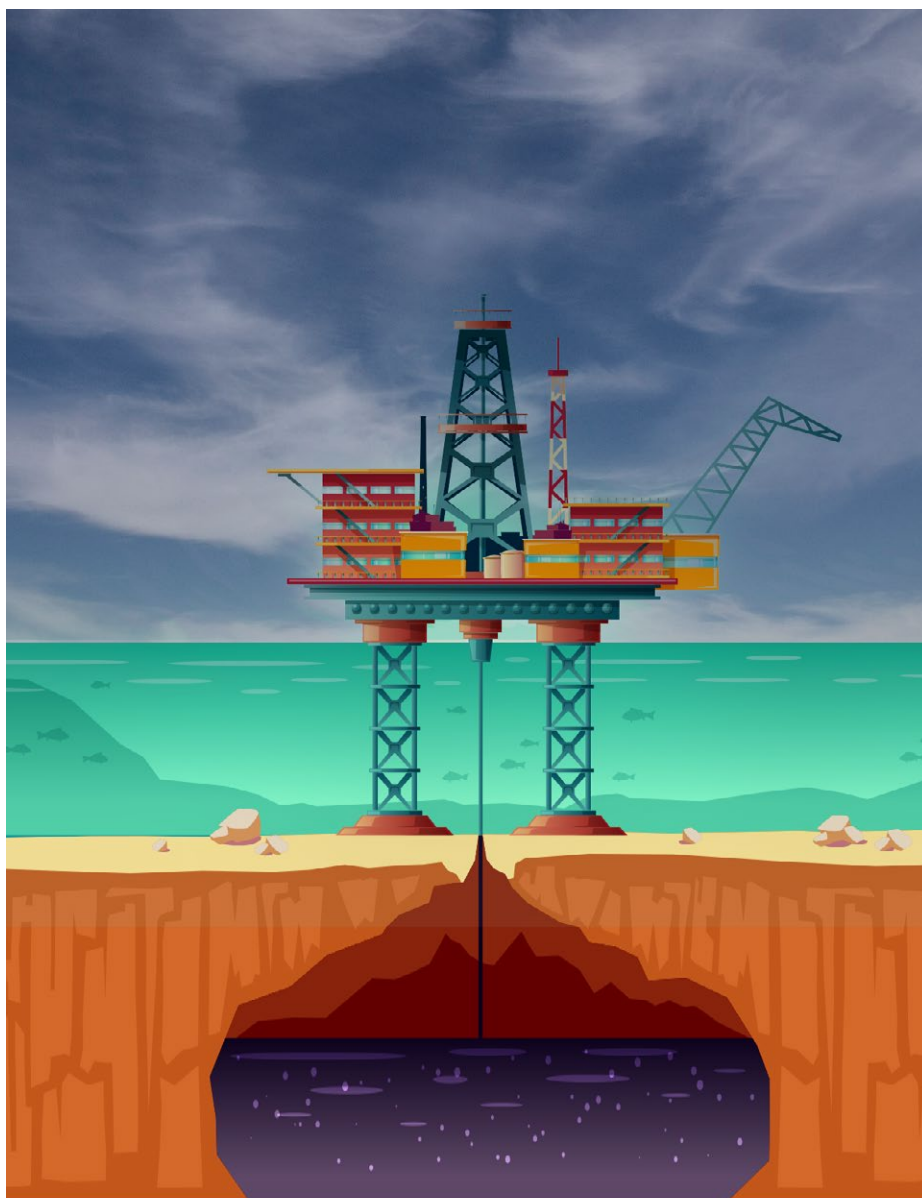
¹ <https://www.un.org/en/desa/world-population-projected-reach-98-billion-2050-and-112-billion-2100#:~:text=Calendar-, World%20population%20projected%20to%20reach%209.8%20billion%20in%202050%2C%20and,Nations%20report%20being%20launched%20today.>

Trinidad and Tobago finds itself with mature basins and in need of new supply sources to feed gas-based industrial, power generation and LNG sectors. For state energy company NGC, deepwater development is a promising new horizon being watched with cautious optimism.

WHAT IS DEEPWATER PRODUCTION?

For much of the twentieth century, global offshore exploration has focused on shallow waters, on continental shelves near the coast, at depths less than 1,000 feet.² From around the late 1970s, however, with the advance of technology and human enterprise, fields were discovered further from shore, giving rise to a new frontier of production.³ Further out at sea, the seabed slopes and water becomes much deeper. In the energy industry, ‘deepwater’ generally refers to water depths from 1,000 to 5,000 feet below sea level, while ‘ultra-deepwater’ designates everything beyond that threshold.⁴ The latter has been the focus of increased investment attention in the past fifteen years.⁵

From just 300,000 barrels of oil equivalent per day (boe/d) in 1990, production from deepwater is projected to surpass 17 million boe/d by the end of this decade, signaling both the interest in and resource potential of this new frontier.⁶



CHALLENGES IN THE DEEP

Accessing hydrocarbons from deepwater reserves is no easy task, for some obvious reasons.

Firstly, there is the challenge of distance. In shallower water, drilling

platforms are typically fixed directly to the ocean floor using either metal and concrete foundations or tethering cables. As you go further and deeper, however, it becomes impractical — if not impossible — to ground platforms on the seabed in the same way. More sophisticated mobile drilling platforms are required, with specialised appendages that can moor the floating platform or

“floater” to the ocean floor.⁷ Distance from shore is also a factor. Oil and gas produced from marine basins must be piped ashore for processing or moved via floating storage vessel. The further from land you drill, the longer the pipeline you need to construct, or greater the logistical challenge of transporting the product you extract.

² <https://www.dnv.com/article/modelling-different-upstream-oil-and-gas-operations-207958/>

³ https://www.sciencedirect.com/science/article/pii/S1876380423604495?ref=pdf_download&fr=RR-2&rr=918074eee828c859

⁴ <https://www.dnv.com/article/modelling-different-upstream-oil-and-gas-operations-207958/>

⁵ https://www.sciencedirect.com/science/article/pii/S1876380423604495?ref=pdf_download&fr=RR-2&rr=918074eee828c859

⁶ <https://www.woodmac.com/news/opinion/global-deepwater-production-to-increase-60/#:~:text=Deepwater%20is%20the%20fastest%20growing,pass%2017%20million%20boe%20Fd>

⁷ <https://science.howstuffworks.com/environmental/energy/offshore-drilling.html>



Floating Production Storage and Offloading facility located at offshore oil field

Then there are other challenges associated with ocean depth. The deeper you travel below sea level, the lower the temperatures and higher the pressure. In fact, deep-sea waters reach nearly freezing temperatures, contain pressures great enough to crack iron casings, and are subject to rough, deep-sea currents.⁸ Oil bubbling up from underground reserves could solidify in pipes due to frigid ocean temperatures, introducing the risk of pipeline rupture.⁹ Extreme conditions in deepwater also complicate maintenance activities, and heighten the risk of equipment failure and accidental release of oil and gas.

THAT SAID, ADVANCEMENTS IN TECHNOLOGY, EQUIPMENT AND SAFETY SYSTEMS MEAN DEEPWATER DEVELOPMENT CAN STILL PROCEED AND SUCCEED IN SPITE OF THESE CHALLENGES, BUT IT IS NATURALLY FAR MORE EXPENSIVE THAN SHALLOW WATER DEVELOPMENT. THE WORLD'S BIGGEST OFFSHORE RIG CONTRACTOR PROJECTS THAT GIVEN STRONG DEMAND, THE RENTAL COST FOR DEEPWATER DRILL RIGS COULD CLIMB TO US\$600,000 A DAY.¹⁰

Deepwater becoming more attractive

Despite the high costs, Rystad Energy estimates that companies will pump over US\$100 billion into deepwater development this year, with that figure approaching US\$140 billion by 2027.¹¹

This is because the economics can ultimately be favourable. According to Wood Mackenzie, only the best subsurface plays typically become commercial in very deep water due to their exceedingly high-pressure regimes, which usually makes these basins 'hyper-productive' — operators can recover huge volumes of oil and gas from each well.¹²

⁸Ibid

⁹Ibid

¹⁰<https://www.worldoil.com/news/2024/9/16/deepwater-oil-rigs-may-fetch-600-000-a-day-as-offshore-drilling-demand-expands-noble-ceo-predicts/>

¹¹ <https://www.grip.globalrelay.com/offshore-oil-is-back-at-what-cost/>

¹² <https://www.woodmac.com/news/opinion/global-deepwater-production-to-increase-60/#:-:text=Deepwater%20is%20the%20fastest%20growing,pass%2017%20million%20boe%2Fd>

This translates into high economic returns.

Moreover, the economics could improve further thanks to technological advancement. For example, revolutionary seismic tools such as long-offset Ocean Bottom Node technology (OBN) – used to locate potential reserves within subsea rock – are now enabling more accurate identification of new prospects. The technologies to interpret and process seismic data also continue to advance; many of the major international oil companies have gone a step further and developed their own in-house tools and software. Higher quality seismic imaging allows for fields to be identified with greater confidence, especially in basins with complex geological features.¹³ This helps producers make more informed decisions during project planning and prior to drilling, which reduces risk and cost.

DRILLING PLATFORMS, EQUIPMENT AND SYSTEMS ARE ALSO BECOMING SAFER AND MORE EFFICIENT, THANKS TO INCREASED AUTOMATION AND INTEGRATION OF NEW TOOLS AND MATERIALS.

In 2024, new equipment introduced by producer Chevron allowed oil to be pumped from a field at pressures higher than any well previously drilled. The breakthrough technology used will reportedly facilitate production from ultra-high-pressure fields, allowing up to 5 billion barrels of hitherto inaccessible hydrocarbons to be brought into production.¹⁴

With continued investment and innovation in this area, and greater

accumulated experience operating in extreme ocean environments, the margins of deepwater production are likely to improve in the coming years.

Carbon footprint

Besides the economics, the relatively lower carbon impact of deepwater production is another draw. Although it is a more complex undertaking

than drilling close to shore or on land, deepwater drilling does offer an 'emissions advantage'. A McKinsey report indicates that deepwater basins are among the world's lowest-emitting production sources, with the North Sea, US Gulf of Mexico, Guyana and Brazil as examples.¹⁵

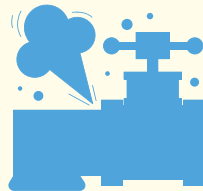
AS EXPLAINED BY MCKINSEY, THE REASONS FOR THIS INCLUDE:



High-production throughput at each location that minimises the number of energy-intensive processes required to bring on new supply (drilling, facilities installation, fluid processing)



Minimal routine flaring, with sale of most natural gas produced into local market



Efficient, modern facilities that minimise methane leakage



Active decarbonisation efforts by operators (mostly majors, large independents and national oil companies with aggressive emissions-reduction targets).

(Source: <https://www.offshore-mag.com/deepwater/article/14285333/deepwater-oil-basins-can-help-fuel-the-energy-transition>)

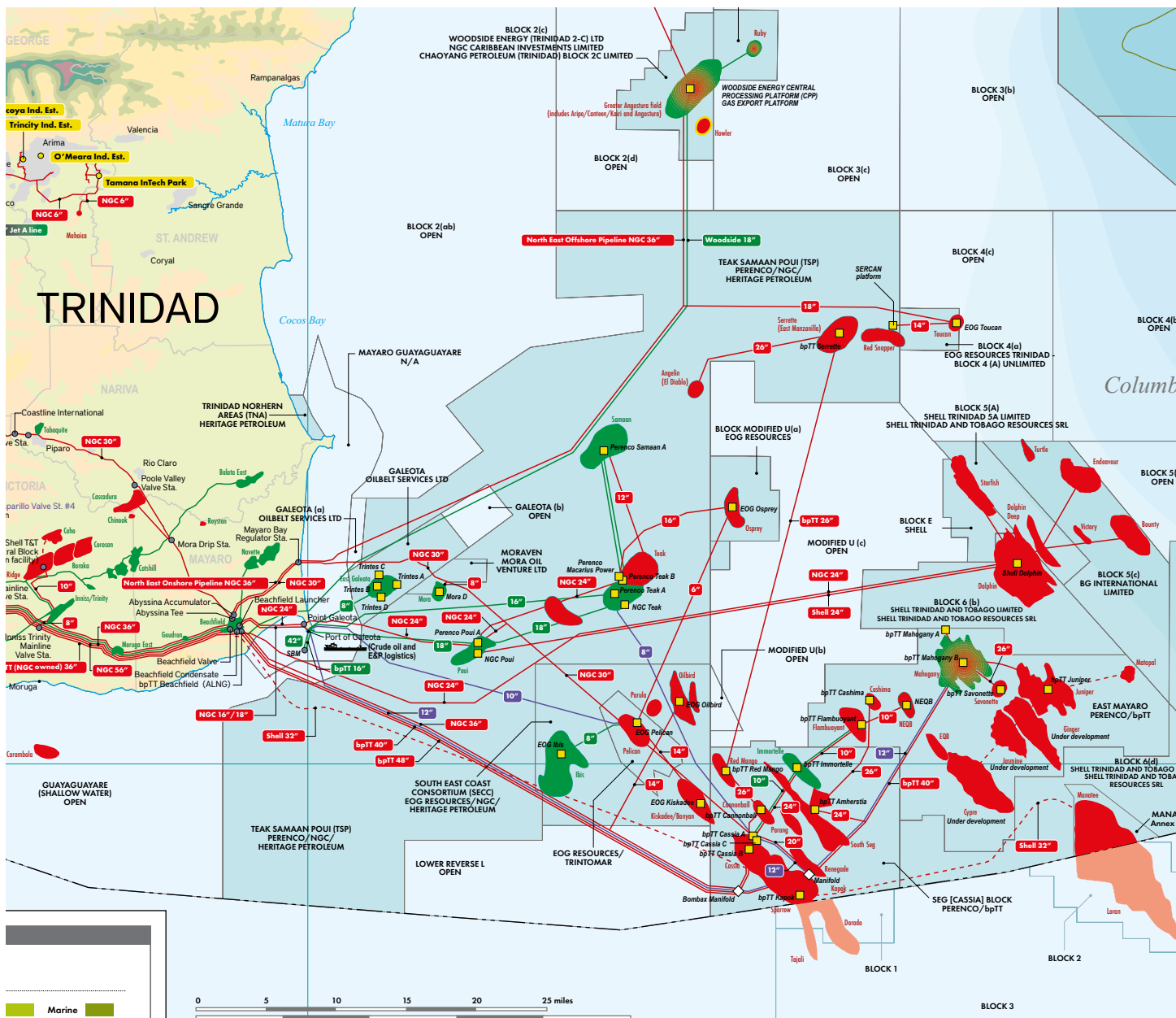
For these reasons, even though fossil fuels are historically notorious for their emissions intensity, deepwater

oil and gas production is likely to still find accommodation in a low-carbon energy future.

¹³<https://geoexpro.com/unlocking-gulf-energy-the-impact-of-advanced-seismic-technologies-on-exploration/>

¹⁴<https://www.reuters.com/business/energy/new-drilling-technology-put-billions-barrels-oil-reach-analysts-say-2024-08-14/>

¹⁵<https://www.offshore-mag.com/deepwater/article/14285333/deepwater-oil-basins-can-help-fuel-the-energy-transition>



A snapshot of Trinidad's deepwater acreage, from NGC's Trinidad and Tobago Energy Map

DEEPWATER ON THE HORIZON FOR TRINIDAD AND TOBAGO

In January 2025, the Ministry of Energy and Energy Industries launched a deepwater bid round, inviting operators to submit bids to develop the acreage off Trinidad and Tobago's east coast. Per Trinidad and Tobago's year-end 2023 Non-Associated Gas Audit conducted by DeGolyer & Mac Naughton, it is estimated that this acreage, together

with onshore and nearshore acreage, could hold up to 59 Tcf of yet-to-be-discovered (or exploration) resources.

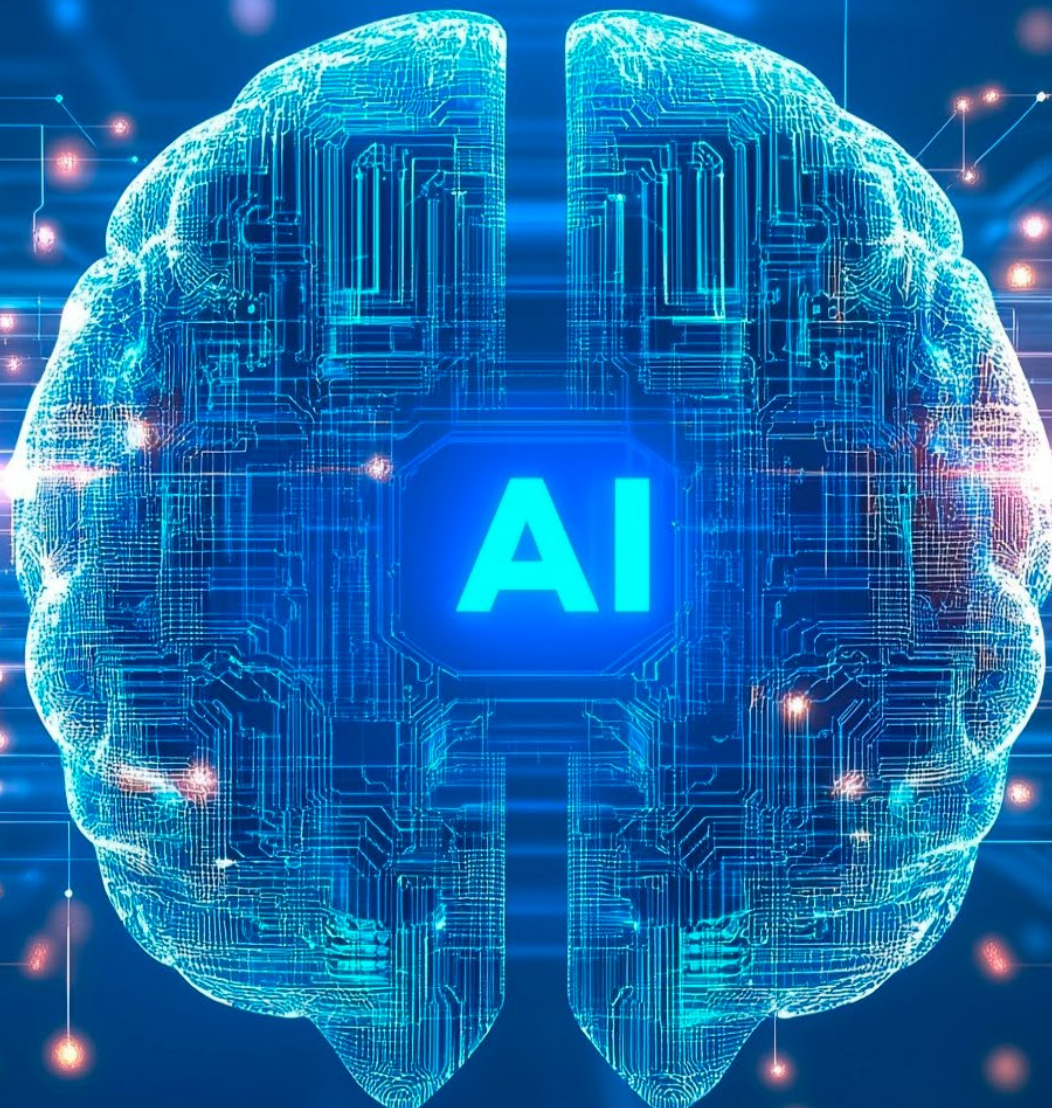
At present, the country's deepwater is still relatively underdeveloped territory, although some operators have already been granted licences for certain blocks. Given the number of companies with established infrastructure in the east coast marine area, joint venture arrangements that allow operators to leverage existing facilities, and merge

technical and commercial expertise, could prove an effective model to optimise and accelerate the country's deepwater development.

With the deepwater bid round closing in July 2025, and renewed interest in oil and gas production following global geopolitical developments, there is reason to believe that deepwater hydrocarbons could soon open a new chapter for Trinidad and Tobago energy. ■

AI, EMISSIONS AND ENERGY – THE IMPACT OF AI IN A WARMING WORLD

Estimated read time: 8 min





KEY TAKEAWAYS

Increasing use of AI tools is driving energy demand in this sector up, due to the high energy intensity of AI's backend processes.

Advocates of the technology say AI can actually be leveraged to reduce global emissions, as well as transform how energy is produced and managed, thereby softening its impact on the planet.

In 2022, OpenAI released a revolutionary 'chatbot' called ChatGPT, capable of understanding and responding to all manner of questions — from run-of-the-mill search engine enquiries to complex

artistic and creative asks — with remarkable precision and humanoid intelligence. Such was the intrigue and perceived utility of this tool that within two months of its release,

100 million people were actively using it, with one commentator comparing the potential impact of the underlying technology to that of the discovery of fire.¹

¹<https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions>

AI, emissions and energy – the impact of AI in a warming world

CONTINUED



The technology in question — artificial intelligence, or AI — has in recent years seen explosive growth in its popularity, as an object of genuine fascination and subject of equally genuine concern. Much of that concern has centred on legislative and ethical issues associated with AI use, but at the midpoint of an important decade for climate action, the energy impact of the technology is also attracting attention. Increasing

use of AI tools is driving energy demand in this sector up. However, advocates of the technology say AI can actually be leveraged to reduce global emissions, as well as transform how energy is produced and managed, thereby softening its impact on the planet.

So, just how power-hungry is AI, and can it really help clean up its own — and by extension, our collective — carbon footprint?

UNDERSTANDING AI

Artificial Intelligence refers generally to the ability of computer systems to simulate human intelligence. AI systems are “endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalise, or learn from past experience.”²

²<https://www.britannica.com/technology/artificial-intelligence/Methods-and-goals-in-AI>

Most internet users and smartphone-owners will have had interaction with AI on some level through search engines and digital assistants. The technology has also been integrated into online shopping experiences, entertainment and gaming apps, office software, the banking and transportation sectors, among many others, and its list of possible applications is growing fast.

TODAY, THE FOCUS IS ON BUILDING AND REFINING GENERATIVE AI TOOLS, WHICH ARE DIFFERENT FROM OTHER FORMS OF AI TECHNOLOGY IN THAT THEY CAN ACTUALLY CREATE CONTENT, RATHER THAN JUST REPLICATE PATTERNS AND ANALYSE DATA.

Generative AI tools can create works of art, write poems and computer code, and even enhance or extrapolate medical scans to show how a disease might progress in a patient.³ To the excitement of some and alarm of others, AI is also enabling the creation of more advanced robots, able to perform like humans (or even better) in different contexts.

POWERING AI

The development of AI technology involves teaching computers to think like humans, which requires training of AI models using large data sets. It is estimated that training ChatGPT's precursor model required around 45 terabytes of text data, comparable to the volume of text found in one million feet of bookshelf space.⁴



Data centres consume large amounts of energy

Both the training and use of AI tools require energy. According to IBM, “energy is needed both to build and train AI models and then to power the complex math that a model completes each time it is asked for information or to generate content.”⁵

TRAINING THE MODEL BEHIND CHATGPT IS ESTIMATED TO HAVE USED AROUND 65,000 MEGAWATT HOURS (MWH) OF ELECTRICITY, ROUGHLY EQUIVALENT TO THE ANNUAL POWER CONSUMPTION OF 6,500 HOMES IN THE US.⁶

USING AI ALSO EXACTS A HIGH ENERGY COST. COMPLETION OF ONE AI-POWERED QUERY – SUCH AS A CHATGPT ENQUIRY – REQUIRES ABOUT **10 TIMES THE ENERGY** OF A TYPICAL GOOGLE SEARCH.⁷

This energy is actually consumed by the data centres housing the massive computer systems that do the backend work, enabling Alexa to tell you that joke, or Copilot to summarise that report. Based on surging demand for AI integration, the IEA projects that by 2026, the share of global electricity that powers data centres will double.⁸ These data centres (which also support cryptocurrency mining and other commercial activities) consumed an estimated 460 terawatt-hours (TWh) in 2022, and could cross 1,000 TWh – roughly the the annual electricity consumption of Japan – in 2026.⁹

Taking an even more holistic view of the entire ecosystem of activities associated with the technology, all AI-related electricity consumption is estimated to grow by as much as 50% annually from 2023 to 2030.¹⁰

³<https://www.coursera.org/articles/generative-ai-applications>

⁴<https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-generative-ai>

⁵<https://www.ibm.com/think/insights/future-ai-energy-efficiency#:~:text=up%20with%20customers-,AI%20energy%20use%20creates%20a%20challenge,information%20or%20to%20generate%20content>

⁶<https://www.weforum.org/stories/2024/07/generative-ai-energy-emissions/>

⁷<https://www.weforum.org/stories/2025/01/energy-ai-net-zero/>

⁸<https://www.iea.org/reports/electricity-2024/executive-summary>

⁹Ibid

¹⁰<https://www.weforum.org/stories/2025/01/ai-energy-dilemma-challenges-opportunities-and-path-forward/>

This growth in energy use is attended by an increase in emissions. Microsoft, which is investing heavily in generative AI, recently announced a 30% increase in its CO₂ emissions since 2020, due to data centre expansion.¹¹ Meanwhile, Google revealed an almost 50% uptick in its 2023 emissions compared to 2019, largely due to the energy demand tied to data centres.¹²

LEVERAGING AI

These numbers notwithstanding, AI-based tools can actually be leveraged to support climate action – an argument which favours their continued development.

In a 2023 report, Google and Boston Consulting Group (BCG) shared that AI has the potential to help mitigate 5-10% of global greenhouse gas (GHG) emissions by 2030 – the equivalent of the total annual emissions of the European Union.¹³

Achieving this result comes down to how AI is ultimately applied. Google's joint report with BCG highlighted that AI's strengths in curating information, enhancing prediction, and guiding optimisation can support advancements in three crucial areas.

Mitigation: Helping with both the reduction and removal of emissions—and with the underlying measurement needed to size the challenge and track progress



Adaptation and resilience: Aiding countries, regions, cities, citizens, and businesses in forecasting climate related hazards, developing plans to address them, and responding in real time to crises



Foundational capabilities: Enabling climate-related modelling, research into climate economics, new approaches to climate education and supporting breakthroughs in fundamental research.



(Source: Accelerating Climate Action with AI, Boston Consulting Group/Google, 2023¹⁴)

Essentially, with the help of AI tools, stakeholders in the climate fight will be able to process, analyse and extrapolate data more efficiently and effectively, in applications that seek to track and reduce emissions, forecast climate change impacts and model solutions.

As an illustration of its utility in this regard, AI was utilised in a Google project to analyse atmospheric data, in order to determine which flight paths pilots could follow to leave the fewest contrails – the white lines that sometimes appear behind airplanes in the sky. Since contrails account for more than a third of commercial aviation's contribution to global warming, if the results of that one project were applied across the industry, it would save more CO₂ equivalent than what was generated by AI in 2020 alone.¹⁵

Energy sector applications

AI can similarly be applied within the energy sector to help reduce emissions.

In 2024, the US Department of Energy published a report outlining how AI can accelerate the development of a 100% clean electricity system, through:

Improving grid planning: Utilising climate data sets with advanced generative machine learning to accommodate renewables, which tend to be more variable energy sources.



Enhancing grid resilience: AI's ability to rapidly process massive amounts of data and detect subtle patterns can assist grid operators in diagnosing and responding to (or avoiding) disruptions in electricity delivery.



Discovering new materials: Quickly identifying new materials for clean energy technologies, such as for batteries requiring less lithium, novel solar-active materials, or improved catalysts to increase hydrogen production.



(Source: <https://www.energy.gov/policy/articles/how-ai-can-help-clean-energy-meet-growing-electricity-demand>)

IN PLACES WHERE RENEWABLE ENERGY IS ALREADY INTEGRATED, AI CAN HELP OPTIMISE ENERGY PRODUCTION AND CONSUMPTION.

Since renewable power is not constant, there can be overproduction of electricity during peak times and underproduction during lulls, which can lead to wasteful energy consumption and grid instability. AI can help improve energy management by analysing datasets – from weather patterns to energy consumption trends – to give better insights into when and how energy should be used for maximum efficiency.¹⁶ Such insights can enable users to schedule work and other tasks so as to only use energy when electricity from renewable energy sources is available.

¹¹<https://www.weforum.org/stories/2024/07/generative-ai-energy-emissions/>

¹²Ibid ¹³<https://blog.google/outreach-initiatives/sustainability/report-ai-sustainability-google-cop28/>

¹⁴<https://web-assets.bcg.com/72/cf/b609ac3d4ac6829bae6fa88b8329/bcg-accelerating-climate-action-with-ai-nov-2023-rev.pdf>

¹⁵<https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions>

¹⁶<https://www.weforum.org/stories/2024/07/generative-ai-energy-emissions/>

AI can also generate energy efficiency gains. Integration of AI tools and equipment can help optimise the performance of heating and air conditioning in buildings, for example, or inform predictive maintenance programmes.¹⁷



In the oil and gas sector

Applications abound for AI in the oil and gas sector as well:

It is **boosting the efficiency of exploration** and enhancing sustainability in managing hugely complex oil and gas development projects.

It is **facilitating predictive maintenance of operating assets** such as platforms, pipelines, and processing plants to avoid downtime and enhance safety.

Using data from sensors and from on-site, aerial, and satellite cameras, AI can identify vulnerabilities and/or leaks (eg. methane releases) enabling more timely responses.

Use of ‘digital twins’ with integrated AI is making asset integrity management far easier, which supports emission reduction efforts.

On the commercial side, AI can **improve demand forecasting and manage price fluctuations** to maximise revenue, assist with regulatory compliance processes, and drive supply-chain efficiencies.

(Source: <https://www.dnv.com/article/ai-spells-opportunity-and-manageable-risk-for-the-oil-and-gas-industry/>)



Key areas to monitor concerning AI's energy impact, 2024-2025 outlook
Image: AIGA, AI Energy Impact Initiative, World Economic Forum

Improving the efficiency of oil and gas operations translates to enhanced value creation and, in many cases, reduced emissions.

THE FUTURE OF AI

The story of AI is still being written. As the above graphic illustrates, there are several areas of action that will ultimately determine the net impact of this technology. Importantly, human intelligence is not obsolete just yet — there is ongoing research and development to refine the technology, both to reduce its carbon footprint (through, for example, more Earth-friendly data centres) and strengthen its capacity to help us solve the most difficult climate challenges. While time alone will tell how far we can take this



revolutionary technology within the constraints of a warming world, there is no doubt that the future is being shaped by the meeting of minds, of man and machine. ■

¹⁷Ibid

A large black and white drone with six rotors is flying in a clear blue sky. Below it, a green, semi-transparent grid representing a LiDAR scan covers a landscape of green fields and distant mountains. The grid is composed of many small squares, some of which are highlighted in a darker green. The text 'UNLOCKING NEW POSSIBILITIES WITH AERIAL LIDAR TECHNOLOGY' is overlaid on the grid in large, bold, white capital letters.

UNLOCKING NEW POSSIBILITIES WITH AERIAL LIDAR TECHNOLOGY

Estimated read time:



KEY TAKEAWAYS

Light Detection and Ranging (LiDAR) is a remote sensing method that uses light in the form of a pulsed laser to measure variable distances to the Earth.

NGC has been using LiDAR to support its operations for many years, and has recently expanded its use to achieve greater efficiencies.



Light Detection and Ranging (LiDAR) is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.¹ Invented in the early 1960s, the concept of LiDAR was based on the principles of radar technology, but used light waves instead of radio waves. The development of airborne LiDAR systems in the 1970s further expanded the technology's applications and usefulness.

Its use grew in the 1980s and 1990s due to its ability to penetrate vegetation and provide high-resolution data. This made it an ideal tool for studying forests, coastlines, and other natural environments.

In early 2000s, NASA even began using airborne LiDAR for large-scale mapping projects, further demonstrating its potential for remote sensing applications.

The latest advancement in LiDAR technology is its integration with terrestrial vehicles (for Google street views, self-driving cars and advanced driving assistance systems) and Unmanned Aerial Vehicles or drones (for mapping and remote sensing).

LIDAR IN USE AT NGC

NGC's journey with LiDAR technology started in 2016. To satisfy NGC's strategic theme of "Strengthening Competencies",

the surveyors in the Geospatial Information Services Department (GISD), decided to investigate the use of aerial methods of data acquisition.

With the support of NGC's leadership team, the GISD obtained its first small-scale DJI drone soon after. The team self-trained, developed operating procedures, conducted risk assessments and developed a relationship with the Trinidad and Tobago Civil Aviation Authority (TTCAA). At that time, there were no formal rules, guidelines or legislation to govern or regulate the use of Unmanned Aerial Vehicles (UAVs) or drones for commercial use in Trinidad and Tobago.

¹<https://oceanservice.noaa.gov/facts/lidar.html>¹⁷

Unlocking new possibilities with aerial LiDAR technology | CONTINUED

Over the past eight years, the team has had demonstrable success using drones for:

- Mapping
- Project construction progress reporting
- Asset integrity inspections
- Videography
- Live-streaming HSSE drills
- Coastal erosion monitoring
- Pipeline route design.

THE TEAM EVEN GENERATED REVENUE FOR THE COMPANY IN 2018 BY PROVIDING SERVICES FOR A PLANT TURNAROUND ON THE POINT LISAS INDUSTRIAL ESTATE.

A NEW CHAPTER FOR LIDAR

Building on the early success of the technology, the GISD has now gone a step further to acquire and implement 'Aerial LiDAR' technology.

NGC's Geomatics professionals have been researching this revolutionary technology for the past three (3) years. Aerial LiDAR systems have become safer, and more economical, efficient, and accurate. The team's research informed the acquisition of the DJI Matrice 300 (M300) RTK Drone and LiDAR sensor in 2024.

Since deployment, using strictly in-house hardware, software, and human resources, NGC conducted topographic surveys using this cutting-edge LiDAR technology on six (6) projects:

1. Phoenix Park Valve Station road rehabilitation
2. Phoenix Park Valve Station fence upgrade
3. Picton Interconnect hot tap enclosure
4. Manatee tie-in
5. Liquid Fuel Pipeline leak repair at the Guayamare River
6. Beachfield Condensate Storage Facility Project



This advanced model has offered the following advantages:

Safer working environment and risk reduction:

The inclusion of obstacle avoidance minimises the risk of collision with obstacles within the flight path. Surveyors can now capture data for areas that are inaccessible or which present substantial safety risk, such as waterlogged terrain, unstable slopes and densely forested areas. All that is required is a flight over the area of interest without physically entering the site.

Technology step-up:

This acquisition allows NGC to remain at the forefront, following global acceptance and institutionalisation of aerial surveying. The company is now one of just three agencies in the country that are actively using LiDAR technology.

Centre of excellence:

As occurred with previous acquisitions and implementation of smaller drones, this new technology cements NGC's position as a resource to support state agencies and academia. For example, in 2022:

1. The Ministry of Energy and Energy Industries requested virtual site visits using NGC's live-streaming capability
2. The Ministry of Tourism approached NGC about supplying drone photography for numerous sites around Trinidad and Tobago.

Return on investment:

Topographic surveying has two associated costs: fieldwork and data processing. The fieldwork is usually outsourced and costs twice as much as data processing. With the newer drone model, NGC has been reducing the outsourcing of the fieldwork element, thereby realising significant savings. Between June and December 2024, the drone helped the company save over \$100,000.00, with LiDAR surveys conducted for six (6) projects.

A sustainable and green approach to Surveying:

Topographic field data can be acquired faster and more precisely by using fewer resources and decreasing the timeframe for data acquisition. It significantly expands the scope of information that can be gathered, thus allowing for greater efficiency over traditional methods.


People development:

The integration of new technology has led to competency development within the GISD department.

Keeping abreast of new technology continues to define the leaders in society. The benefits identified above clearly depict the advantages that can be derived from continued investment in drone and LiDAR technology, and its integration into other functions such as asset integrity management, emergency response, safety and security.

For its part, NGC's GISD will continue to champion the technology, leveraging it among other innovations to position NGC as an enterprising, forward-thinking state energy company. ■

LABIDCO TURNS 30

Estimated read time:  3 min



KEY TAKEAWAYS

NGC Group subsidiary LABIDCO commemorated 30 years in the business in February 2025.

Over the past three decades, LABIDCO has grown from a strategic initiative into a thriving industrial hub that continues to support Trinidad and Tobago's broader economic growth.

On February 15, 2025, LABIDCO proudly celebrated its 30th anniversary, commemorating three decades of remarkable contributions to Trinidad and Tobago's national development. From its

humble beginnings as a bold vision to develop the La Brea Industrial Estate, to becoming a leading force in the energy sector, LABIDCO's journey stands as a testament to resilience, adaptability, and growth.

THE VISION (1970s - 1990s)

In the 1970s, Trinidad and Tobago embarked on an ambitious journey to industrialise and harness its hydrocarbon resources. The creation of key state entities such as The National Gas Company of Trinidad and Tobago Limited (NGC) and the National Energy Corporation of Trinidad and Tobago Limited (National Energy) laid the foundation for the country's industrial future.

The development of the iconic Point Lisas Industrial Estate (PLIE) became a cornerstone of this vision.

However, by the mid-1990s, the PLIE was nearing capacity, signalling the need for expansion. In response, the Cabinet made the decision to develop the La Brea Industrial Estate in southwestern Trinidad.

Thus, on February 15, 1995, the La Brea Industrial Development Company Limited (LABIDCO) was incorporated, with NGC as the majority shareholder and Petrotrin (now Heritage) as the minority. Strategically positioned near a natural deepwater harbour and located on State-owned land, the Estate was ideally suited for industrial expansion and growth.

STRATEGIC DEVELOPMENT AND EARLY INFRASTRUCTURE (1995 - EARLY 2000s)

LABIDCO's strategic location near a deepwater harbour and state-owned land made it perfect for industrial growth. Phase 1 of the Estate's development included approximately 400 acres of land, a construction dock dredged to a depth of six metres, a drainage system, and a marshalling yard for storage. Access to the Estate was facilitated by a 40-metre-wide corridor that included both utility and pipeline routes.

Initially, LABIDCO's mandate was to manage the La Brea Industrial Estate, which was designed to accommodate significant projects such as the Farmland MissChem Ammonia Plant and the Atlantic LNG Plant. However, with these projects being relocated, LABIDCO shifted its focus to supporting small and medium-sized energy services and manufacturing companies, while also providing bioremediation services and storage facilities.

FOCUS ON GROWTH AND LOCAL CONTENT (2002 - 2004)

LABIDCO's growth accelerated with further infrastructural developments aimed at diversifying the Estate's offerings. In 2002, National Energy, LABIDCO's sister company, was tasked with developing a 30-acre fabrication yard at the La Brea Estate, in line with the government's push for local content in the energy sector. By 2004, this world-class fabrication yard, complete with a 150-metre-long dock, was ready for operation.

The fabrication yard became the largest provider of offshore platform construction in the Caribbean and the only platform fabrication yard in Trinidad and Tobago. It not only boosted local participation in the energy sector but also made significant contributions to the national economy. Over the years, the fabrication yard has delivered over 10 offshore platforms for upstream oil and gas companies, with the most recent platform completed in 2024. This activity has created thousands of jobs, driving economic benefits for the La Brea community and the country.

KEY MILESTONES IN LABIDCO'S GROWTH (2011 - 2024)

As LABIDCO evolved, so did its portfolio of milestones that shaped the national energy landscape:

2011 - Construction of Berth 3, expanding the Estate's docking and logistics capabilities

2017 - Reconstruction of Berth 2 and the facilitation of the bpTT Juniper Platform load-out, the largest offshore platform ever constructed in Trinidad and Tobago

2018 - Reconstruction of the LABIDCO Corridor and the Pipeline Right of Way (ROW) Project, improving access and infrastructure

2020 - Facilitation of the inaugural methanol load-out from the Port of Brighton, showcasing LABIDCO's expanded role in industrial logistics

2020 - LABIDCO transitioned to an autonomous subsidiary of the NGC Group and appointed its first-ever General Manager, marking a new chapter in governance and operational autonomy

2024 - The Port of Brighton achieved EcoPort certification, making history as the first port in CARICOM to be recognised with this prestigious achievement



LOOKING AHEAD

Over the past 30 years, LABIDCO has grown from a strategic initiative into a thriving industrial hub that continues to support Trinidad and Tobago's broader economic growth. With ongoing diversification and the expansion of its offerings, LABIDCO remains committed to the sustainable development of its assets as well as national energy and manufacturing sectors.

As LABIDCO celebrates this significant milestone, the company looks ahead to continued growth and new opportunities that will shape the future of the La Brea Industrial Estate and Trinidad and Tobago's industrial landscape for many years to come. ■





GUYANA ENERGY CONFERENCE & SUPPLY CHAIN EXPO

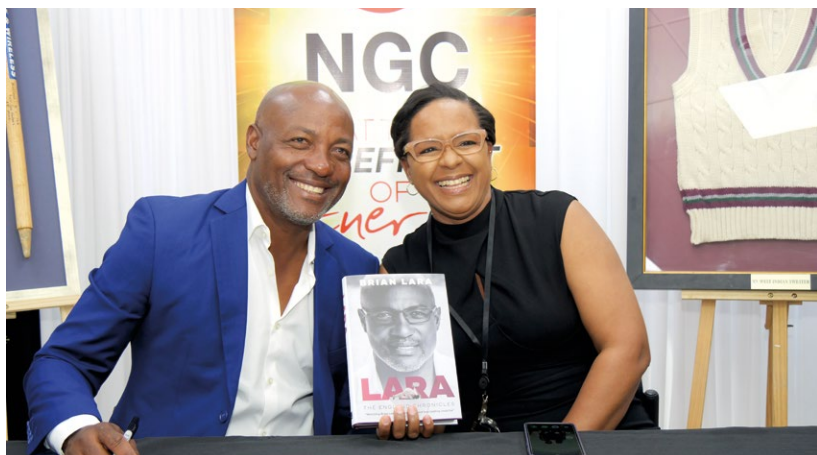
Connecting the Dots:
Integrating the Future



NGC GROUP QUARTERLY HIGHLIGHT REEL



LEADERSHIP COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT



On January 29, NGC hosted a special book signing event with cricketing icon, Brian Lara T.C., at NGC's Employee Centre, Orinoco House, for NGC Group employees.

The NGC Group of Companies was a platinum sponsor of the Trinidad and Tobago Energy Conference (TTEC) 2025. The conference took place from February 10 to 12, at the Hyatt Regency in Port of Spain. TTEC is the flagship annual energy conference in the region. This year's event focused on the need for constant investment in the energy industry to sustainably deliver affordable fuels and commodities, to meet the demands of a growing global population while reducing the sector's carbon footprint.



LEADERSHIP COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT



National Energy was a gold sponsor of the 2025 Guyana Energy Conference and Supply Chain Expo. The event took place from February 18 to 21 at the Guyana Marriott Hotel in Georgetown under the theme, 'Connecting the

Dots: Integrating the Future'. This year's conference focused on fostering connections within the energy industry, promoting collaboration, and integrating innovative technologies for a sustainable future.



On Thursday February 20, 2025, Her Excellency Christine C. Kangaloo, O.R.T.T, President of Trinidad and Tobago, paid a visit to the NGC Couva Joylanders' pan yard.

As title sponsor of the band, NGC worked with the band's management to coordinate and execute the visit.

GREEN AGENDA

La Brea Industrial Development Company Limited's (LABIDCO's) Port of Brighton became the first port in Trinidad and Tobago—and the Caribbean Community (CARICOM)—to achieve the prestigious EcoPorts PERS (Port Environmental Review System) certification. The Port of Brighton joins a global network of 66 EcoPorts-certified facilities. This certification, awarded by the ECO Sustainable Logistics Chain Foundation (ECOSLC), highlights the port's voluntary adherence to stringent environmental standards that exceed regulatory requirements.



NGC was the title sponsor of the IAMovement's Caribbean Green Infrastructure Conference, held in January 2025. Themed 'Green Finance Infrastructure: Green Bonds and Carbon Credits', the 2025 conference aimed to provide a regional platform to promote and encourage green finance solutions within the Caribbean.

CSR AND SUSTAINABILITY

The National Association of Athletics Administrations of Trinidad and Tobago (NAAATT) hosted its 2024 Annual Awards Ceremony on January 4, 2025 at the Radisson Hotel, Port-of-Spain. The event celebrated the success of Trinidad and Tobago's athletes in the 2024 track and field season — celebrating excellence across all ages. NGC's Chairman, Dr. Joseph Ishmael Khan, delivered remarks on behalf of NGC, as the company has been a long-time supporter of the organisation.



CSR AND SUSTAINABILITY



In recognition of the need to preserve mangrove cover in Trinidad and Tobago, NGC embarked on a landmark project with the Institute of Marine Affairs (IMA) to rehabilitate wetlands along the west coast of Trinidad, in the vicinity of Couva/Point Lisas.

As part of this collaborative project — which began in 2023 — and in commemoration of World Wetlands Day 2025, NGC and IMA partnered to execute a clean-up of the mangrove at Carli Bay, Couva, on February 2, 2025.



NGC's sponsored bands delivered exceptional performances at the National Panorama Finals, with NGC Couva Joylanders and NGC La Brea Nightingales



finishing 3rd and 5th respectively in the medium band category.

CSR AND SUSTAINABILITY



As an extension of its efforts to build the local steelpan industry, NGC provided support to the Russell Latapy Secondary School's Steelpan Manufacturing Laboratory Programme, which was launched at the school in 2018 as part of the nationwide 'Pan in the Classroom' initiative. Under the programme, students are taught the rudiments of steelpan manufacturing.



A full-page photograph of a lush bamboo forest. Tall, slender bamboo stalks rise vertically, creating a dense canopy. Sunlight filters through the leaves, casting dappled light on the ground. A dirt path leads from the bottom left towards the center of the image, where two people are walking away from the viewer. The overall atmosphere is serene and natural.

One Moment Please

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

People walking along a trail in the Bamboo
Cathedral in Chaguaramas, Trinidad.

